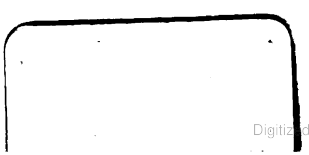

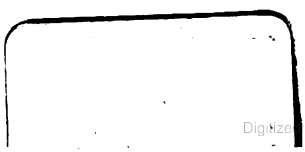

THE
NAUTICAL MAGAZINE

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AND

Naval Chronicle,

FOR 1848.

A JOURNAL OF PAPERS

ON SUBJECTS CONNECTED WITH

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THE

NAUTICAL MAGAZINE

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Naval Chronicle.

JANUARY, 1848.

The British Navy and its Seamen.

The position which England holds among nations may be gathered from an expression of the Pope:—"I am not uneasy as to the result of my measures, as an English squadron is at sea under Admiral Napier."

The revolutions of opinions which time brings about, is not more strongly marked anywhere, or in any thing, than in the recent "doings" at the "eternal city"; but it is not there alone that enlightened ideas are practically displayed; there appears a sort of adventual dawn of liberty opening over Europe, and which eventually, perhaps, will spread its benign rays throughout its entire surface.

The signs which are floating in the political horizon, seem to create uneasy sensations in the minds of the rulers of states, of approaching tumult, and without any defined cause for apprehension,—apprehension is felt,—and the wise prepare for the worst.

Report states that we are about to fit out a Channel fleet, supposing it true, the object may be one of pre-caution, or it may be an experiment to ascertain in how short a time a fleet can be manned. If the latter, the economists will "growl" at what they believe to be an unnecessary expense; for such patriots consider no measure can be right which involves an outlay of money. Those however, who have watched events with close attention, will see cause to rejoice that such a resolution, whatever expense it may create,—has been adopted, as it is only by showing that we are fully prepared to repel aggression, we can curb the ambition of other powerful states.

But, how are our fleets to be manned in war time? That is the great question. We have a "standing" army of one hundred thousand men, and only forty thousand seamen enrolled, which there is a difficulty in obtaining during a peace.

The merchant shipping employ a great many, but there are thousands of British seamen who gain their bread in foreign vessels.

Let us enquire into the cause of the difficulty which is experienced in obtaining seamen to man our ships of war.

It is true that Jack has a propensity to rove;—he is, when not closely bound by the ties of communion, fond of changing his voyage; and, although there is not a more generous being on earth, or one who is more careless of his money, yet is he not devoid of that inherent self-interest which pervades human nature.

It has been the practice of England to restrict the pay of her seamen to a low scale, whilst the merchant finds it necessary, in order to man his ships, to give a higher rate of wages, and to vary that rate according to circumstances. We may rightly believe the consequence to be that the latter has much less difficulty in procuring hands than the former; we may infer, therefore, that, this difference arises principally from the men being better paid in the one service, than in the other; that they appear to be satisfied with the present wages given to them for their servitude in the Royal Navy, because, they do not loudly complain, may not be a convincing proof of that being their real feeling.

The conclusion is that there has been a studied desire in the authorities to make the condition of the man-of-war's man as comfortable and happy as possible; and, that still, notwithstanding the carrying out of that desire, we find that, if there is not great reluctance, there is not that alacrity in entering, which we should naturally expect.

In a ship of war, the seaman is better fed and attended to than in a merchant vessel, his individual labour is less, on account of the number of hands being greater in the performance of any specific duty; and although the discipline is stricter, it is by no means oppressive,—in fact it is rather conducive to his personal comfort than otherwise; besides, he has his range on shore occasionally,—yet, he enters more readily into the service where his wants are less attended to, than into that where every exertion is made to ensure his comfort and happiness.

It does not appear to us mere whim, or a predilection to change, which creates such a remarkable difference. We cannot believe that the seaman reckless and giddy as he is thought, acts in this without a motive. The capriciousness of his nature may sometimes lead him into excesses, but he is not such an unthinking animal as many believe him to be; he has, some notion of his own value, and he understands perfectly, the pith of the old proverb that "the labourer is worthy of his hire." He is not blind to the fact that in the American service, and in that of some other states, he may obtain for his skill, and physical power, a better pecuniary reward than his own countrymen are willing to give him. If these facts are true—then the conclusion is inevitable that, the inducements for seamen to enter the Queen's service, should be made more enticing than in any other.

It may not, as we said before be the fact that because we have managed to obtain crews to man our ships during the peace, that the men are necessarily contented with the wages given to them, it must be recollected that habit, in those who have before served, and the ties of companionship, have great weight with them—more so than with any other class of men; and if they were not of a generous nature, and inclined to sacrifice much for the sake of those feelings of regard which bind men together in friendship, and are elements in realising social happiness, it is far from improbable, that the state would be able to entice men to serve it in a time of peace, when the inspiring spring to action, patriotism, is in a great measure dormant.

But, although we believe that, under the happy change of condition which has been effected, the love of country, when that country's honour or safety, is at stake, would be a great incentive to many a seaman to give his aid voluntarily to contend with a foe, yet we think that consideration should not be entirely relied upon; indeed, where there is any thing left undone in the improvement of the seaman's condition, it would be ungenerous and unfair towards him to put the nobler feelings of his nature to the test, in opposition to his self-interest, which in his, as in every other heart, has so powerful a hold; besides, the conviction that among all labourers, the seaman is entitled to a conspicuous place in the foremost rank, with those who are acknowledged as great benefactors of their country, should never be absent from the minds of those who have the management of state affairs. From the Sovereign to the peasant—all are indebted to him. You could make no impression in diplomacy without his aid;—he is the main spring, the very soul of your commerce, without which you would be but a secondary power; he is the support of your independence;—and he is the guardian of your church and your domestic happiness! you might continue to build ships until those noble fabrics choke up your ports, but, without seamen you would but realize the fable of the giant with his arms pinioned—or, like unto the lamp without the one essential light that is to create it a guide to your way.

There are nearly a hundred thousand British seamen who are serving the Americans, which fact shows that we have a superabundance of that valuable class. It is probable that the principal motive which induces thosemen to seek, in the western land for employment, does not arise from any preference which they entertain for the American service, but because that therein they are better paid for their labour. If you would draw those men back to their own country's service, you must hold out inducements to them; that is but reasonable, and, if there be any fault, it is on your side, not on theirs.

We would say then that, the first thing to be done is, to raise the station of the warrant officers in every respect consistent with the good of the service, so as to make it an object really worth the seamen's while to obtain—the ulterior expectation being a situation in a dock yard. The restoration of the widow's pension is a boon that would be highly appreciated, and one which would be an incentive towards correctness of

conduct in the individual. The economy which prompted the discontinuance of that soothing bond of peace, in the last moments of the departing spirit of the veteran, who had given the best of his days and energies to the service of his country was, to say the least of it, a false one.

The rates of pay of petty officers, and able seamen, appear to require revision.

We may now venture a few words on a subject that has given rise to much discussion—the manning of the navy.

War is an expensive game—Willingly no doubt, Britain would keep out of it; but, if drawn into the vortex—then, she must not be either niggardly of her means—nor, taking the power to impress sea-going men as a right, allow that to blind her to the superior advantages to be derived from obtaining them for general service by voluntary entry.

We want a system, a regular routine of servitude, by enrolment. At present the Registry of Seamen appears of no farther use than to show the number of sea-goers belonging to the country who are employed in our own vessels: but as that does not provide hands for the navy, we may now enquire how that object may be effected without compulsion.

It may be thought that the *ballot* should be substituted for *impressment*, in war time; but, the question starts up, can the ballot be lawfully extended beyond the principle which regulates its adoption with reference to the militia?

It appears that the crown, or the state as an undoubted right to the services of every male, of a certain age,—with some privileged exceptions—in *defensive* war,—but no farther. By the power thus constitutionally given, such men are enrolled to serve only in Great Britain. It has not been adopted with seamen, because, hitherto, the assumed power of impressment has been exercised with impunity—a power which has been declared to be a prerogative of the crown, but has never been proved to be such. The system—for it was reduced to one, is so repugnant to the spirit of liberty which pervades every British heart, that it can be likened to no more appropriate type than that, so long deplored, of kidnapping the negro and consigning him to the chains of slavery! now, surely, there must be some inconsistency in the will that would authorise such a practice whilst its voice was loud in the support of the liberty of the subject upon whom that very practice was employed.

It seems clear therefore, that if the conscription alluded to, were adopted without farther assistance, it would from its limited scope—the defence of our shores—fall short of the object required—foreign servitude in aggressive war.

To extend the principle upon which the *ballot* is founded, would be unconstitutional; and if you made it compulsory on the seaman, after being enrolled, to serve in any part of the world, it would be no more than impressment under a different name;—the *necessity* would not be lawful, or be an excuse for violating the statute in the one case and not in other; the militia man cannot be sent, even to Ireland, without his volun-

tary agreement, nor can he be drafted into the Line against his will. The same privileges belong to both, then place them upon a par. Establish the *ballot* system in the navy, first; and by offering the seaman the same advantages as the soldier there seems to be no reason why you would not obtain volunteers in abundance.

It appears to us, that were the ballot once established with reference to seamen, it would not require much encouragement to induce them to volunteer for general service afloat; and there would not probably be very great difficulty in arranging the details of such a plan. Allow the servitude to be alternate in the navy and the mercantile marine during a period of war; say, ten years in the first, (renewable), and five in the second service. The surety of not being molested whilst in the latter, would in all probability reconcile the seamen to the arrangement; besides, the hope of prize-money, &c., would have much weight with them.

Situated as this country is, it appears to be a false economy to limit the expenses of the navy to within narrow bounds; to do so is, to endanger your safety. Restrict your expenses in other matters not so decidedly demanding a liberal outlay of your means; but, with your ships and your seamen, be rather profuse than niggardly, for, what the blood is to the body, they are to the State "the life"! Your economic patriots are all very well in their way; but, when they talk of cutting down naval expenditure, even to the doing away with the half-pay, the horrible "dead-weight," they assuredly lack wisdom. Put them when the time comes in a steam-fight, and we will warrant they would cry out in another key, supposing their economy to be adopted.

Every possible encouragement should be given to the seamen in order to make him satisfied with the public service. A liberal scale of pensions, increasing with prolonged servitude, is of the first consideration, and a certain additional time admitted for servitude in tropical climes in counting for pension.

The date and year when each man is to be called upon for his personal services, should be printed on the Register Ticket, and entered (alphabetically) in a book, a copy of which should be in the possession of every naval commander employed; and it would be advisable whenever it could possibly be done, not to separate those men who had not completed their allotted period, on paying off a ship.

Until a system shall have been established, and found to work well, of course the power to impress will be held, as one of imperative necessity: the cry against its practice goes for nought, when a country's safety is at stake, necessity rises above established laws; this is apparent from the fact, that since the peace we have kept up a large standing army.

We do not know whether Mr. Bull has been dreaming of a whole century of amity, or like another Hercules has been spell-bound; but we believe that the subject has been greatly neglected. Had marine schools been established at the close of last war, in all the principal ports of the United Kingdom, and the students been bound by contract, to serve

a certain time alternately in the navy and merchant service, a sound plan would have been matured by this time, without any further necessity for legislative interference.

An over confidence has wrecked many a ship, and lost many a battle. Procrastination may bring fair weather to the traveller, but it has sealed the fate of empires! and "time enough" is a "shocking bad" counsellor.

What has neglect not done? It lost to Portugal the "New World."—And to Spain, the celebrity of establishing steam navigation 304 years ago! To us, a vast sacrifice of valuable lives may be the result of delay and neglect. Europe, may be said to be at the present time, in a transition state; like the calm on the ocean, the quietude which the world has been enjoying, may prove only a prelude to commotion. Ships, we have in plenty, but they may as well be where the Old Royal George was, unless we can get crews to man them readily. From an ardent zeal for the service, we have ventured to give the outline of a plan, which if it be not the best that could be devised, has at least the merit of being better than none, and is well meant.

Connected, intimately with the subject of the best means for obtaining and retaining seamen in the navy is their treatment. I shall close this article with a few remarks bearing on that point.

It has been observed that— "all happy obedience must arise from affection." To produce happiness and content in a ship's company, it is essential that the obedience exacted, should by every proper means, be made subservient in establishing the feelings of respect and regard towards the person of the chief who commands, and the subordinate officers throughout.

Mere external obedience springing alone from the force of professional law, may, indeed, ensure the strictest dicipline and the nicest order, but it will not accomplish the more elevated moral effect of attachment, which adds so pleasing a feature to the fulfilment of both; and which also must prove of reciprocal advantage to the governing power, and the governed.

The "law of kindness"—and no man is more susceptible of its impressions than the seaman,—is one which the most stubborn disposition cannot long resist,—and it is the only human moral-instrument that is capable in conjunction with an appeal to reason, of reclaiming an irregular nature. This may partly be accounted for, perhaps, from the fact that the affections are not subject to the will; and also from the consideration that austerity of conduct or rule, exercised with a view to impress the mind with a befitting respect for station, may gain that end—but nothing more; acting similarly to the effect of severity of punishment inflicted on the body,—which, though it may break the spirit—will never reform the mind, or purify the heart.

It has likewise been observed that, "an effect could as easily exist without a cause, as affection in the bosom of any human being, which was not produced by goodness, or excellence seen, or believed to exist in some other being." The converse of this may be taken, perhaps, as a general fact; and, if so, a harsh or tyrannical commander, however much

his better nature may prompt the desire to be beloved by those under him will be disappointed; he must first establish a cause to induce the will of others to regard him.

On the Aberration of Hurricanes, &c.

It is to be hoped, Mr. Editor, that as your readers are generally professional, they will not tire on the repetition of remarks on hurricanes. That it is extremely desirable to gain a correct knowledge of those wonderful meteors, all will doubtless agree, and that to accomplish this to the fullest extent possible, will require study and research. This admission granted, it necessarily follows that, to make the results available to the profession, they should be promulgated.

Our former opinion that, hurricanes are attended with a vibratory, or oscillatory motion, from the irregularity noted in some of those storms, has been strengthened by the perusal of an account of the hurricane (identical with the Theseus's,) of September, 1804, as experienced at the Island of Antigua.

The account* states, that this extensive storm commenced with the wind at N., which veered to N.N.W., and shifted suddenly to W., ending with it at S.

The tempest lasted 48 hours, (4th and 5th of September,) and if we allow only 15 miles an hour for its progress, the diameter would be 720 miles, or 12 degrees of latitude, and the circumference 2263 miles; so, that when it struck Antigua, the centre must have been abreast of it, and the southern verge just brushing the parallel of the Island of Tobago; and thus including within the anterior sweep, Barbuda, Guadaloupe, Deseada, Mariegalante, Dominica, Martinico, St. Lucia, the N.E. part of St. Vincent, and Barbados. Truly, Sir, a whirlwind upon such a scale must be regarded as one of the greatest wonders of the creation; need we then, even if there were no other importance attached to the investigation, offer any apology for pursuing the inquiry?

It is probable that this great meteor covered a much larger space than we have assigned to it, as we find from the mean of means of eight hurricanes, traced by Mr. Redfield, that, their rate was 18½ miles an hour. Before the storm had ceased at Antigua, it commenced at the Bahamas.

If the vibratory motion be not allowed in this instance, the course of the hurricane to produce the changes of wind, as noted by the observer, must have been nearly W. ¼ N.; for, had it proceeded direct to the N.W., without lateral motion, at no time could the wind have been felt at Antigua, farther to the southward, than W.b.S., or at most W.S.W.

The *crisis* must have taken place when the wind shifted *suddenly* from N.N.W. to W., at which time the centre of the commotion was at its nearest approach to the island.

* See Naval Chronicle, 12th vol.

Mr. Redfield has traced this hurricane, and he gives its general inter-tropical route at N.W.; hence we are led to consider that the vicinity of land causes an aberration, and that either a vibration, or a divergency in the regular course of the progression takes place.

In addition to the instances we have given in this and former papers, of the irregularity we are speaking of, it is essential that we notice what Dr. Campbell, in his Naval History, states, respecting the course of the wind in these storms, as he appears to have been at some pains in obtaining information; and it bears out our opinion.

In his 4th vol. at p. 193, he says, that, "hurricanes commence with the wind at N., (at Jamaica,) continuing to shift to the westward, and so end at S.E." With the N.W. progression a hurricane commencing at N., (as in the former case above given) would end at W.b.S., or W.S.W.; so, that to reconcile the statement, admitting the changes to be given correctly, the progression must be first, nearly W., until the wind came round to that point, when it must have altered to a S.W. course, to bring the wind to S.E.; unless we admit a vibration to the southward, after the wind had got to W.; and preceding that, allowing the N.W. progression, which would account for the changes from N. to W. All these coincidences as to an irregularity in the progression of hurricanes on approach to land, are too remarkable to be disregarded, and demand investigation, on any future occasions.

We submit the following additional questions, for future investigation.

1. Has the hurricane whilst pursuing one particular course, a vibratory motion; and if so, does it take place in the vicinity of land only; or alike in the open ocean?

2. Are *all* hurricanes subject to lateral motions, or are some exempt, whilst others partake of them?

We know from experience that they do not always happen, but we give the question to confirm former observation.

3. Is the hurricane (inter-tropical) whilst pursuing a general course to the N.W., subject to turn aside, and follow another route for a short time, and then fall into the general course again?

4. The probable causes of such motions?

Every intelligent seaman will at once perceive the force and bearing of these queries, and how necessary it is that they should be settled, in order that we may arrive at a right understanding of the whole economy of the wonderful phenomenon. The hurricane of August, 1809, moved on a W.N.W. course, as also those of June, 1831, and August, 1835. The diameter of the former was about 300 miles, and the circumference 943.

We have a few words more to add respecting the mode of operation of these storms, which we hope may be the means of drawing the attention of the scientific to the subject.

We must look to some law of nature governing aërial vortices, for the interesting fact of these tempests always preserving a rotary motion; and (as far as yet ascertained) of the still more remarkable action of gyrating from right to left.

But how is this law to be arrived at? The action of the common whirlwind from multiplied observation may settle whether the latter be invariable or not; but the cause of the whirling motion imparted to the air can probably never be more than surmised even by those deeply versed in aërology and statics. How far the aqueous vortex, which is said to revolve always from right to left, (we have tried an experiment and found it so,) may be considered analogous to the aërial one, we shall not offer an opinion; but we had an opportunty a few months ago (26th of February, last year,) of observing a whirlwind upon a small scale, which we shall describe.

It formed a complete circle, as correctly so to appearance, as if the outline of the periphery had been struck by a pair of compasses. The gyration, from the moment the wind first impinged against the ground to its dispersion was, from *right* to *left*, which was distinctly traceable from the dust in its evolution giving the meteor a visible form; it was cone shaped, the dust *ascending* spirally to a point, where it was thrown off into the air. It was about 6 feet in diameter, and lasted 30 seconds, pursuing a devious course to the N.N.E., the wind at the time being at N.b.W.

Any thing obstructing the free action of a current of air, every body knows will turn it aside, and give it a curved course; and we may not unreasonably believe that two veins of wind blowing in particular directions may combine and produce a rotary motion. It is not easy to decide, whether either of these operations alone would afford a solution that might be considered unobjectionable. In the first instance, an obstruction to the direct descent (we consider the hurricane a descending whirlwind, not an ascending one,) of the gravitating aërial current can probably, only arise from its coming in contact with a stratum of air of different density, and this at some elevation, for, as the lower atmosphere into which it descends cannot be at a lower temperature, any difference in that particular would act directly contrary, and assist instead of retarding or opposing the action of *gravity*, an *effect* of the grand mysterious principle which retains all nature in one harmonious bond.

That the progressive motion of a hurricane is independent of the circumvolving current of air, seems to admit of doubt, as it is reasonable to conceive it to be a consequence of the rotary motion; and if so, in some measure connected with the wind. That the impetus imparted to the meteor may be occasioned by the powerful action of violent wind sweeping round a centre, appears to be a rational conclusion, but that the direction of the course should generally be to the N.W., is, a curious circumstance still left for investigation.

If we were merely to judge from the direction of the rotation, should we not be apt to consider, that from the propulsive motion, if that guided it, the course of the storm would be to the west, or even southerly of that point?

We may remark that, although the N.W. direction has been traced, in the majority of cases investigated by Mr Redfield, yet no one knows the actual place of origin of any individual storm, or what direction it

may take, when it received its first impulse. If, however, we should be warranted in drawing a conclusion from the first known direction, taken by the typhoon, which is a similar phenomenon, we would say that, the first course of the hurricane is to the S.W.; and this would lead us to the variable latitudes as the place of origin of, at least many of, these progressive tempests.

The perennial wind does not appear to have any influence on the course pursued by the hurricane, as taking W.S.W. as the general direction of the former, it would strike the meteor obliquely on the posterior verge, and did it affect the latter, we should expect to find it following a pretty uniform path between S.W. and W. May we, therefore, not consider that the course of the hurricane is governed by some principle more powerful than the trade-wind, or the rotation of the wind of the storm itself?

We may be allowed to dissent, without it being expected that we should offer a cause, from the opinion that the orbital, or diurnal motions of the earth have any influence in this, or indeed in any case, except those of the succession of night and day, and the seasons. The tremendous velocity, astounding even in contemplation, of the one, and the extreme regularity of the other, leaving every other consideration aside, would seem sufficient to negative such an opinion, yet we have seen it stated that the flight of birds is effected by the rotation of the earth.

The sweep of the hurricane to the northward is curious, as it recedes from a rarefied air to one considerably denser, the course sometimes, being ultimately reversed from that pursued near the islands. There can be no effect without a cause; hence the question.—What power imparts this peculiar curve, so generally pursued, to these meteors? It is probable, that, those storms which touch the Florida stream, may be afterwards guided by it; yet it is true, that some have followed the same curvilinear course, to the eastward of that stream; and undoubtedly the *set* or flow of the waters in an earlier stage of their progress, would not incline them to the N.W., but to the west or southward of that point.

As a portion of the route of these storms lies along the continental line, we might at first consider, that, but for the intervention of the land, they would pursue a direct course across the Pacific, and so on towards the Indian Ocean; but, it appears that, although many hurricanes follow the line of the American continent, some have reached the land, and swept away, no one knows where.

The remark of Colonel Capper, that hurricanes were unknown in the great ocean, has been disapproved by Capt. Kotzebue, who ascertained that, at Radack Island, in 10° N., and 190° W., hurricanes from S.W., of great violence, sometimes occur in September and October; and the natives always anticipate with dread, the recurrence of those months.

These tempests are probably similar to those of the West Indies, and the remark of the natives, that the wind comes from the S.W., may be considered as referring merely to the *crisis*, or nearest approach of the centre of the storm to the island; at which time, the wind would be

at its utmost violence. It is remarkable, however, that in the Atlantic, the parallel named is rarely visited by a tempest of that character.

It is singular, that Dr. Franklin, when treating of whirlwinds, should not have struck upon the idea, that the current of air moved *round* a centre, but should have considered those meteors as proceeding from concentric currents; "a fluid moving from all points horizontally *towards* a centre."

Upon the strength of this hypotheses, it seems at first equally singular, that Colonel Capper should have offered an opinion which we now know to be substantially correct, with respect to the hurricane, according to Mr. Redfield's theory, of which he knew nothing. But our surprise will cease in the latter case, when we come to examine both, and find that similar results will follow in either, whether the wind shall blow *towards*, or *round* a centre. The Colonel says: "It would not, perhaps, be a matter of great difficulty, to ascertain the situation of a ship in a whirlwind, by observing the strength and changes of the wind: if the changes are sudden, and the wind violent, in all probability the ship must be near the centre or vortex of the whirlwind; whereas, if the wind blows a great length of time from the same point, and the changes are gradual, it may be reasonably supposed the ship is near the extremity of it."

Another point for consideration is, the variable rate of the progressive velocity. The only regular feature of the giant meteor, as far as our present knowledge goes, is the gyration, which, indeed, to the seaman, is the main point, as it robs the storm of some of its terrors.

But whether we are to look for the cause of the irregularity of its rate, to what is going on above, or to the condition of the medium through which it sweeps, remains for elucidation. If there should be intervals when the current of air becomes less energetic, would these be sufficient to account for the retardation, and renewed energy, for the accelleration? The *pivot* upon which this question rests, seems to be, whether the progression be dependant upon the force of the circumvolving wind. We have elsewhere ventured an opinion, which, although, it may not be considered conclusive, at least appears reasonable, that both these conditions principally depend upon the amount of disarrangement in the lower atmosphere over the islands, and through which the storm moves; but we candidly acknowledge our inability to account for the discrepancy of the meteor turning away from the rarefied air, and advancing in a direction towards the north; our aim is, however, rather to seek the truth, than to insist upon our own hypotheses, however plausible they may appear to oneself, not being imbued with the pertinacity of Goldsmith's Parson.

As hurricanes do not pursue a uniform velocity, the rate of their actual progression can only be a mean of the whole between two given points, and this can only be arrived at after they have ceased to act on any two or more stationary spots, or on two vessels, when the exact time of commencement and conclusion have been respectively noted, with the distance that separated the vessels.

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The perennial wind does not appear to have any influence on the course pursued by the hurricane, as taking W.S.W. as the general direction of the former, it would strike the meteor obliquely on the posterior verge, and did it affect the latter, we should expect to find it following a pretty uniform path between S.W. and W. May we, therefore, not consider that the course of the hurricane is governed by some principle more powerful than the trade-wind, or the rotation of the wind of the storm itself?

We may be allowed to dissent, without it being expected that we should offer a cause, from the opinion that the orbital, or diurnal motions of the earth have any influence in this, or indeed in any case, except those of the succession of night and day, and the seasons. The tremendous velocity, astounding even in contemplation, of the one, and the extreme regularity of the other, leaving every other consideration aside, would seem sufficient to negative such an opinion, yet we have seen it stated that the flight of birds is effected by the rotation of the earth.

The sweep of the hurricane to the northward is curious, as it recedes from a rarefied air to one considerably denser, the course sometimes, being ultimately reversed from that pursued near the islands. There can be no effect without a cause; hence the question.—What power imparts this peculiar curve, so generally pursued, to these meteors? It is probable, that, those storms which touch the Florida stream, may be afterwards guided by it; yet it is true, that some have followed the same curvilinear course, to the eastward of that stream; and undoubtedly the *set* or flow of the waters in an earlier stage of their progress, would not incline them to the N.W., but to the west or southward of that point.

As a portion of the route of these storms lies along the continental line, we might at first consider, that, but for the intervention of the land, they would pursue a direct course across the Pacific, and so on towards the Indian Ocean; but, it appears that, although many hurricanes follow the line of the American continent, some have reached the land, and swept away, no one knows where.

The remark of Colonel Capper, that hurricanes were unknown in the great ocean, has been disapproved by Capt. Kotzebue, who ascertained that, at Radack Island, in 10° N., and 190° W., hurricanes from S.W., of great violence, sometimes occur in September and October; and the natives always anticipate with dread, the recurrence of those months.

These tempests are probably similar to those of the West Indies, and the remark of the natives, that the wind comes from the S.W., may be considered as referring merely to the *crisis*, or nearest approach of the centre of the storm to the island; at which time, the wind would be

at its utmost violence. It is remarkable, however, that in the Atlantic, the parallel named is rarely visited by a tempest of that character.

It is singular, that Dr. Franklin, when treating of whirlwinds, should not have struck upon the idea, that the current of air moved *round* a centre, but should have considered those meteors as proceeding from concentric currents; "a fluid moving from all points horizontally *towards* a centre."

Upon the strength of this hypotheses, it seems at first equally singular, that Colonel Capper should have offered an opinion which we now know to be substantially correct, with respect to the hurricane, according to Mr. Redfield's theory, of which he knew nothing. But our surprise will cease in the latter case, when we come to examine both, and find that similar results will follow in either, whether the wind shall blow *towards*, or *round* a centre. The Colonel says: "It would not, perhaps, be a matter of great difficulty, to ascertain the situation of a ship in a whirlwind, by observing the strength and changes of the wind: if the changes are sudden, and the wind violent, in all probability the ship must be near the centre or vortex of the whirlwind; whereas, if the wind blows a great length of time from the same point, and the changes are gradual, it may be reasonably supposed the ship is near the extremity of it."

Another point for consideration is, the variable rate of the progressive velocity. The only regular feature of the giant meteor, as far as our present knowledge goes, is the gyration, which, indeed, to the seaman, is the main point, as it robs the storm of some of its terrors.

But whether we are to look for the cause of the irregularity of its rate, to what is going on above, or to the condition of the medium through which it sweeps, remains for elucidation. If there should be intervals when the current of air becomes less energetic, would these be sufficient to account for the retardation, and renewed energy, for the acceleration? The *pivot* upon which this question rests, seems to be, whether the progression be dependant upon the force of the circumvolving wind. We have elsewhere ventured an opinion, which, although, it may not be considered conclusive, at least appears reasonable, that both these conditions principally depend upon the amount of disarrangement in the lower atmosphere over the islands, and through which the storm moves; but we candidly acknowledge our inability to account for the discrepancy of the meteor turning away from the rarefied air, and advancing in a direction towards the north; our aim is, however, rather to seek the truth, than to insist upon our own hypotheses, however plausible they may appear to oneself, not being imbued with the pertinacity of Goldsmith's Parson.

As hurricanes do not pursue a uniform velocity, the rate of their actual progression can only be a mean of the whole between two given points, and this can only be arrived at after they have ceased to act on any two or more stationary spots, or on two vessels, when the exact time of commencement and conclusion have been respectively noted, with the distance that separated the vessels.

truth, however complicated we may consider the system in detail, and however puzzled we may be to account for, or reconcile satisfactorily, to our finite reasoning, the various movements which take place.

It is not, sir, that we believe ourselves capable of offering a perfect solution of this obscure problem, we submit these remarks for insertion in your useful publication; but having been long in the habit of reflecting on the various phenomena which we have observed in the progress of our movements in different parts of the world, and of committing our thoughts to paper, we feel it almost a duty imposed upon us as a member of that profession, which claims for itself, the ocean as a home, to place them before your readers.

We need not occupy space by tracing the permanent currents, their general courses are known to seamen, although the continuous lines have not been clearly established. The commencement of the mightiest of these wonderful streams appears not yet to have been discovered. All that seems to be actually known is, that it passes like a sluice round the Cape of Good Hope, is said to cross the South Atlantic, is supposed to flow through the Caribbean Sea, and Florida Channel, along the coast of North America, and curving to the eastward, near the banks of Newfoundland, is lost nobody knows where.

There is certainly something so very astonishing in the contemplation of an oceanic stream, of which, among those of the land, there is no parallel, of so vast an extent, pursuing a devious course, that the mind at once becomes amazed, and the attention forcibly arrested by the subject; and our surprise is rather increased than diminished, upon finding that this river of the sea, has neither had its origin, or termination unquestionably determined. Considering the course it pursues, would it not be a fallacy to conceive that, like the material symbol of eternity, it has neither beginning nor end.

In the consideration of the permanent currents, which may not inappropriately be termed oceanic rivers, it has always been usual to seek for causes alone on the surface, whilst the hidden operations that may be passing in the deep abyss, have been unheeded.

We know not by any experiment, what effects* if any, take place at the bottom of the ocean, near to where volcanic action is active; for instance; around the Azores, Iceland, &c. Although it has been surmised that the tropical character of the Mediterranean is owing to volcanic heat; and we think it highly probable, that the mildness of the climate about Cape Horn, may be accounted for, from the same agency.

The temperature was found by Sir J. Franklin, and Capt. Buchan, to be greater beneath, than at the surface, in the Northern Ocean, where igniyomous operations are carried on to a great extent.

How deep does the superior warmth of the Florida stream extend? This, sir, is a question worth the trial, because if it were found deep seated, we might not unreasonably infer, that some communication

* We allude to the effects of heat, on the atmosphere and water.

exists between the active volcanoes of Guatimala, and Yucatan, which peninsula, with its spinal range of mountains, lies in the direction with the course of the stream, through the Strait. Would it be unphilosophical to connect igniferous action, supposing a subterranean communication, with the warmth and flow of that current? These are questions, however, unlikely they may appear to our present notions of the streaming of lengthened portions of sea water, that are not unworthy of attention.

Jets d'eau, hot, are ejected ninety feet high into the air in the Icelandic sea. Why should we limit the effect to a vertical action only? Would there be anything unreasonable, after that fact, in enlisting a *horizontal* play of this active elemental strife? The misfortune seems to be, that our minds are so wedded to abstract ideas, that, it becomes difficult from, perhaps, indifference, or sheer indolence, to entertain enlarged views; and the individual who starts hypotheses, which, when calmly examined, may have nothing improbable in them, but, from their novelty alone, create distrust, is set down as permitting his reason to "run riot."

We have, sir, been so long accustomed to look to the winds, upon the abstract consideration of their often violent action and constancy, in certain parallels, as the cause of currents, that without farther trouble on the occasion, we rest satisfied with the explanation; at the same time to all seamen, who have made observations to any purpose, it is well known that such assumption is not borne out by facts. If a given cause is inadequate to the production of an apparent effect, is it not an absurdity to insist upon the single application of it?

We find in almost all parts of the world that there are rivers, some of great magnitude and extent; generally taking their rise from elevated lands; and if we reason from analogy, why should we not consider that there are also subterranean and sub-marine rivers, issuing from unceasing reservoirs in the earth?

At a first view, this idea may startle the sober minds, of some of your readers, but, there is not, sir, any thing unreasonable, or even fanciful in the supposition.* By a natural hydraulic process it may be easily reconciled.

Let us for a moment banish the old notion, that there are no other rivers but those which run on terra-firma; suppose the source to be situated on elevated land, and that by a subterraneous channel this supply is carried gradually lower and lower, until it vents beneath the surface of the ocean; and that, as it flows downwards in its hidden course, it meets with various accessions from other streams, and its volume and capacity become continually augmented, until it arrives at its place of exit. The impetus acquired in the descent, and the less specific gravity of the fresh water, if the depth proved not insuperable, would be equal to the ascent towards the surface, against the incumbent pressure

* It is not improbable, that before the fact was determined, a stand would have been made against any opinion stating, that some rivers run inland from the sea shore, because such tallied not with pre-conceived ideas on the subject.

of the sea, which being easily moved, may attain a corresponding motion, and assist in perpetrating a permanent stream. Is there any thing unreasonable in this?

The question may, indeed, be started as an objection; that such stream ought to be less saline, than the sea-water, on either side; true, but has any one tried the experiment? Capt. Manderson says, the Florida stream is fresher than the ocean water; and Humboldt, that it is salter. Who is right? It is probable, however, that to a certain distance only, the water of the stream would be much less salt, than that of the ocean, through which it presses, the particles of the fluid, from their mobility, acquiring an impulse, according to the power of the initial velocity.

Another objection may be, that, the Amazon, Orinoko, Congo, and other great rivers, pursue their courses, comparatively, but to a very limited extent in the ocean. Capt. Sabine has dispelled some of the mist which has hitherto involved this very question; but, who has traced those streams to the *ne plus ultra*, into the wide ocean! They have been crossed at two or three hundred miles from their respective places of discharge, but what navigator has followed their course from the land, to solve the interesting question? Who knows but that these rivers, and others of magnitude, by pressing the waters of the ocean onward into a stream, may after all, be the origin of some of the many currents which navigators report "far far at sea."

Besides, may there not be sub-marine mountains, which by guiding and restraining the deep-seated current, perpetuate its flowing to a great extent? If, sir, we could possibly rise artificial mounds round the globe, a gigantic aqueduct, is there a single engineer, that would be bold enough to gainsay that, such a stream as the Amazon, would not flow throughout the whole distance? Fresh-water founts in the sea, are common in the vicinity of the Florida Channel; one we have seen; and subterranean rivers are well known to exist; we ourselves have heard more than one roaring and dashing their foaming and hidden waters over the impediments to their free course, whilst hastening in their descent to the ocean.

We can, sir, only judge from the wonderful phenomena, which are known to exist in various parts of the world, but principally from those which take place in the Pacific, what is passing in the bed of the ocean. Let us reflect only, for an instant, on the vast scale upon which nature in her hidden laboratories carries on her works, to accomplish ends, the design of which, the capacity of man is unequal to account, and we shall no longer consider it chemerical, that subterranean rivers may produce super-currents of the ocean: if by fire and water she is capable of rising hundreds of miles of the bed of the ocean, may she not in her unlimited power of action, produce a *rush* of water from inland reservoirs, that, shall form a stream hundreds of miles in extent? Shall the mere mortal presume to fix limits to her operations?

To conclude this long yarn, Mr. Editor, one could almost wish to possess for a "wee time," the *gill-lungs* of the mermaid, fanciful or not, to take a plunge into the deep recesses of Nuptune's domain, and peep

at the wonders below. One could then, sir, promise you (saving tintereros, huge polipi, and such aquatic rovers,) a rich harvest for the "*Nautical!*" What a fidget the quadrupled eyed antiquarians would be in; — "bless my day-lights (as Jack lips it in vulgo-nautic,) how the knowing ones would stare, — and well they might:—

For, there, "sans doute"
Are sights, Horatio, to take the shine
From your terrene philosophy and mine,
And theirs to boot ! !

CONDUIT.

IMPROVEMENTS IN THE CONSTRUCTION OF LIGHTHOUSES.

(*From the Shipping and Mercantile Gazette.*)

SIR.—As the columns of your journal are, at all times, open to suggestions in any way calculated to promote the general interests of this great country, and to protect the lives and properties of persons employed in navigation, I beg to hand you a description of an improved method of constructing lighthouses, which I trust may be deemed worthy the attention of your readers, especially as the subject on which it treats so greatly tends to the promotion of our national wealth, and so closely connected, or, rather, forms the main link of the great chain of civilization. While it is obvious that every means should be used to facilitate the workings of the great branches of industry referred to, the numerous and fearful shipwrecks, which are continually occurring on our coast, are sufficiently cogent to assure us, that our coast is not sufficiently lighted to warn the enterprising mariner of his danger in time to prevent accident. The vast amount of shipping to and from our ports, and the yearly increase of the British commerce, both by sea and land, calls upon the legislation of the British empire for a more improved system of lighthouses. From the efficient state of our steam ships, we are no longer dependent on the winds and tides for an intercourse with our colonies, and other nations; but access to all parts of the globe is now perfectly easy. Much remains to be done at home, to render the approaches to our ports more distinct; but so long as the Goodwin Sands, and other such places, remain unlighted, life and property must be considered in danger. Sir, with your permission, I shall call the attention of your scientific readers, and, more especially, the elder brethren of the Trinity House, to the means by which a substantial foundation, for lighthouses, on all such dangerous places, might be effected at a moderate expense, and without any risk. The system I propose is by no means of a novel description, but has been long in extensive use for sinking operations, in mining districts, to effect a passage through running sands.

It is well known that, in shaft sinking, running sands of the most formidable nature have presented themselves to the miner, who, on making the discovery, immediately resorts to what he terms a sinking tube—the

size of the shaft, including the brickwork. The tube, or cylinder, is, in most cases, made of wood; and, when placed in the required position, is weighted with brickwork, and so forced through the sand; and, by these means, the brickwork casing is effected. But as this system is so practically understood among your practical readers generally, a detailed account of the operation would be useless. It is evident that, if by means of a cylinder, a passage can be effected through the running sands in a shaft, the same means could be used on the Goodwin Sands, and other dangerous spots, with the same success.

Fig. 1.

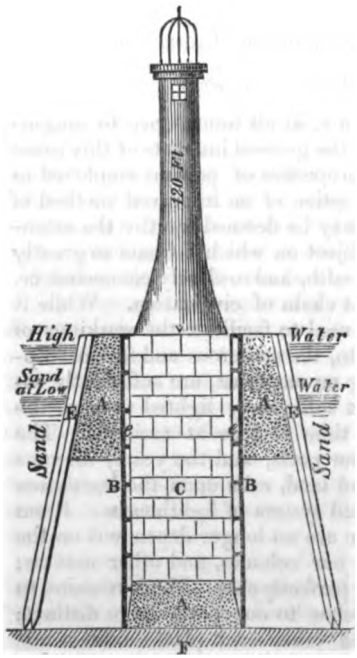

Fig. 2.

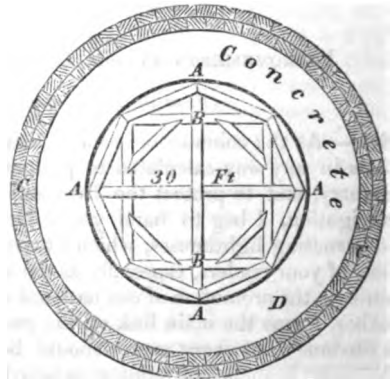

Fig. 1.

A, A, A, concrete B, B, cylinder.
C, stone work inside the cylinder.
E, E, double rows of piles, for the protection of the cylinder.
F, chalk formation.
E, E, wood planking inserted between the flanges, to reduce the friction in sinking the cylinder.

Fig. 2,

A, the cylinder —B, timbering, to secure the cylinder against external pressure.
C, double rows of piles, to protect the cylinder and concrete.
D, space between the piles and cylinder to be filled with concrete.

From the many inquiries I have made respecting the depth of the Goodwin Sands, I believe they are not more than 30 feet thick—at the bottom of which is the chalk formation. If we can by any means get to the chalk, we have at once a foundation for the lighthouse, which would resist every storm, I should propose to construct a wrought-iron cylinder (say) three-eights of an inch: boiler (plate-iron) of 30 ft. diameter, which would give a sufficient base for a lighthouse of 120 feet above high-water mark. Such a light would be seen at a suitable distance. The cylinder

should be made into sections of 4 feet in length, and should be fitted up on shore with the greatest care. A stage could be made on piles driven into the sand, and the whole well braced together. Having adjusted the preliminary arrangements, 16 feet of the cylinder could be put together, suspended between four lighters; and then by the aid of a small steamer could be towed into its intended position, and there lowered into the sand. Having fixed and secured the first portion of the cylinder to low-water mark, the remaining sections could be floated in the same manner. The joints being previously prepared, each section could be screwed together, and sunk to the required depth, in a short time. In case it was found that the cylinder had not sunk to the required depth, I should resort to Dr. Pott's atmospheric pile-driving system, by which means the cylinder could be forced down to the required depth. The next plan of operation would be to drive the external piles, as shown in the annexed diagram.

The piles should also be driven by Dr. Pott's system, and the whole well braced together. When the pile-driving is completed, the sand between the cylinder and the piles, A, A, should be taken out as deep as possible with the bag and spoon apparatus; the space thus excavated should be immediately refilled with the best concrete, which would entirely protect the foundation against every storm. The cylinder being so far perfectly secured, a few ship's pumps could be fixed inside to pump out the water; and in order then to secure the cylinder against the external pressure, a process of timbering should be resorted to, as shown in diagram.

After having pumped out the water, and well secured the cylinder against the external pressure, the sand inside the cylinder could be taken out, and the same process of timbering repeated every five feet, until the whole of the sand is excavated to the chalk formation. The sand being excavated, the concrete foundation for the lighthouse should be put in without delay, as shown at A, *Fig.* 1, the concrete being set in one mass, the stone-work, C, could be commenced; and, as the stone-work rises inside the cylinder, the timber could be taken out. The stone-work should be of the strongest construction, and every block well bound together.

All works of this nature should be commenced in the early part of the spring. While the apparatus lies in readiness on shore, the cylinder could be quickly sunk into its position, and perfectly secured by the piles and concrete in a few months. In case of storm, or bad weather, it would be only requisite to let the water into the cylinder, to counterbalance the external pressure of the waves, and which could be easily removed when the storm had abated. This plan of effecting a firm foundation for lighthouses, is not only applicable to the Goodwin Sands, but can be extended to all bars of rivers and places where a light is required to warn the mariner of danger.

GEORGE SHEPHERD, C E.

Fleet Street, London, Nov. 29.

Tidal Harbours Commission.

The following important paragraphs conclude the second appendix to the second report of the Tidal Harbours Commission—The volume contains the evidence taken at all the Scottish ports, together with the engineers, and other reports, and is accompanied by plans, sections and an index.

Shipwrecks.—"Among other general points which have come before us in the course of our inquiries, there is one too intimately connected with the state of our harbours and coasts to be passed over without notice, I mean the frequency of shipwreck around the shores of the United Kingdom. The Appendix to this Report contains long lists of wrecks off Dunbar, Peterhead, and elsewhere, along the east coast of Scotland, and a reference to Lloyd's list will show a loss of about 600 British ships every year, and including foreigners trading to this country, vessels not registered at Lloyd's, and wrecks unrecorded, we shall not err greatly in assuming the loss at two vessels a-day throughout the year, with life and property to a great extent. Many causes, probably, combine to produce these casualties, as stress of weather and want of good harbours, rapid tides, shoals, want of lights, buoys, and beacons (although this last cause is much diminished of late), bad charts, unseaworthiness of vessels, being ill-found with anchors and cables, incompetency and neglect of masters, and drunkenness. The recent regulation by which masters may be examined will do some good, but as the examination is not compulsory, much cannot be expected from it. As the case stands at present, it is difficult to say to which of these several causes wrecks are to be chiefly attributed, and we are thus, in some measure, liable to legislate in the dark. I would submit, then, that a public Court of Inquiry be held on the spot in every case of wreck along the coasts of the United Kingdom, whether attended with loss of life or not: it could be as easily managed as an inquest, the machinery for the purpose being already organised; the Inspecting Commander of the coast-guard of the of the district, the Collector, or chief officer of Customs, and Lloyd's Agents, are to be found everywhere, and they would form a tribunal, well acquainted with nautical affairs, in which all merchants and shipowners would have confidence; and were such a body, with the assistance of the nearest magistrate, authorised to inquire into and report on every case, there is a little doubt but that in a very few years the list of wrecks on our own coasts would be diminished one-half."

Ballast.—"Another point to which it is again necessary to revert, is the throwing over of ballast in our harbours, and rivers, and roadsteads. It will have been seen in the course of this Report that there are many complaints of this practice, at Kirkwall, at Stromness, at Lochindeal, and even in the Firth of Forth. Nor is the pernicious custom confined to Scotland only, the inquiries of this Commission have proved that ballast is commonly thrown overboard in, or on the passage to, all coal ports, as Shields, Sunderland, Hartlepool, and Stockton; in all mining ports, as at Swansea, Neath, Milford Haven, Fowey, and Fal-

mouth. In all ports where stone is shipped as at Whitby, Portland, &c.; where cement stone is dredged up, as at Harwich and off Sheppey; and at Larne, Skerries, Bantry, and elsewhere in Ireland. The Act of Parliament, 45 Geo. III. c. 159. s. 11., is distinct, and imposes a penalty of £10 for each offence, but apparently it is no person's business to enforce it, and the injury is daily continued. I would therefore, suggest:—1st. That the section of the above-recited Act relative to the throwing out of ballast be printed separately, and circulated to every harbour and creek in the United Kingdom, with notice that it was the intention of the Admiralty in every case to enforce it, and that half the penalty would be given to the informer. 2nd. That the collectors and sub-collectors of customs, the officers of coast-guard, and all surveying officers, be directed to give information to the Admiralty in the event of any case occurring; and that the Admiralty solicitor be instructed to prosecute immediately on the part of the Crown, to press for a conviction, and for full penalties; and lastly, in order to put a more effectual stop to this reckless practice (which is ruining our harbours and roadsteads), that the custom-house clearances be refused to a ship-master until he had given proof of the quantity of ballast shipped in his vessel, and that he had discharged the whole of it either in a greater depth than 10 fathoms of water off the coast (not being near a roadstead), or deposited it at a ballast quay, or some other lawful place; and this quay or place all harbour trustees should be bound to provide. The two first regulations are quite within the power of the present Act. The last may require a section to be introduced in some future Act of Parliament."

Lighthouses.—"With reference to another important subject connected with harbours, we are compelled to remark that the coasts of Scotland are not sufficiently lighted; and at the time of our visit, were very far from being sufficiently buoyed. In order to light the mainland, Orkney, Shetland, the Hebrides, and outlying rocks and islands (an extent, measured roughly, of about 1,200 miles), there are only 26 separate coast lights maintained by the commissioners of Northern Lights. It will have been seen, in the course of this Report, that on the coast of Caithness, and on the west coast of Sunderland, Ross, and Inverness, there are distances of 60, 70, and 80 miles without a light. That the Sounds of Mull, Skye, Islay, and Loch Eil, (the south-western approach to Caledonian Canal), are entirely without lights. Also, that the natural harbours of refuge, Stromness, Campbeltown, and Loch Ryan, are in a similar manner almost unavailable by night. It is fully admitted that the lights that are placed are brilliant and effective (when not too high), and that the able and zealous engineer to the Board has spared no pains to obtain the best description of lenses and reflectors; but our complaint is, that the lights are too few for the safety of navigation, and especially on the west coast of Scotland, where the mariner has often to contend with rapid tides and stormy seas during a long winter's night, with the knowledge that he has good natural harbours under his lee which he dare not run to from want of a light.

"The state of the buoyage at the time of our visit, in September and October, 1846, was even more defective, and with less excuse, as buoys and beacons can be placed at a trifling expense. The approach to Inverness and the Caledonian Canal at that period, had neither buoy nor beacon to mark the channel between seven dangerous shoals on either hand; these, we understand, have since been placed; but Loch Eil, the south-western approach to the canal (which is now open for traffic), is to this day equally without lights, buoys, or beacons, and requires, probably a similar number to fit it for the trade that is expected to take advantage of the Caledonian Canal.

"The light dues on coasting vessels in Scotland have been lowered 50 per cent. during the past year; but the sum of £47,895, which was the gross income of the Board of Northern Lights during the year 1846, would surely entitle the mariner to demand the expenditure of a few hundred pounds, in order to place the necessary buoys and beacons around the coasts of Scotland.

Pilotage.—"Another point connected with the safety of our shipping is the present state of pilotage. It may be seen in the evidence, and by documents printed in the Appendix to this Report, that in many cases pilots pass no examination, but are licensed by a committee composed of a provost and baillies on receiving certificates of good character. Also that, owing to the payment of pilotage not being compulsory in some of the larger ports, as at Dundee, Greenock, &c., efficient men cannot be obtained to serve as pilots; or if obtained, they serve at a loss; that in the Tay, no proper pilot-boats are kept up fit to cruise outside the sands, and thus it not unfrequently happens that vessels cannot obtain pilots in bad weather when they are most needed, and not unfrequently wrecks occur. In the Pentland Firth, it appears that the pilots are commonly paid in part from the stores or cargo of the ship (which in itself is an infraction of the revenue laws, and a fraud upon the owner); they are also occasionally not landed, but taken away to Iceland, and sometimes to America. I would submit then that all pilots should be compelled to pass an examination before three competent examiners before they should receive a license, and that (with the exception of coasters under 70 tons burthen, and perhaps, an abatement in favour of steamers) the payment of pilotage be compulsory on all vessels, as it is in the ports of London, Liverpool, Hull, Glasgow, &c.

Charts.—"Another point of importance to be noticed is, the inaccuracy of the charts in general use on board merchant vessels with respect to the position and character of lights, buoys, beacons, &c. All, without exception, are faulty, and all, if followed, are liable to lead a ship into difficulty. The defence set up for the wreck of the Great Britain steamer on the shore of Dundrum Bay was, that St. John's light, placed two or three years previously, was not inserted in the most recent charts of the Irish Channel that could be procured at Liverpool. The same may be said of the charts of the coast of Scotland; in none that I have examined were the recently placed lights, buoys, &c., inserted, and in many instances the descriptions of the lights were errone-

ous. Now, this is a serious evil; nor has the seaman any protection against it, and may not discover the error till he loses his ship; and yet it would seem to admit of an easy remedy. I would submit, then, that in a case in which the safety of life is involved, it would be proper to oblige all chart-sellers to warrant their charts corrected up to the latest date with respect to lights and buoys, under a heavy penalty. To enable them to do this the more readily, and in order to afford the public a test by which to try the charts they may purchase, the three Lighthouse Boards of London, Edinburgh, and Dublin, should be called upon to publish, or caused to be published, at a low price, an outline chart, giving the exact position and distinctive character of all lights, harbour as well as coast lights, &c., which should be kept corrected up to the latest date, and a copy of it sent to every port in the kingdom. I am aware that the Board of Northern Lights have this year, for the first time, published a list of the positions of the coast lights and buoys of Scotland; but this, although a step in the right direction, is not sufficient, nor does the list contain any of the harbour lights. The Hydrographic Office of the Admiralty has, many years since, published a far more complete list of all the lights of the United Kingdom (as well as of the lights in every part of the globe), but for our own coasts this is hardly sufficient; the seaman, in doubt about a light, has not time to look for and consult a list; all must be clearly laid down on the chart before him, if he is to derive benefit from it in the hour of need.

"As a further means of making known any change in the position of lights, buoys, &c., a sufficient supply of the Trinity, and other notices of such change, should be sent to all the custom-houses in the United Kingdom, and one should be given to each master of a vessel trading at these ports. It would be an additional security if the custom-house authorities were empowered to refuse the clearance to a ship till the master or his agent had signed a receipt for the notice with his other papers. Trinity notices are now issued; but as a proof how little they are read or cared for, it was in evidence before the Lighthouse Committee of the House of Commons, in 1845, that the master of one of the finest Scottish steamers trading to London was not aware of the change of more than a mile in the position of a light-vessel lying immediately in his track, and which he passed twice every week, until six weeks after it had happened, and then only accidentally. Nor is this, by any means, an uncommon occurrence.

Harbour Bills.—"The Commission have found, in every place they have visited, a strong interest excited in the objects of their inquiry, and almost an universal desire to see the harbours improved, and where there was no harbour to have one formed, however small. There exists a general belief along the coasts of every part of the United Kingdom, that fishing would be promoted by the formation of piers and harbours for the safe landing of cargoes, and for affording shelter in the sudden gales which are characteristic of these northern latitudes; and the local interests would often be combined and exerted to have piers erected, or harbours improved, if authority could be obtained to enable them to do so without

expense in procuring that authority. This expense of obtaining an Act of Parliament has generally been so heavy, that persons convinced of the great advantage that would accrue to the local and general interests of the country, from the erection of piers and harbours, have been deterred from applying for authority by the dread of Parliamentary expense. It is therefore strongly recommended, that when Harbour Bills are introduced into Parliament by parties who are to act as trustees for the public service, and without profit to themselves, these bills, having received the sanction of the Admiralty, should be considered as Public Bills, and passed through Parliament free of expense, as Highway Bills now are. But a better plan for the encouragement of the erection of piers and harbours would be to authorize the Board of Admiralty; after due investigation under the Preliminary Inquiries Act (which has been found to answer so well), to give their sanction and authority to any party or corporation to erect such piers, or to make such improvement as they consider proper, by the adoption of a general Bill for harbours snd piers, such as are in operation for other public works under Her Majesty's Commissioners of Woods and Forests.

Harbour Debt.—"From what has been stated in the course of this Report, it will be manifest that the heavy drawback to improvement of the several harbours is the amount of debt due by greater part of them, and the high rate of interest paid for it. From returns printed in the Appendix, it appears that the aggregate revenues of the ports of Scotland is £192,000; of this sum £72,000 arises from dues on shipping; the remainder, or £120,000, from dues on goods. It further appears that the aggregate debt of the harbours is £1,535,760 sterling, the interest of which, at 5 per cent., is £76,787, or considerably more than one-third of the whole harbour income, which must be annually appropriated for for this purpose, and thus materially cripple the means for future improvements.

"This large sum, although borrowed with the sanction of the Legislature, has been laid out entirely by the several local boards, without the slightest control being exercised over it, either by Parliament, or by any other power, especially charged to watch over the interests of the public.

"When the greater part of the works were undertaken for which this debt has been incurred, there was a fair prospect that the increase of dues would have enabled the several trusts to meet their liabilities without pressing too heavily on their funds. At that time the competition which has arisen between coast-railroads and shipping could not be foreseen; now, however, it is fully established, and it is to be feared that unless some measure be taken to relieve the pressure on the harbour revenues, and thus to enable the dues to be lightened, a large portion of the goods which coasting vessels now carry will soon be conveyed by railroads, rapidly extending to almost every part of the coast; whereby the shipping dues will decrease, and the harbours must deteriorate. The measure that was most frequently urged upon us in the course of inquiry was, an earnest request that in the same manner as advances under the Drainage

Act have been made by Parliament to the landed proprietors of the United Kingdom, Her Majesty's Government would consent to advance money, at a low rate of interest, to pay off the Harbour debt in all those cases, in which, on due inquiry, it could be shown that the debt had been contracted in carrying out works which may be fairly considered as public improvements."

Burlington and Chicago Ship Canals.

The manifest tendency of the age to increase the facilities for commercial intercourse between different portions of our country, and to open new avenues of trade and personal communication, is so great, that our readers will hardly be surprised to learn that an inconsiderable outlay of expense will place Burlington and Chicago in direct and easy business connection! By means of ship canals it would seem that the circumnavigation of the globe over the continents, is to be rendered about as practicable as it at present is over the oceans. But about twenty miles of ship canal remain to be constructed to open an avenue through which vessels can navigate from Chicago to Burlington, with cargoes of from 3000 to 4000 barrels of flour or from 15,000 to 18,000 bushels of wheat, without breaking bulk. Indeed, we are of opinion that the time is near at hand, when the "Shipping List" of Burlington will embrace arrivals and departures at and from her port, from and to the principal market towns on the Western Lakes,—Chicago, Milwankie, Detroit, Cleveland, Buffalo, &c. We believe that nothing can prevent the speedy completion of the only remaining link in the magnificent series of ship canals which will render this splendid enterprise complete.

The New York papers are calling the attention of their readers to what has been done, and to what remains to be finished, in order to secure (to use the words of an intelligent correspondent of the *Journal of Commerce*,) "cheap routes to the ocean, for freight, from the West, than by the Erie Canal and Hudson's River."

The energy and sagacity of the British Government have led them to construct a line of ship canals to overcome the formidable rapids of the St. Lawrence, and to connect the great lakes, Erie and Ontario. This line is composed of the Welland, the Williamsburgh, the Cornwall, and the Beauharnois Canals.—The Welland, is already in successful operation.

The Williamsburgh embraces four short canals, constructed through Williamsburgh and Matilda townships, in Dundas County, and covering a distance of about thirty miles. The longest of these canals is but four miles in length, and, together, they make but nine miles of canal. They have been constructed to avoid a series of gentle rapids, in the distance named, which have a velocity of but eight miles an hour, and are navigable by vessels that can be propelled at the hourly rate of ten or twelve miles.

The Cornwall is twelve miles in length, and extends from the head of the Long Sault, (or more properly *Saut*,) to the town of Cornwall, at the inlet of Lake St. Francis, overcoming the Long Saut rapids.

The Beauharnois extends from Lake St. Francis to Lake St. Louis, a distance of about twelve miles, avoiding the Coteau and Cascade rapids.

These noble public works (for our information respecting which we are under obligation to one of the intelligent and capable Government contractors, James Worral, Esq.,) are already completed, and will be opened for use early in the ensuing season. A glance at the map will show our readers that they perfect the communication between Chicago and Caughnawaga, on the St. Lawrence. From this latter point to St. John's, a distance of less than twenty miles, it is now proposed to construct a ship canal, which will at once place the waters of Lake Champlain in uninterrupted connection with those of the great Western Lakes, and, consequently, will open to Burlington the business and the markets of the West. The topography of the route upon which it is contemplated to construct this latter canal, is similar to that traversed by the Beauharnois,—remarkably level, and requiring no rock excavation. The waters of Lake Champlain, at St. John's, are but 16 feet higher than the St. Lawrenee at Caughnawaga, so that but two locks will be required in the entire distance. We are assured by gentlemen of undoubted intelligence and information, that the prism of this canal can be completed at an expense no greater than that of the Beauharnois, which was £5,000 (or 20,000 dollars) per mile. Estimating the cost of the locks at 40,000 dollars each, it will be perceived that the entire expense of perfecting this grand avenue of intercommunication, will fall within 500,000 dollars, an expenditure that is, in view of the immense commercial advantages that are to flow from it, of exceeding insignificance! That the money will be supplied, and the work speedily finished, we entertain no manner of doubt. Intelligent Canadian gentlemen, who perceive and appreciate the advantages alluded to, express the opinion that no delay will be permitted to intervene.

It can scarcely be necessary for us to say that this project is of more consequence to Burlington, and to Vermont, than all the railroads that can be constructed on the various lines surveyed from Lake Champlain to Ogdensburgh. It is obvious that railroads cannot compete, for freight, with waters navigable for vessels that can transport from three to four hundred barrels of flour. The correspondent of the *Journal of Commerce*, to whom we have before alluded, says "the deterioration in the quality of produce in its transit from the upper lakes, (under the existing arrangements for transportation) is at least equal to 25 cents per barrel on flour, and sometimes much more." When the canal from Caughnawaga to St. John's shall be completed, the same correspondent is of the opinion, that a barrel of flour can be landed at Burlington, from Cleveland, Ohio, for 35 cents, and allowing the same rate from thence to Boston. We imagine the freight from Burlington to Boston is overestimated rather than under, and that 60 cents will be found to cover

the whole charge—nearly one-half of which is wasted by the deterioration of produce in consequence of transhipment, &c., required by the existing process of transportation! Our merchants and business men understand, as well as do the producers and traders of the West, the immense advantage that would result from securing an avenue for the transmission of produce which should supersede the necessity of breaking bulk between the point of production and the market. The absolute saving, on a cargo of 16,000 bushels of wheat or corn, would be prodigious, as must be obvious to any one acquainted with the present methods of shipping and trans-shipping grain.

We are glad to assure our readers that the enterprise of which we are speaking is in hands that will not suffer it to sleep. Indeed, the early completion of the short and eminently feasible canal necessary to unite the waters of Lakes Michigan and Champlain, may be said to be inevitable. It is a measure rendered certain by its own intrinsic importance, no less then invited by its manifest practicability.

We need hardly add that the prospect of opening this avenue of direct Trade and Commerce with the mighty West, furnishes an additional and perhaps the highest objection to any project for bringing our Lake at Rouse's Point, or elsewhere, if, indeed, it may be assumed that such a project is now seriously entertained. Certainly the opening of ship navigation from Chicago to Burlington, would, at once and effectually, diminish the zeal, in Boston, for a bridge across the outlet of this lake for the purpose of securing a continuous railroad to Ogdensburgh. Burlington would then occupy the relation to Boston that Ogdensburgh is assumed to occupy now, as the terminus of shipping trade between Boston and the West; and "national" as our New England metropolis may be thought she is about the last city in the universe to build a rod of unnecessary railroad, or a square inch of a fancy bridge.—*Burlington Free Press.*

Port Phillip Immigration and Anti-Shipwreck Society.*

Report by a Committee of the Port Phillip Immigration and Anti-Shipwreck Society, Instituted in Melbourne, Port Phillip, at a public meeting held on the 14th of December, 1846.

Your Committee will commence by submitting the purposes for which the above Society was formed, viz.:—In the first place that, by exposing the evils of the system under which merchant shipping are built and conducted, public attention might be brought to bear upon the matter, and some remedial measures adopted by the Legislature of the Empire for lessening the appalling loss of human lives, and the destruction of an immense amount of property which now accrue in a deep degree, chiefly from defective legislation. And in the second place to remove a great bar to emigration, arising from the present frequency of shipwrecks, by

* We print the above by special request.—Ed. *N.M.*

which emigrants are deterred from undertaking a voyage to this distant colony, and for the want of whom employers of labour are suffering to an extent that in its continuance must seriously retard the progress of this flourishing portion of the Empire.

Your Committee proceed by citing some cases of shipwreck, and in doing so, confine themselves to a few which have lately occurred in this part of the world. These cases they conceive will illustrate two very important defects in the existing laws which regulate the mercantile navy, defects practically taken advantage of in the building and conducting of merchant ships. These defects are, first—That merchant ships may be and are legally so weakly built, and then sent to sea, as to incur a certainty of wreck by such a disaster as would not have occasioned a wreck had the ships been properly built. Second—That they may be and are legally so incompetently commanded and officered, as under ordinary difficulties to occasion wreck.

Case I.—The ship *Regular*, from London to Bombay, on 13th May, 1843, carrying a valuable cargo of specie and metals, when off the Cape of Good Hope, sprung a leak, without coming into contact with any solid body, and went down in the open sea, being 900 miles from any land. The persons on board, numbering thirty-four, were in this instance providentially saved in the boats. The ship had lately been restored to the first description of the first class of Lloyd's.

II.—In May, 1845, the ship *Mary*, from Sydney to London, struck on a rock near Flinder's Island in Bass' Straits, and in seven minutes from the time she struck, the ship was in pieces, and seventeen persons drowned. The captain was below, unaware of the danger, when it occurred.

III.—In August, 1845, the *Cataraqui*, ran on a reef of rocks off King's Island in Bass' Straits, and in half an hour from the time of her striking all the passengers below were drowned. Immediately on striking she was sounded, and found to have made four feet of water in her hold. She was nearly a new ship, and by this catastrophe 399 emigrants and crew were drowned. It is reported that this frightful disaster occurred solely from the lamentable ignorance of the master of the vessel respecting his position.

IV.—In March, 1846, the *Maria Somes*, left Ceylon with 318 soldiers, (90th regiment,) soon afterwards the ship encountering bad weather, sprung a leak, and made five feet of water. The hatches were battened down—and on opening them, thirteen persons were found dead, from suffocation. The *Maria Somes* was nearly a new ship.

V.—In April, 1846, the *Heroine*, Capt. Mackenzie, left Sydney, and ran on a sunken rock in Torres Strait, and went down instanter, so that there was not time even to lower the boats. In her eight persons were drowned.

VI.—In July, 1846, the *Ewcretta*, from Sydney with a cargo valued at £25,000, in going up the Thames, got upon her anchor, and soon afterwards went down in the London Docks, so suddenly, that the persons on board had barely time so reach the quay in their night clothes before she sank.

VII.—In March, 1847, the *Sovereign*, steamer, coming out of Moreton Bay, New South Wales, in crossing the bar, without striking the ground, got disabled, and in three-quarters of an hour afterwards sank with all on board. By this catastrophe forty three persons were drowned, The *Sovereign* was naerly a new vessel, had lately had a thorough repair, and after the loss was certified by eminent shipbuilders and others to have been "strong, staunch, and sound at the time of her wreck."

Your Committee consider the foregoing cases as samples of the inefficiency prevalent throughout the British Mercantile Navy. Hundreds more might be instanced, to the same effect. They will merely add that, within the last ten years, on King's Island alone, in Bass' Straits, five ships besides the *Cataraqui*, have been lost; namely, the *Harbinger*, *Neva*, *Rebecca*, and two ships called *Isabella*. The *Neva* was transporting females convicts, and drowned nearly all of them. Within the same time, three other ships freighted with convicts have sunk, and nearly all on board were lost.

Your Committee, in the next place, will endeavour to shew that merchant ships may, at infinitely less than a fair increased charge for the concurrent advantages, be so well built and commanded, as will enable them, whilst their qualities for carrying are enhanced, to successfully resist dangers which now overwhelm, and to overcome difficulties which now paralize and destroy.

Discarding all technicalities, they will begin by stating that hulls of merchantmen are built in three separate parts, but not all the parts closely fitted together. The outer part, which is less in thickness than one-fourth of the whole, is the solitary portion where care in building is bestowed to keep out water. Now, it is equally simple to make the two other parts waterproof also, which would give all the security wanted; for those inner parts are less exposed to danger than the outer part, and are more than three times thicker. Further, contrast the difference between the build of the man-of-war and that of the merchantman. The skeleton of the merchantman may be seen in any ship-yard, with the timbers of the vessel standing at certain distances apart. In the skeleton of the man-of-war, on the contrary, these timbers are placed in close contact in the bottom, affording thereby additional security against violence of any kind; then comes the planking outside and inside, which binds all together with a degree of strength calculated almost to bid defiance to tempests. Granted, that the vessel is still not proof against rocks and shoals; yet even here she will live, while weaker vessels would be riven to atoms.

To proceed.—It is estimated; upon the authority of Mr. James Ballingall, formerly a Master in the Royal Navy, subsequently in command of several merchant vessels, a surveyor to Lloyd's, and a prominent and most useful member of this Committee, that the cost of improving the build of merchantmen to the full extent herein specified, would not, on an average, be increased beyond one-eighth thereby. The worst built ships might demand as much as one-sixth increase of outlay, to make them *really seaworthy*, whilst there are a much larger number which might to that extent be improved at an increased expense of one-tenth of their present cost.

With respect to the expense of obtaining efficient Commanders and Officers, Your Committee do not consider that there is even the temptation of economy in outlay for the present common incompetency of masters and mates; but, that as it is ascertained to be the custom, whatever may be the cause, to place in command and in authority, incapable

persons for the navigation of vessels, they do consider that an enactment is demanded by common humanity and policy, to prevent shipowners from sending forth upon the trackless ocean, a machine freighted with property and human beings, helplessly ignorant. That although there is a chart on board, there is no competent reader; a compass, but no guide; and a rudder, but no helmsman: thereby adding the fearful affliction of an ignorant master and crew to the dangers of the deep. Who, having travelled much upon the ocean, has not had to thank God oftener for overruling the palpable exhibitions of gross inability and disordered discipline, than for protection from the unforeseen tempest, or the unknown rock or shoal?

M'Culloch, in his Commercial Dictionary, page 1376, estimates the loss of property in 1841, and 1842, from shipwreck only, at £2,506,200 a-year, and the yearly loss of life, at 1450 to 1500 souls!

To conclude this portion of our Report, we extract from the same high authority, in continuation of the above statistics, page 1376:—

"These heavy losses might be materially diminished by building better and stronger ships. * * * No donbt, however, *the carelessness, ignorance, and incapacity of the masters, is the great source of loss*, and nothing, certainly, would do so much to obviate this, as, to make the obtaining of a certificate of fitness, after undergoing an examination by some Public Board, indispensable, to enable any individual to be appointed to the command of a ship."*

Your Committee will now endeavour to exhibit something of the system under which merchant shipping are, at present, built and conducted:—A society was formed in 1834, (*vide* M'Culloch's Dictionary, page 1114,) under the superintendence of a Committee, in London, of twenty-four members, composed of an equal number of Merchants,

* Very material changes have, and are still taking place with regard to masters and mates. By a reference to Lloyd's Register of British and Foreign Shipping, the Committee will see that Examining Boards have been established, before which numbers of these officers have passed and obtained the required certificate. Their names have, from time to time been transferred to our pages. The examination is certainly not compulsory, yet we could wish that all who are destined to hold any important command in a merchant ship, should be obliged to go through this ordeal. We do not say this from any disrespect towards those in command of our mercantile marine; we deeply appreciate the talents of numbers of them, and heartily rejoice in finding some of their names on the passed list; they are aware of their competency, therefore have not shrunk from an examination, for independent of the satisfaction it has given to themselves, they naturally conclude that greater confidence will be placed in them. But to those who in their self-assurance will tell us, "We can navigate a ship across the Atlantic without passing an examination," we would merely ask them, would it injure your reputation as seamen and navigators by the possession of a warrant for your fitness? Officers in the Navy undergo this trial,—masters in particular in navigation;—we can see no reason then, why it should not be made compulsory on all under whose charge so many valuable lives, to say nothing of property, are placed. Ships may be lost under the direction of the most skilful pilots; but it must be some little source of satisfaction to a merchant to know, that notwithstanding his property is lost, it was entrusted to one fully competent to convey it to distant lands, as testified by the certificate of a Board of Examiners.—Ed. *N.M.*

Shipowners, and Underwriters, for the purpose of making a new classification of merchant shipping. And with their name and authority, is annually published, the elaborate work called "Lloyd's Register of British and Foreign Shipping." The rules of this society for the construction of vessels, govern the Shipbuilder, and its Register of classification is the Guide book for the Shipowner, the Underwriter, the Merchant, and the public. Now it is affirmed, that these rules define, for the highest class of ships, a specific construction, incomparably inferior to that of the vessels of the Royal Navy, and such as to render merchant ships incompetent to cope, like those of the Royal Navy, without wreck, with casualties at sea.—*Vide* the rules of "Lloyd's Register of British and Foreign Shipping," and also, Mr. Ballingall's Comment, appended to this Report.

Having used some research in discovering wherefore such rules should have been made, and obstinately adhered to, we will point out the result of our labours:—

First.—The highest class, or strongest ship, and that upon which the smallest premium of insurance is taken is so defective, as to require one-tenth more money to be laid out on her, to make her *really seaworthy*.* But as an equal premium would be charged on the ship so made seaworthy, the underwriters, hereby, so far make it the interest of shipowners not to possess seaworthy ships.

Second.—Underwriters pay only two-thirds of damage, in case of a partial loss, but pay in full, if the vessel be totally lost. Hence the anxiety by the shipowner, for the possession of such a vessel as, in case of an accident at sea, would sink *instanter!*

And for evidence that *unseaworthiness is not a bar to the recovery of insurance*, and that no hazard is too great for the underwriters, *vide* the following extract from M'Culloch's Dictionary, pp. 714 and 715.

"It might be supposed at first sight, that insurance affords a much less perfect security than it really does, seeing on how many pleas it is possible for the insurer to dispute his liability, but when it is considered, that the proof of unseaworthiness is thrown upon him (the insurer), and that the leaning of the courts is always in favor of the insured,) it will be easy to suppose that no respectable insurers will ever plead unseaworthiness, unless they could make out a case of more than ordinary strength and clearness. The degree of uneasiness felt by Merchants and Shipowners, at their liability to be involved in loss, by cases of unseaworthiness, may be guessed from the fact that although the Indemnity Assurance Company, at one time, precluded themselves from pleading unseaworthiness, by a special clause in their policy, not only did they obtain no additional premium, in consequence thereof, but they did not even obtain a preference over other companies and individuals, at the same premium. Unseaworthines may be caused in various ways, such as want of repair, want of stores, want of provisions, want of nautical instruments, *insufficiency of hands to navigate the vessel, or incompetency of the master.*"

In endeavouring to account for practices, inducing the building of

* Safe to navigate the ocean, might be a better expression than seaworthy. No person can define what seaworthiness is.

unsafe vessels, we were led to suspect that a combination existed between the Shipowner, Underwriter, and Merchant, for this purpose; and accordingly, we find at the Committee of Lloyd's consists, as we have before stated, of an equal number of Merchants, Shipowners, and Underwriters, who regulate the construction and classification of Merchant Shipping; and further, we find from (M'Culloch's Dict., p. 713), that "one-half of the Underwriters in London is composed of seven Companies, who number amongst them some of the most eminent Merchants and Shipowners." Hence it follows that, similar interests govern the insured and the insurer, in classifying, as well as as in building ships for insurance, and the Underwriter and Shipbuilder work together on this wise. The Shipbuilder constructs weak ships in order to increase his trade, and that the public may insure, and put money into the pocket of the Underwriter. The Merchant is quieted by being taken in as a partner with the Underwriter, the Shipowner being insured, suffers no loss by the loss of his vessel, and hence, is concocted (wheel within wheel), the infernal plot, which carried into effect, yearly destroys as before quoted, nearly two-and-a-half millions of property, and consigns nearly fifteen hundred human souls unwarned to their last account.

To shew one effect of, and encouragement to this crime we exhibit the following particulars: (M'Culloch's Dictionary, page 1112.)—

"Some ships are so so very bad that they actually go to pieces on their first voyage; others *with difficulty* last but three, four, or seven years; and others again run for ten, fifteen, and even twenty years and upwards, with but little repairs."

After this extract, we are more than justified in stating, that a really *seaworthy* built ship will, irrespective of all its other superiorities, last *twice as long* as one of ordinary build.

Finally.—Your Committee would draw attention to the facts elicited in this report, bearing directly upon the evils, — to obtain the correction of which is the object and aim of this Society.

The fact of unseaworthiness is allowed by the Shipowner and Underwriter to arise from incompetency of the master, and insufficiency of the crew, as well as from want of repairs to the vessel, &c.; and yet unseaworthiness is never made a bar to the recovery of insurance. So that not only no encouragement is given by the Underwriters for Shipowners to possess sound ships, and really able masters and seamen; but the Committee of Lloyds, define for the highest class of vessels, a defective construction. And, besides this, the Underwriters encourage to the last degree, the employment of deficient masters and crew, and of defective vessels, and offer a premium upon total wrecks and wholesale murder, by their custom of paying the full insurance upon a total loss, and only two-thirds of the amount of damage in the case of a partial loss!

We trust that the Government will not much longer permit the enormities of a system, by which the cupidity of a body of men is allowed to pursue its wretched cravings, not only at the sacrifice of an immense

capital, which is repaid in additional charges for freights,— thereby imposing a tax upon the community, and a check upon the commerce of the country, — but at the expense also of the lives of so many of our hapless fellow subjects.

Your Committee will at present rest in their Report, with the hope that an *earnest inquiry* will ere long be set on foot, in the proper place, into this great public grievance, and in the meantime they recommend that every available method be taken by the Society for the diffusion of its views, and the general adoption of its objects.

Your Committee will now merely take leave to add, that they can see no method so readily available as that of getting a proper plan of construction, proportioned to the size and capacity of vessels, but having no reference to their form or shape, prepared by the Surveyor and Master Shipwrights of the Royal Navy, (who can only have an interest for the public good,) to be approved by the proper authorities. And that Surveyors in the pay of, and responsible to, Government, be appointed to see that this construction is adopted, and faithfully carried into effect, and that the vessels are kept subsequently in good repair. These rules to be enforced by the condition of obtaining a Register in the first instance, and a clearance from any Port in the British Empire in the second. And further, that proper Boards be appointed by the Government for the examination of the qualifications of master and mates in the merchant service; and with power to investigate into the cause of loss of all vessels wrecked. These suggestions to be embodied in an Act of Parliament.

May 18*th*, 1847. W. M. Bell, *Chairman.*

Comment by James Ballingall.

To comment on the rules laid down in Lloyd's Register of British and Foreign Shipping, it would be necessary to quote them. After being quoted they would not be intelligible to the public generally, for whom this Report is intended, unless accompanied with drawings to explain them and expose their defects. To do this effectively, would require so much space, as to be objectionable on that account. I have, therefore, preferred giving reference to authorities where the defective construction of merchant shipping is explained and exposed, and to conclude with two extracts on the subject.

The authorities to which I refer, are — On the construction of ships in the Mercantile Navy, with plates; published in the Supplement to the Edinburgh Encyclopedia, vol. 18, Bulmer and Nicol, London, 1820. 2nd.—An inquiry into the means taken to preserve the British Navy; Winchester and Vanham, London, 1821. 3rd.—The Mercantile Navy improved, with plates; Morrison, London, 1832. 4th.—The Mechanic's Magazine, for 2nd of February, and 23rd of April, 1833, with plates, London. 5th.—Improvements in Naval Architecture, by Oliver Lang, master shipwright, Royal Dockyard, Woolwich; Edwards, Woolwich, 1834.

These publications shew the defects of the present method of constructing merchant ships, and how they might be remedied. They have been noticed in the *Edinburgh Review, Westminster Review, United Service Journal, Chambers' Journal, Tait's, Metropolitan, Nautical, Athenæum, Sailors'*, and *Christian Physician Magazines;* various pamphlets, and generally by the weekly and daily Press of the United Kingdom, all unanimously approving of the improvements pointed out, and condemning the method in which merchant ships are built, and continue to be built till this hour. The practice has further been condemned, and the improvements recommended for adoption by Committees on Finance and Shipwreck of the House of Commons. It is here proper to notice that the same defective construction is adhered to, and persevered in, in building merchant steam vessels, as in ships. Whatever may have been the motives for enacting the present very defective rules of Lloyd's, ignorance of the evils to arise from them, cannot be pleaded, seeing they were enacted in 1834, and all of the notices above referred to, and extracts to follow, were published previous to that date. Besides the public Press, the enactors of these rules had their attention called to the subject, and the evils arising from defective construction, in the very stormy year of 1833, pointed out to them personally and by letters, to the objects of which, they turned deaf ears. Models of an improved construction were also offered for their inspection free of expense, but they refused to look at them. My character would be at stake, and it would be injustice to the parties alluded to, if I was not in a position to prove everything which is here advanced.

Extract from the Edinburgh Encyclopedia, vol. xviii., page 202.

"We cannot do better than quote the opinion of a Select Committee of the House of Commons, which is given in their third Report on Finance:—

"Your Committee deem it their duty particularly to notice Mr. Seppings, one of the surveyors of the Navy, to whose abilities and exertions the country is mainly indebted for many of its most valuable improvements in naval architecture; the ingenious models of which have been submitted to the inspection of your Committee, with all the necessary explanations of their several uses and application. Your Committee do not pretend to describe or appreciate with accuracy, the value of these improvements, to estimate which to their full extent, requires considerable professional experience; they are, however, fully convinced that the result of them will be to effectuate in the construction of ships of war, a great saving of expenditure to the public, and to secure a proportionate economy of human life, arising from their superior durability and the great power of resistence to the elements, and to the casualties incidental to nautical life, which the modern system of keeping our ships at sea at all seasons, and in all weathers, has rendered of the utmost importance. These services, although they have nothing of that brilliancy which forcibly attracts public admiration, will continue to confer a lasting benefit to the British nation, long after that period when the beneficial effects of victories, however splendid, shall have passed away." Page 203.—"There are many instances of vessels built according to this method, having been saved, which would inevitably have been lost had they been constructed according to the method formerly practised."

If this improved construction has been found after more than a quarter

of a century's experience, so effective in saving life and property in the Royal Navy,* I ask upon what principle of reason, common sense, justice, humanity, or national policy, it is withheld from the Mercantile Navy? Is it not the duty of the State to preserve the lives of its subjects from being lost by thousands in those engines of destruction called merchant ships, when the means of doing so are so well known to it, nay, adopted, and proved effective, in the ships and vessels immediately under its control? The vessels of the Mercantile Navy are much more numerous, they sail worse, and many more persons are embarked in them, than in the vessels of the Royal Navy. The Mercantile Navy is also much less efficiently officered and manned, and on all of these accounts, it is the more requisite that a principle of safety, proved to exist, and to be inherent in the vessels themselves, should be adopted in it. The lives and property are as much the lives and property of British subjects, as in the Royal Navy. To allege that, the objection to a better and safer construction of merchant vessels, is the increased cost, is one of the grossest fallacies ever palmed on mankind. That is if *safety* was a property in requisition, which under the present system it is not.

The expense of insurances is paid by the consumer of sea-borne commodities, charged in the price of the articles; or in other words, paid by the public, and the public are both ready and willing to insure the vessels at the increased, as readily as at the lesser cost. By agitating this subject to a successful termination, and forcing it on the attention of the country till reform is obtained, the public will effectuate a saving of the lives of at least a thousand persons yearly, and above two millions sterling yearly of property. There is neither mistake nor doubt about the matter.

It is not the value of the property which is swallowed up in the sea alone, which is lost to the public by the present defective system. There is to be added to it, a great additional sum for the support of widows and orphans left destitute by the drowning of their husbands and parents, and of additional premiums of insurance over what would be required, was sea risk diminished to the extent which it easily might be. Very many instances might be given, where men-of-war have been preserved, with the whole of their crews, and where, in similar circumstances, merchantmen would almost immediately on touching the rocks or sandbanks, have been knocked to pieces, and drowned all on board. The writer was himself in a frigate which beat on a reef of rocks, in a heavy sea, for eight hours: was forced over the reef, and preserved the lives of all on board. No merchantman could have withstood such a beating.

To prevent the possibility of being misunderstood, I consider it necessary to state that the following description of a merchant ship, extracted from the *London Spectator*, is as applicable to merchant ships, and merchant steamers, building at this hour, as when the article

* It was introduced into the Royal Navy in 1814.

was published, on the 3rd of November, 1832,—two years, it will be observed, before the rules of Lloyd's, now in use, were enacted. Rules which, instead of making safety a condition, are a positive enactment against it. Leaving property out of the question, how many thousands of human beings have been drowned in ships and steamers, since these rules were enacted, and where they have been fully attended to, and complied with, whose lives would have been preserved, had the vessels been properly built, and kept in proper condition.

Extract from the *London Spectator*, of the 3rd of November, 1832.

"A ship, according to the common form of building, is one of the frailest of vessels that ever art in its infancy constructed. The hull consists of a series of pieces of timber fastened at right angles to each other, which in their aggregate are so ponderous, and from the mode in which they are fastened cohere so slightly, that it requires the actual external pressure of the water to hold them together. Under ordinary circumstances, whenever a ship takes the ground, and the support from without, is withdrawn, it falls to pieces on the slightest agitation, from the mere effect of its own gravity. Not only is the form of building of all others the weakest, and only to be perfectly sustained by the presure of the denser fluid from without, but the expedients adopted, with a view to keep that fluid in its proper place, are of the most bungling and imperfect kind.

"It might be supposed that, however ignorant of the principle of diagonal ties, common sense would, without any instruction, have taught a Shipbuilder to use all accessible means to prevent his vessel from leaking. To leave a hole unstopped, when the stopping of it is matter of plain and practicable necessity, seems the very sum of stupidity. Yet this sum of stupidity has been attained to, and is still persevered in by nearly all the Shipbuilders in the world. Nay, the resources of art have been called into action, still further to weaken what was previously feeble; and means and appliances have been used to make that doubly hazardous, which was naturally obnoxious to injury. The plank which runs parallel and next to the keel, (the bottom plank as one of the uninitiated would call it) is termed by the Shipbuilders the 'garboard streak.' If there be any part of the vessel that requires to be stronger than another, with a view to guard against leaking, it is this plank; for it is plain to the meanest capacity, that the pressure of the water must increase in force as we descend—that a very small hole at the extreme depth of the vessel's hold will pour in a much greater stream than a hole of larger dimensions near the water line; added to this, a damage in the former case is got at with much greater difficulty than in the latter. Now, would it be believed, that not only is this 'garboard streak' not stronger than the rest of the planking, but that it is invariably weaker—that the substance of it is cut into and channelled, in order to serve as a waterduct for the pumps*—that in a vessel of a thousand tons, the utmost defence that is placed between the crew, the passengers, the cargo, and destruction, even in its

* The most improved practice has introduced a very slight improvement in this respect. In the very strongest and best built merchant vessels, a piece of wood, exactly of the shape of a wedge, is nailed on the timbers, or ribs, before the "garboard streak" is put on, and being cut off a liftle short of the keel, at the thick end forms a waterduct to the pumps. This has the same effect as if the timbers were so much thinner at that particular place.

(1.) The *Heroine*. (2.) The *Eweretta*. (3.) The *Regular* and *Sovereign*. (4.) The *Maria Somes*. (5.) The *Mary*, *Cataraqui*, and *Heroine*, *Amphitrite*, *George III.*, *Neva* and *Waterloo*, convict ships; and a host of steamers, the latest of which, that have heard of, is the *Sovercign* at Moreton Bay.

first voyage, and in its best and soundest state, is two inches of oak timber! that a touch from a bit of pointed coral (1)—a scratch from its own anchor (2) —is sufficient at any time to drown, with all its contents, the proudest Indiaman that ever floated!

"But this is not all. The 'garboard streak' is not the only vulnerable part: every part, from the keel to the waterline, is equally unsafe. Pierce the outer planking, and down goes the ship; *i. e.*, let one-tenth part of the substance of its mighty and apparently substantial sides be destroyed, and the whole is destroyed How is this? landsmen will say. Nothing is easier of explanation. The outer planking is the only part of the vessel that is impervious to water. Destroy that, and the *Royal George* (merchantman) is as much at the mercy of the waves as was the coracle of Caractacus when the cow hide that covered its wicker work was destroyed—The ponderous ribs gape to admit the full stream (3); the inner planking, though somewhat more closely fitted is equally pervious.

"Sir Robert Seppings in the Royal Navy, had the merit of first applying a remedy to the gross and apparent defects of shipbuilding after the old plan. He remedied its weakness by the introduction of diagonal ties; he filled up the interstices between the ribs, so as to render the entire wall of the vessel's sides equally waterproof.

"Vessels built according to Sir Robert's plan, are immeasureably stronger; they can sustain much longer the fury of the waves afloat, (4) and they can take the ground with much more security. Before they can spring a leak, it is absolutety necessary that the entire side be beaten in or perforated, or that the cohesion of the different part of the frame work be wholly broken. When a vessel built according to the "old plan" (the present plan by Lloyds' rules is perfectly similar to the old plan,) is driven ashore in blowing weather, the almost inevitable consequence is, its total destruction in an hour or two. Hundreds of lives and tens of thousands of property are lost every year, that would have been saved had the wrecked ship been strong enough to hold together for a single tide. (5) Sir Robert Seppings' plan presents an infallible remedy for such cases. If a vessel of his build cannot be got off a rock or shoal, it will, at least keep together while on it, until the crew be got off. As we have already noticed the smallest external damage suffices to sink a vessel built after the old plan (adopted and still adhered to in the mercantile navy). When such a vessel takes the ground, it is therefore not uncommonly as dangerous to heave it off as to let it remain. We might cite the *Invincible*, seventy-four, at Yarmouth—the *Abergavenny*, Indiamen at Portland; but examples are trite of vessels that have touched the sand even, sinking the instant they were heaved into deep water. Against every such accident Sir Robert Seppings' plan is an effectual safeguard.

"We had long thought that his invention (for it may well be called so) was incaple of improvement; but Mr. Ballingall, a gentleman who acts as Manager of the Kirkcaldy and London Shipping Company, has offered a suggestion which does seem no inconsiderable improvement. In the old plan, only the *outer* planking is rendered waterproof; in the new, the *timbers* are made waterproof. Mr. Ballingall makes assurance doubly sure by caulking the *inner* planking. Not only is this an additional safegard against leaks,—it is the best preventive of rot by keeping the timbers from contact with the air, the grand decayer of dead, as it is the grand sustainer of living vegetable as well as animal substances. Sir Robert Seppings' plan has been, hitherto, introduced into the Royal Navy only; Mr. Ballingall's wishes are directed towards the perfecting of the commercial marine. Mr. Ballingall does not stop short, by providing for the safety of the vessel. He has also invented an ingenious and simple method of building, by which, in case of a vessel's bottom being knocked in, it might yet float its crew—the under deck acting as a false bottom. He gives plans, moreover, for readily conveying the water in the hold, whether from leakage or otherwise, to the well; for protecting the pumps from being choked by the sand ballast; and he shows, plainly and practically, how water may be drawn from a vessel's bilge, where its accumulation, while on a wind, is very often extremely injurious to a perishable cargo.

"To each and all of those plans of Mr. Ballingall, which serve to perfect what Sir Robert Seppings so happily began, there is, in the eyes of practical men but one objection, they will somewhat enhance the expense of shipbuilding.* The exact amount of the enhancement we cannot pretend to determine with accuracy; but we feel fully persuaded, when there is set against it the wonderful increase of security to crew and cargo, and as a consequence, the extended duration of the vessel, and the diminution of sea risk and insurance, (2) the additional cost will return a large interest in savings. We wish, heartily, all success to Mr. Ballingall's endeavours. They who 'go down to the sea in ships,' whose business is in the 'mighty waters,' pursue a trade, as rough and perilous to individuals as it is important to the community; and he is most benevolently and patriotically employed, who shall devise any scheme by which, ever so small a portion of the labour and peril may be certainly abated."

Perhaps the shortest and best description of a merchant ship, is that given by a highly scientific naval officer, that it is a machine possessed of a *minimum* of strength, from a *maximum* of material.

I cannot quit this subject, without saying a few words on the daring impiety of attributing the frequency of shipwrecks, and their consequences of drowing human beings, to the ordinations of the Almighty.† When in fact, they are the punishment of the infringement and disregard of His laws, as immediately inflicted, as if the victims of the transgressors were killed by a thunderbolt. To imagine such a thing is rank blasphemy. The Almighty, in His supreme wisdom, permitted the Spaniards to nearly depopulate the West Indies and South America—in doing which, the Spaniards committed many murders. Can any man be found bold enough to say that the Almighty committed the murders, although He permitted them to be committed, in violation of His laws? The cases are parallel. Whilst we are stunned with cant, about the ways of Providence being unsearchable, there is never a word about ships being made knowingly, intentionally, and designedly unsafe, for the most criminal of purposes. To the guilty promoters and supporters of such a system, we say of the work we have taken in hand, "if this counsel, or this work be of men, it will come to nought. But if it be of God, ye cannot overthrow it, lest haply ye be found even to fight against God."

JAMES BALLINGALL, *Surveyor.*

At a Public Meeting, held on the 18th May, 1847, the Report of the Committee was unanimously adopted.

WILLIAM M. BELL, *Chairman.*

* So long as safety is a property neither desired nor desirable, by a Shipowner, the increased cost is an objection. Make safety a requisite condition to licensing a vessel, and the objection of increased cost would instantly vanish.

(2) This is the very reason why the improved construction is opposed. To diminish sea risk would diminish premiums of insurance, Hence the opposition to it.

† See a condition in Bills of Lading, "excepting the Acts of God."

Nautical Notices.

Hydrographic-Office, November 5th, 1847.

Lisbon.—Notice has been received from Her Majesty's Consul at Lisbon, that on the 1st of the present month, a Fixed Red Light would be exhibited from the Custom's Station House, at the Fort of Bon Successo, in the Tagus, to serve as a leading light for clearing the shoal near Belem Castle.

Trinity-House, London, 23rd November, 1847.

Trevose Head, *North-West Coast of Cornwall.*—Notice is hereby given, that pursuant to the intention expressed in the advertisement from this House, dated 12th August last, Two fixed bright Lights will be exhibited at different elevations from the tower at Trevose Head, on the evening of Wednesday, the 1st of December, and thenceforth continued every night from sun-set to sun-rise.

The higher of these lights will burn at an elevation of 204 feet above the level of high water, and will illuminate 274 degrees of the compass, or from E. ¼ S. round seaward to south.

The lower light, which is placed about 50 feet in advance or to seaward of the higher light, will burn at an elevation of 129 feet above the level of high water, and will illuminate 176 degrees of the compass, or from N.E. ¼ E. round seaward to S.W. ¾ W.

By Order,

J. Herbert, *Secretary.*

Trinity-House, London, 25th November, 1847.

Wreck in Torbay.—Notice is hereby given, that a green buoy, marked with the word "Wreck" has been placed about 15 fathoms E.b.S. ½ S. from a vessel sunk in the direct track of shipping seeking shelter in Torbay.

This buoy lies in 7½ fathoms at low water spring tides, with the following compass bearings, viz.:—

The southern extremity of Berry Head . .	S.b.E. ½ E.
Brixham north Pier Head . . .	W.b.S. ½ S.
Peignton Church	N.W.b.N.
The Mewstone or Great Rock off Hob's Nose . .	N.E. ¼ N.

By Order,

J. Herbert, *Secretary.*

Trinity-House, London, 4th December, 1847,

Swin Middle Sand.—Notice is hereby given, that in accordance with the intimation given by advertisement from this House, dated the 30th ultimo, a Nun Buoy of large size, colored Black, and surmounted by a Staff and Ball, has been placed at the Eastern End of the Swin Middle Sand, called the "Heaps."

The White Beacon Buoy heretofore at that Station, will be taken away and discontinued.

Notice is also given, that a buoy coloured Black and White Stripes, has been placed near the extremity of the North Eastern projection of the said sand called the N E. Middle: this buoy lies in 4½ fathoms at low water spring tides, with the following compass bearings, viz.:—

Swin Spitway Buoy	N.N.W. ½ W.
S.W. Gunfleet Buoy	N.E. ¼ N.
Heaps Buoy	E. ½ S.

It is hereby further notified, that the North Hook Middle Buoy has been moved about one quarter of a mile to the westward of its former position :—

and now lies in 4½ fathoms at low water spring tides, with the following compass bearings, viz. :—

Swin Middle Light Vessel	W.b.S. ½ S.
Whitaker Buoy	N.W.b.W.
N.E. Middle Buoy	E. ½ N.

By Order, J. HERBERT, *Secretary.*

Trinity House, London, 13th December, 1847.

WRECK IN THE EAST SWIN.—That a Buoy colored Green, and marked *Wreck*, has been laid 10 fathoms to the northward of a vessel sunk between the North Hook and N.E. middle buoys.

The buoy lies in 5½ fathoms at low water spring tides, with the following compass bearings, viz.:—

Swin middle light vessel	W.S.W.Wly
North Hook middle buoy	S.W.b.W.
N.E. middle buoy	S.E. ½ S.

By order, J. HERBERT, *Secretary.*

Genoa, 9th Dec. 1847.

QUARANTINE REGULATIONS.—The Board of Health published a decree on the 3rd inst., rescinding the suspension of free pratique to all vessels arriving from French ports in the Mediterranean; and, at the same time, ordered Quarantine to be performed by all vessels arriving from the Ionian Islands which shall have sailed from those Islands between the 18th and 30th ult.

DRAGO & WALSH, *Lloyd's Agents.*

Swedish & Norwegian Consulate General, London, 1st Dec. 1847.

REGULATIONS FOR VESSELS BOUND TO SWEDEN FROM PORTS ON THIS SIDE OF CAPE FINISTERRE.—Sir, Pursuant to instructions received from the Royal Board of Trade at Stockholm, I beg to communicate to you for the information and guidance of Mariners, that all Vessels departing from any foreigh port on this side of Cape Finisterre, and destined to Sweden, must be provided with a Bill of Health signed by the Swedish and Norwegian Consul at the place, or in the absence of such functionary, by the constituted authorities; in which must be stated whether the cholera has been, or is prevalent at the said port or in its neighbourhood, and as to the state of health of the Crew and Passengers on board.

Should the Vessel touch at any intermediate port on the voyage, it is the duty of the Commander to provide himself with a similar document from thence.

(Signed,) CHARLES TOTTIE.

W. DOBSON, Esq., *Secretary Lloyd's.*

Stockholm, November 30th. 1847.

THE SWEDISH NAVY.—It has been decided, that no ships of the line shall be built for the future; those ships of the line now in existence are to be repaired and altered, and the main strength of the marine is to consist in steamers. The new fleet is to be as follows:—Four steamers of 400 horse-power, 50 guns, and 500 men; Twelve steam-frigates of 300 horse-power, with 20 to 26 guns, and 450 men; four steam-corvettes, of 300 horse-power, with 6 to 10 guns, and 110 men; eight ton steamers, of 100 horse-power, and 60 men; four sailing frigates, of 52 guns, and 500 men; four sailing frigates, of 32 guns, and 320 men; twenty divisions of gun boats, mounting 200 guns in all. The total force will consist of 272 vessels, among which are 32 steamers, manned with 2608 men.

AN ACT FOR REGULATING THE SHIPPING OF SEAMEN.—*Cap. XXV.*

Whereas great frauds have been practised, and much inconvenience felt from the system of shipping seamen at the port of Quebec, in that part of the province which heretofore constituted the province of Lower Canada: Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the legislative council of the legislative assembly of the province of Canada, constituted and assembled by virtue of and under the authority of an act passed in the parliament of the United Kingdom of Great Britain and Ireland, and intituled "An Act to reunite the provinces of Upper and Lower Canada, and for the government of Canada;" and it is hereby enacted by the authority of the same, that from and after the passing of this act, it shall be lawful for the governor, or the person administering the government of this province for the time being, to constitute and appoint, during pleasure, a fit and proper person to be shipping master for the said port of Quebec, and who shall previously to entering upon his duties as such shipping master, himself, with two responsible sureties, enter into bonds to her Majesty, her heirs and successors, in the penal sum of five hundred pounds currency each, for the faithful discharge of his duty, (which bonds shall enure to the benefit of all parties who may be damnified by the misfeasance, malfeasance, or nonfeasance of the said shipping master, and all parties damnified shall be entitled to recover from him and his sureties before any court of competent jurisdiction to the amount to which they may have been so damnified): and the said shipping master shall, before entering upon the duties of his office, take and subscribe the following oath, before any of her Majesty's Justices of the Court of Queen's Bench for the district in which the shipping master shall reside:—

"I, A.B., do solemnly swear that I will faithfully and truly perform the office and duty of shipping master, according to the true intent and meaning of an act passed by the legislature of this province, in the tenth and eleventh year of her Majesty's reign, intituled 'An Act for regulating the shipping of seamen;' that I will not, either directly or indirectly, personally, or by means of any other person or persons on my behalf, receive any fee, reward, or gratuity whatsoever, by reason of any function of my office as shipping master, except such as are allowed to me by the said act; and I will not directly or indirectly accept of any bill or draught, bond or note, from any seaman whatsoever; and that I will act without partiality, favour, or affection, and to the best of my knowledge; so help me God."

Which oath and bond shall be filed, and kept among the records of the office of the registrar of this province.

II. And be it enacted, that the said shipping master shall be, and he is hereby authorised and empowered to appoint such and so many deputies for the said port, as shall by the council of the Board of Trade at the said port of Quebec be in the first place judged to be necessary, which said deputy or deputies shall have the power and authority given to him or them by this act, and shall take and subscribe the above oath before any of her Majesty's Justices of the Peace, and the same shall be filed in the office of the Clerk of the Peace for the district of Quebec; and any deputy so appointed, shall himself, with two responsible sureties, enter into bond to her Majesty, her heirs and successors, in the penal sum of two hundred pounds each, for the faithful discharge of his duties, which bond shall enure to the benefit of all parties who may be damnified by misfeasance, malfeasance, or nonfeasance of the said deputy, and all parties damnified shall be entitled to recover from the said deputy and his sureties before any court of competent jurisdiction, upon such bond, by suit or action, to the amount to which they may have been so damnified.

III. And be it enacted, that no person selling or vending any spirituous liquors, or groceries, tavern keepers, or boarding house keepers, or bailiffs, shall be eligible to the situation of shipping master or deputy.

IV. And be it enacted, that for each seaman shipped, the shipping master shall be entitled to take and receive the sum of five shillings currency, and for every certificate of shipment, if required, the sum of two shillings and sixpence from the master of the ship or vessel on board of which such seaman shall be shipped, or to which he shall belong.

V. And be it enacted, that the said shipping master shall keep a registry of all seamen shipped, which shall be open for public inspection.

VI. And be it enacted, that every seaman desirous of shipping, shall first exhibit his registry ticket to the shipping master or deputy, previously to being shipped, and unless the seaman shall exhibit such ticket, or show to the satisfaction of the said shipping master, or deputy, why he does not exhibit the same, such seaman shall not be shipped.

VII. And be it enacted, that no person not being such shipping master or deputy as aforesaid, or not being the owner, part owner, master or person in charge of a merchant ship, or the ship's husband, shall hire, engage, supply or provide a seaman to be entered on board any merchant ship; and no person whatever other than the owner, part owner, master or person in charge of any merchant ship or the ship's husband, shall demand or obtain the register ticket of any seaman for the purpose or under the pretence of engaging him on board of any merchant ship.

VIII. And be it enacted, that no owner, part owner, master, or person in charge of any merchant ship, or ship's husband, shall knowingly receive or accept to be entered on board the said ship, any seaman who has been hired, engaged, supplied or provided, to be entered on board thereof, contrary to the provisions of this act.

IX. And be it enacted, that every person guilty of any of the offences above described shall forfeit and pay for each and every seaman hired, engaged, supplied or provided to be entered on board, and for every register ticket demanded or obtained contrary to the provisions of this act, or for every seaman knowingly received or accepted to be entered on board contrary to the provisions of this act, any sum of money not exceeding ten pounds, upon conviction thereof, for each offence, although several seamen may be included in the same contract, or several tickets may be obtained, or several seamen may be received or permitted to remain at the same time.

X. And be it enacted, that it shall be unlawful for any person to employ any person or persons other than such shipping master or deputy, for the purpose of engaging or providing seamen to be entered on board merchant ships; and that any such shipping master or deputy, knowingly employing any other person for the purpose aforesaid, shall forfeit and pay a sum not exceeding ten pounds currency, and in addition thereto, shall forfeit and lose his office.

XI. And be it enacted, that the owner, part owner, master or person in charge of any merchant ship or ship's husband, shall not pay, in advance, nor give any note in writing or otherwise in the nature of, and purporting to be an advance note for any part of the wages of any seamen hired, engaged, supplied or provided to be entered on board the said ship, until six hours after the ship's articles have been duly signed by the said seaman, and by the master or owner of the said ship, and then only to the said seaman himself, unless such wages or advance of wages be paid in money, in which case the payment thereof may be made to the said seaman himself, at any period most convenient after the signing of the said ship's articles as aforesaid; and all

payments of wages contrary to the provisions of this act shall be and are hereby declared to be null and void, and the amount thereof shall be recoverable by the said seaman as if they had not been paid or advanced.

XII. And be it enacted, that if any person shall demand or receive from any seaman, or from any person other than the owner, part owner, master or person in charge of a merchant ship, or the ship's husband, requiring seamen, any remuneration whatever, either directly or indirectly, for and on account of the hiring, supplying, or providing any such seaman, he shall forfeit for every such offence a sum not exceeding five pounds currency.

XIII. And be it enacted, that it shall not be lawful for any person (other than any officer or person in her Majesty's service or employment, harbour master, deputy harbour master, health officers, and Custom-house officers) to go and be on board of any merchant vessel arriving; or about to arrive at the place of her destination, before or previous to her actual arrival in dock, or at the quay or place of her discharge, without the permission and consent of the master or person in charge of the said vessel; and if any person (other than as aforesaid) shall go and be on board any such vessel before or previous to her actual arrival in dock, or at the quay or place of her discharge, without the permission and consent of the said master or person in charge of the said vessel, he shall for every such offence forfeit and pay a sum of money not exceeding twenty pounds currency, and for the better securing the person of such offender, the master or person in charge of the said vessel is hereby authorised and empowered to take any person so offending as aforesaid into custody, and to deliver him up forthwith to any constable or peace officer, to be by him taken before a justice or justices, to be dealt with according to the provisions of this act.

XIV. And be it enacted, that if any person shall, on board any merchant ship, within 24 hours of her arrival at any port as aforesaid, solicit any seaman to become a lodger at the house of any person letting lodging for hire, or shall take from and out of such ship any chest, bedding or other effects of any seaman, except under the personal direction of such seaman, without having the permission of the master or person in charge of such ship, he shall be liable to forfeit and pay for every such offence, the sum of five pounds currency.

XV. And be it enacted, that if any person shall demand and receive of and from any seaman payment in respect of his board or lodging in the house of such person, for a longer period than such seaman shall have actually resided and boarded therein, or shall receive or take into his possession, or under his controul, any moneys, documents, or effects of any seaman, and shall not return the same, or pay the value thereof when required so to do by such seaman, after deducting therefrom what shall be justly due and owing in respect of the board and lodging of such seaman, he shall forfeit and pay a sum not exceeding ten pounds currency, over and above the amount or value of such moneys, documents, or effects, after such deductions as aforesaid, which shall be adjudged to be forthwith paid to such seaman under the conviction by the justices before whom such offence shall be heard and determined.

XVI. And be it enacted, that all penalties and forfeitures imposed by this act shall and may be recovered with costs, by summary proceedings before any two justices of the peace, residing at or near to the place where the offence shall be committed, or where the offender shall be; and if the sum imposed as a penalty, or adjudged to be paid as aforesaid by any justices shall not be paid either immediately after the conviction, or within such reasonable time as such justices shall at the time of the conviction appoint, it shall be lawful for the justices to commit the offender or offenders to

the common jail of the district of Quebec, there to be imprisoned only, or to be imprisoned and kept to hard labour, according to the discretion of such justices, for any term not exceeding three calendar months, the commitment to be determinable upon payment of the amount and costs; and all such penalties and forfeitures shall be paid and applied in manner following (that is to say) one moiety of such penalty shall be paid to the informer or person upon whose discovery or information the same shall be recovered, and the residue thereof shall be paid to the commissioners or others entrusted with the principal superintendence or conduct of the Marine Hospital at Quebec, and be applied and accounted for as are the moneys by law appropriated towards the support of the said Marine Hospital: Provided always, that in all cases of complaint made by or on the behalf of any seaman under this act, the evidence of such seaman shall be received and taken, notwithstanding he may be interested in the matter: Provided also, that such seaman shall not in any such case where he shall have been so examined receive any part of any penalty to be imposed, but only such sum as the magistrate before whom the case shall be heard, shall adjudge him to receive for any moneys or effects which shall appear to have been deposited by him with any such person as aforesaid.

XVII. And be it enacted, that the justices before whom any person shall be summarily convicted of any offence against this act, may cause the conviction to be drawn up in the following form of words, or in any other form of words to the same effect, as the case shall require, (that is to say):—

"Be it remembered, that on the day of in the year of our Lord at the city of Quebec, in the district of Quebec, A. O. is convicted before us (naming the justices), two of her Majesty's justices of the peace for the said district, for that he the said A. O. did (specify the offence, and the time and place, when and where the same was committed, as the case may be), and we the said justices adjudge the said A. O. for his said offence to forfeit and pay the sum of (here state the amount of the fine imposed, and, when necessary, add the words 'over and above the sum of which we the said justices do hereby adjudge to be forthwith paid to the said E. F. the seaman, the same being the value of moneys, documents, or effects of the said E. F., received by or taken into the possession, or under the control of the said A. O., and we the said justices do also adjudge the said A. O to pay the sum of for costs, and in default of immediate payment of the said sums of to be imprisoned in the common gaol of the district of Quebec for the space of unless the said sums shall be sooner paid, (or, and we order that the said sums of shall be paid by the said A. O. on or before the day of), and we direct that the said sum of part of the said penalty, together with the said sum of for costs, shall be paid to C. D. (the party informing), and the residue of the said penalty shall be paid to the commissioners, or others entrusted with the principal superintendence or conduct of the Marine Hospital at Quebec.

"Given under our hands the day and year first above mentioned."

XVIII. And be it enacted, that no such conviction shall be quashed for want of form, or be removed by *certiorari* or otherwise, into any of her Majesty's superior courts of record; and no warrant or commitment shall be held void by any reason or any defect therein, provided it be therein alleged that the party has been convicted, and there be a good and valid conviction to sustain the same.

XIX. And be it enacted, that the words "merchant ships," inserted in

this act, shall be understood to include any description of sea going, trading or passage vessel, lying and being within the said port of Quebec, and in the river St. Lawrence, between the said port of Quebec, and the port of Montreal, in the said province.

XX. And be it enacted, that all acts now in force, which shall interfere with this act, shall be and are hereby repealed.

XXI. And be it enacted, that this act shall take effect upon from and after the first day of January next, and not before.

July 28th, 1847.

Education in the Dockyards.

The following circular was issued, developing the further full intentions of the Admiralty with regard to the education scheme, to be in future adopted in the various dockyards.

Circular to Dockyards, November 29th, 1847.

Sir.—I am directed by my Lords Commissioners of the Admiralty, to call your attention to the Admiralty circular of 27th of June, 1846, and to those portions of the new regulations issued on the 27th of February, 1847, which have reference to the education of apprentices. By the first of these, an education at the public expense, in a school to be called "the Mathematical School" and to be established at Portsmouth, was promised to eight apprentices, to be selected annually from the dockyard schools, for superior ability, tested by public examination, at the close of the fourth year of their servitude. By the second, My Lords announced their intention of raising the qualifications which are now made the condition of entry into the dockyards, and of requiring the production of a satisfactory school certificate from every apprentice seeking to be placed upon the establishment. Their Lordships are now desirous to give to this system the fullest development of which it is susceptible; and, as a first step towards this, they propose to disconnect the office of schoolmaster altogether from the performance of other duties connected with the dockyard, being satisfied that the proper superintendence of a body of active and intelligent young men is sufficient to employ the most vigorous intellect. Provision will be made in the estimates of the ensuing year for a proper school establishment in each of her Majesty's dockyards, and the schoolmasters, who will rank with the foremen of the yards, will then enter at once upon the discharge of the duties assigned to them by this circular.

Admission of Apprentices.—It has already been directed by the regulations of February, 1847, that the admissions to the yard shall take place in January every year, when the whole of the candidates, whose names have been placed by Board Order upon the superintendent's list, will be examined in the presence of the superintendent and the principal officers of the dockyard by the schoolmaster and his assistant, who will draw up a careful report of their qualifications. No boy is to be placed upon the superintendent's list, after the 1st of January, 1848, whose age shall exceed 15, at the time of examination, which is to take place in all the yards between the 5th and 12th of January; and no boy is to be admitted into the yard without a competent knowledge of reading, writing, and the first four rules of arithmetic. If any of the candidates desire the examination to be carried further, the request is to be complied with, and the schoolmaster, after testing the intelligence of each, in whatever manner he thinks proper, is to prepare a graduated statement of their merits, which will be submitted to their lordships by the superintendent. My Lords do not intend by this, to supersede altogether the claims of long

servitude in the father or nearest relative; but they wish it to be distinctly understood that servitude will be of no avail unless accompanied by education, and that with the exception of some special cases the best educated boy will always have the preference.

Schooling of Apprentices.—From the time of his admission, every apprentice is to attend the dockyard school during the first four years of his servitude, at the close of which, the examination for the Mathematical School will take place, and his attendance upon the school will cease; though in special cases, upon application to the schoolmaster, and with the sanction of the school-committee, the indulgence of further attendance may be permitted, as an encouragement to the most deserving of the scholars. In the event of scientific lectures being given, all the apprentices who have completed their four years' attendance on school, and received good certificates, will be admitted to them.

Hours of attendance in School.—The apprentices who are attending school will be separated into two divisions, to attend alternately on different days. During the winter months, from October 12th, to the last day of February, inclusive, the first or upper division will attend one afternoon in the week, and three evenings, and the second or lower division two afternoons and three evenings. But from the 1st of March to the 11th of October, inclusive, the first division will attend two afternoons and two evenings, and the second division three afternoons and two evenings The afternoon school hours will be from the dinner hour to bell ringing, and the evening school hours from bell ringing to eight o clock, from the 12th of October to the last day of February, inclusive, and half-past eight o'clock from the 1st of March to the 11th of October.

School Certificates.—It will be the duty of the schoolmaster, at the close of the four first years, to give to each apprentice a certificate of his conduct in the school, and of his progress while there, a copy of which is to be transmitted to their Lordships by the superintendent, with the certificate of general conduct now given by the master shipwright; and my Lords reserve to themselves the right of excluding from the establishment, at the close of their apprenticeship, those whose testimonials are deemed unsatisfactory. In all subsequent promotions, the school certificates are to be produced, and due weight will be given to them, whenever they bespeak superior intelligence or industry.

The Mathematical School.—The first selection for the mathematical school will be made in January, 1848, my Lords having made provision in the estimates of the ensuing year, for giving effect to the promises held out by the late Board of Admiralty. The examination of the candidates will take place during the annual inspection of the school in each dockyard, when the eight most promising boys will be selected for removal to Portsmouth, in the proportions fixed by the Circular of June, 1846, namely: Portsmouth, 2; Devonport, 2; Chatham, 1; Sheerness, 1; Pembroke, 1; Woolwich and Deptford, 1. It is not their Lordship's intention to alter the rules laid down for the Mathematical School in any essential particular; but, as an additional stimulus to the young men educated there, in the highest principles of pure, and mixed mathematics, and in the science of naval architecture, they wish it to be understood, that all those whose conduct shall have been irreproachable, and whose examination at the close of the three years shall be satisfactory, will be entered at once as leading men in one of her Majesty's dockyards, where a regular course of promotion will be open to them, under the new regulations. My Lords command me, therefore, to communicate to you their desire that you will duly impress upon the artificers under your orders, the advantages brought within their reach by the new system, if they

choose their children to profit by it. A boy may be entered as an apprentice at 15, and, after attending the dockyard school for four years, he may be selected at 19, for the Mathematical School at Portsmouth. At 22, he may return to the service as a leading man. At 25, he may become an inspector by superiority over other competitors, with the rise to first-class inspector, foreman, and master shipwright, open, upon fixed, and intelligible, conditions, to every man of superior ability, who cultivates his natural gifts, and, does his duty to the crown as an officer. My Lords cannot but hope, that this plain statement will stimulate many vigorous minds to contend for the rewards of successful industry, and they are well satisfied, that the public service can only gain by whatever adds to the intelligence of those who are engaged in it, and ensures to the officers in the dockyards, that moral influence which superior knowledge will give over those who are placed under them. I am directed further to observe that, as the number of entries from the Mathematical School cannot excceed eight, annually, and these will be distributed over seven dockyards, there is no reason that the plan proposed will interfere with the course of promotion laid down by the new regulations.

(Signed) H. G. WARD.

THE ABOVE DOCKYARD CIRCULAR promulgated by the Admiralty, with respect to the establishment of Dockyard Schools for the apprentices, has reference to an arrangement which will take place in January next. The Mathematical School at Portsmouth is then to receive from Portsmouth and Devonport Yards two boys each, and Chatham, Sheerness, Woolwich, Deptford and Pembroke Yards one boy each, chosen from the most intelligent of the apprentices. These lads after passing three years in the Portsmouth Mathematical School, will be introduced into the yards as leading men.

THE NAVAL UNIFORM.—The following is the official circular which has been issued by the Admiralty with reference to the naval uniform :—

" My Lords are pleased to direct that a surtout frock coat shall be established for the under mentioned officers with the following distinctive marks, viz :—

" ADMIRALS, with fourrows of lace of five-eights of an inch on the cuffs, with or without epaulettes. CAPTAINS, with three rows of lace, of half an inch on the cuffs without epaulettes. COMMANDERS, with two rows of lace, of half an inch on the cuffs, without epaulettes. LIEUTENANTS and MASTERS, with one row of lace, of half an inch on the cuffs, without epaulettes. The surtout coat of all other officers to be perfectly plain. The coat to be of blue cloth, double breasted, with the naval uniform button. Warrant-officers, Midshipmen, Master's Assistants, and Cadets to wear their present dress.

" My Lords are further pleased to direct, that when on shore, in full dress, or in an undress coat, with epaulettes, no commissioned officer shall wear a cap, but must appear in the regulation cocked hat and sword.

" Patterns of the surtout coat, as well as of the belt and sword, to be worn in future, will be sent to the several Home ports and Foreign stations, for the guidance of the officers.

" No scales are in future to be worn.

" Admirals, and all officers in command, are desired to pay strict attention that these regulations be rigidly adhered to.

" By command of their Lordships,

H. G. WARD.

GRADUAL RISE OF NEWFOUNDLAND ABOVE THE SEA.—It is a fact worthy of notice, that the whole of the land in and about the neighbourhood of Conception Bay, very probably the whole Island, is rising out of the ocean at a rate which promises, at no very distant day, materially to affect, if not to render useless, many of the best harbours we have now on the coast. At Port de Grave, a series of observations have been made, which undeniably prove the rapid displacement of the sea-level in that vicinity. Several large flat rocks, over which schooners might pass some thirty or forty years ago, with the greatest facility, are now approaching the surface, the water being scarcely navigable for a skiff. At a place called Cosh, at the head of Bay Roberts, upwards of a mile from the sea shore, and at several feet above its level, covered with five or six feet of vegetable mould, there is a perfect beach, the stones being rounded, of a moderate size, and in all respects similar to those now found in the adjacent landwashes.—*Newfoundland Times.*

TRAVELLERS IN ABYSSINIA.—Intelligence has been received from Alexandria, of two enterprising French travellers, the Messieurs D'Abbadie, who have been for several years exploring Abyssinia and the adjacent countries, for the benefit of science. A letter written from Alexandria on the 14th of March, 1845, reached them at Gondar, in the province of Dembea, on the 1st of May 1847, and a letter dispatched by them from Gondar on the 10th of May, 1847, reached Alexandria only on the 2nd inst. These two gentlemen have recently visited the sources of the White Nile. As they had previously formed many connections in the country, they expected that this expedition would not have occupied more than four months from Gojam; but two English travellers, Messrs. Plowden and Bell, having only a short time before killed a Galla chief, the Galla tribes had determined on taking the lives of all Europeans falling into their hands, so that they had to proceed by a very indirect route, by which it took them a whole year to return to Gojam. They had the satisfaction of correctly ascertaining the sources of the White Nile, the principal one of which lies in lat. 7° 49′ 50″ N. They did not ascertain the longitude with any accuracy, for want of an almanack, which they had not with them. The province of Gojam was in a state of war, owing to the incursions of the powerful Ras Aly, with a strong army. The Coptic patriarch had been formerly expelled from Gondar, and the states subject to the Ras. The contending parties occupied all the principal roads in the country, and all communication with the sea-coast was interrupted.

A DISTURBANCE IN NEW ZEALAND.

There are accounts by way of Sydney, of more fighting in New Zealand; the Maories having attacked, in open day, the settlement at Wanganui, and plundered some of the unfortified houses in the suburbs. An unremitting fire was directed against the natives all day, from a stockade and gun-boat, commanded by Lieut. Holmes, and the natives at last were compelled to retire, having lost their great chief Maketu, understood to be the prime mover in the rebellion. As soon as intelligence of these disastrous occurrences reached Auckland, Governor Grey proceeded to Wanganui, in her Majesty's steamer *Inflexible*, and landed 100 men of the 65th, and about 80 sailors. They porceeded up the river in boats, with military on each side of the river, but though the natives did not retire, they were in such close contiguity to fastnesses and swamps, that it was deemed prudent not to attack them, so the reconnoitring party returned. Towards the close of May, the force at Wanganui was strengthened by Capt. Stanley, Lieut. Beresford, and thirty men of her Majesty's ship *Calliope*, and early in June, by a

Leiutenant, and forty men from the same ship, 116 men of the 65th regt., Lieut. Hon. W. C. Yelverton, and some artillery, all under the command of Lieut.-Col. M'Cleverty. Previous to the arrival of these reinforcements the natives had retired up the river to a position difficult of access. It is stated that upon three or four occasions, the military, civilians, police, &c, under the command of Governor Grey, and Lieut.-Col. M'Cleverty, with the sailors and marines, under Captains Stanley and Hoseason, R.N., in boats, went out accompanied by some native allies, and 30 or 40 Maories, who were the advance party, but they could not come to close quarters with the enemy; and though on the different occasions from 5,000 to 10,000 rounds of cartridges, with rockets from the boats, were expended, and the rebels were firing at the expedition from behind cover, they did not touch a man, and all the loss ascertained has been stated at four killed and a few wounded on the enemy's side. The troops on returning to the stockade and village of Wanganui every evening were fired at by the enemy till within a mile or two of home. The last accounts from the expedition are furnished by a letter from Wellington, bearing date the 18th June, which says, that it appeared from intelligence received the previous night that the number of killed and wounded on the enemy's side was stated at 10, but certainly 30 had suffered. The troops advanced on each side of the river, while the gun-boats cleared the banks, ravines, and gullies, with their guns and rockets, so as to prevent an ambush, and on one occasion, when considerably in advance of the troops, the boats fell in with a large body of the enemy; and had the land force come up at the time, probably we should almost have annihilated them. Most unfortunately, however, the bugle sounded a retreat, and the enemy quickly took up a position in a ravine, which commanded the ground to be passed over by Lieut. Collinson, R.E., and 70 men of the 58th, who would infallibly have been cut off to a man, but for the opportune arrival of the blue-jackets, under Captains Stanley and Hoseason, of the *Inflexible*, who cleared the ravine with their great guns and rockets.

Nautical Standard, October 30*th*, 1847.

New Charts.

(*Published by the Admiralty, and sold by Mr. Bate*, 21, *Poultry*,)

Poros and Naxos Islands (Archipelago.) *Capt. Graves, R.N.*, 1842, Price 3s.
Petali Islands, Do. *Com. Brock*, 1845, Price 1s. 6d.
Naussa Port, Poros Island, Do. *Capt. Graves, R.N.*, 1842, Price 6d.
Trio Port, Do. Do. *Do.* *do.* Price 6d.
Kyle Akin Harbour, Isle of Skye, *Com. Otter, R.N.*, 1847, Price 1s. 6d.
Tobermory, Do. do. *Do.* *do.* Price 1s. 6d.
Bantry Bay, (Ireland) Upper Part, *Com. Wolfe, R.N.*, 1846, Price 3s.
Berehaven Do. *Do.* *do.* Price 2s.
English Harbour, Antigua, West Indies, *Capt. Barnett, R.N.*, 1846, Price 1s. 6d.
Trepassy Harbour, Newfoundland, *Capt. Bayfield, R.N.*, 1847, Price 6d.
St. Martin Cove, Gretton Bay, S. America, *Capt. Fitzroy, R.N.*, 1836, Price 6d.
River Medway, 2 sheets, *Capt. Bullock, R.N.*, 1840, each 2s.

Charts Corrected.

Needles Channel, corrected by *Capt. Sheringham, R.N.*, 1847, Price 2s. 6d.
Firth of Forth, corrected by *Mr. Calver, Master R.N.*, 1847, Price 2s. 6d.

Examination of Masters and Mates in the Merchant Service.

The accompanying list of officers who have been examined and obtained certificates of qualification, under the voluntary system, between the 9th of June, and 4th of September, was issued by the Committee for Lloyd's Register of British and Foreign Shipping. It is gratifying to find that this system is rapidly making progress, and we observe with great pleasure that the advice we have repeatedly given, that both Masters and Mates should present themselves before the Elder Brethren of the Trinity House, where they may hope to be received with liberal feelings, and avoid all local prejudices and annoyances, has upon this occasion been fully acted upon. The greater number of the Masters and nearly all the Mates, it will be seen have been examined on Tower Hill.

The list also indicates another very striking fact, that is, that most of the officers are young, many of them in the prime of life, and all giving promise that ere long, there will be no difficulty in attaining the highest qualifications. We strongly recommend this useful class of officers, of our Mercantile Marine, to persevere, and we are persuaded that in the end, they will find it infinitely preferable to yield to the voluntary system, rather than be coerced by any legislative measure, which under the most favourable circumstances, would be in a great degree, an interference with private rights.

We have reason to believe that owing to the liberal manner in which Lloyd's Register Committee have spread these lists all over the world, that even now, those officers who have qualified, are in some respects reaping the benefit of their industry and ability. It is well known, that Lloyd's issue annually a large number of Certificates of the *qualification* of ships, if we may use that term, that is, of the characters they have been found to deserve upon survey. These Certificates, in the more distant parts of the Globe, are almost indispensable. It is a fact beyond all doubt, that in the Indian and China Seas a ship can scarcely obtain a charter unless the Captain can produce this species of evidence of her character. The number of Certificates issued, for example ; in each of the following years, was, as against the same expressed, viz. :—

1844	1,500
1845	1,813
1846	1,991

These Certificates invariably include the Captain's name; and we have been credibly informed, that of late several applications have been made to the Secretary for the Register Book, for the insertion against the Captain's name, of the class for which he has qualified. To this we conceive there can be no possible objection, indeed we believe that, on the contrary, every encouragement has been given to officers to produce their Certificates of qualification, in order that their wishes may be promptly acted upon. We cannot therefore too well, or too widely make known, that the Certificates of character, to which we have alluded, will not only indicate the qualities of the ship, but also the claims of those officers who have fearlessly subjected themselves to the ordeal of an examination; and we have no doubt whatever that the Government, in taking up transports, and hiring freight ships, will very shortly deem it indispensable that, at least, they should be commanded by qualified officers.

The publication of the Alphabetical List has given great satisfaction.

Examination of Masters and Mates.

Continued from page 558, Vol. for 1847.

Name of Party who has received the Certificate	Class of Certificate	Age	Present or last previous Service	Register Ticket	Where Exam.	When.
James Morgan	1st	41	Waverly, 436 tons	.....	London	10th June.
H. N. Wells	3rd	25	Governor Maclean, 216 tons (*as mate*)	10288	London	10th June,
Leonard Lowe	2nd	40	Wm. Wise, 229 tons	.....	London	10th June.
Robert Deas	1st extr	32	.....	.....	Leith	10th June.
J. B. Venus	2nd	34	Wm. Gales 344 tons	.....	London	8th June.
H. N. A. James	2nd	29	Collingwood, 743 tns (*as mate*)	25399	London	17th June.
James Wailing	2nd	31	J. Hullet, 300 tons (*as mate*)	27744	London	17th June.
Charles J. Ellis	2nd	25	Plantagenet 806 tons (*as mate*)	6343	London	17th June.
Geo. Coleman	2nd	28	Queen, 1307 tons ... (*as mate*)	33282	London	17th June.
William Reid	3rd	26	Dartmouth, 733 tns. (*as mate*)	329499	London	17th June.
J. Maughan	3rd	27	Arachin, 319 tons (*as mate*)	326794	London	17th June.
William Henry Lawton	2nd	30	Dartmouth, 733 tons	.....	London	18th June.
William Pearson	1st	27	Ann Bridson, 358 tons (*as second mate*)	138039	Liverpool	18th June.
William Allan	1st extr	36	.....	.....	Leith	25th June.
Andrew S. Leisk	2nd	23	Scourfield, 328 tons (*as mate*)	221231	London	28th June.
Wm. Edmondson	2nd	27	Rattler, 522 tons ... (*as mate*)	18867	London	1st July.
John Beatson Gullen	3rd	24	Water Lily, 286 tons (*as mate*)	27450	London	1st July.
James Milne	1st	28	Netta, 171 tons	257995	Dundee	1st July.
John Pearse	2nd	26	Rattler, 522 tons ... (*as mate*)	19918	London	2nd July.
R. Clarkson	2nd	35	Charles Jones 703 tons	.....	London	3rd July.
Edward Sayer	2nd	28	Wigrams, 288 tons	377128	London	2nd July.
W. Forsyth	2nd	27	Gen. Palmer, 532 tns	.....	London	5th July.
W. H. Norman	2nd	35	Hungerford, 736tons	.....	London	8th July.
E. R. Moodie	1st	22	Louisa, 400 tons ... (*as mate*)	.....	Dundee	29th June.
C. H. Maxsted	3rd	25	Agincourt, 669 tons (*as boatswain*)	164220	London	10th May.
Fred. Reeks	1st	23	Trent, 1800 tons ... (*as second officer*)	262736	Portsmouth	10th July.
F. A. Castle	2nd	28	Sir George Seymour 850 tons (*as mate*)	26351	London	15th July.
J. Christopher	2nd	30	J. Hullett, 300 tons	.....	London	10th July.
H. P. Bayles	2nd	36	Isab. Blyth, 443 tons	.....	London	14th July.
W. R. Wells	2nd	25	Georgiana, 242 tons, (*as mate*)	15888	London	15th July.

Wm. Thomas	2nd	27	Thomas & Hannah, 317 tons	.....	London	16th July.
G. H. Balls	2nd	39	I. Blyth, 443 tons	377852	London	16th July.
James Blow	2nd	23	Lismoyne, 506 tons	70356	London	16th July.
Wm. Gold	2nd	24	Euphrates, 500 tons (*as mate*)	31031	London	17th July.
E. Manning	2nd	24	Queen, 1307 tons (*as mate*)	33469	London	16th July.
John Turner	1st	...	.....	.....	Glasgow	19th July.
Heron Laing	1st	31	.....	.....	Newcastle	3rd July.
Wm. Strutt	2nd	26	Medway, 1940 tons (*as mate*)	10753	London	20th July.
George Bilton	2nd	27	.....	.....	Newcastle	26th July.
T. W. Millman	2 d	36	Cadet, 376 tons	.....	London	22nd July.
Harford Arnold	1st	40	John Line, 695 tons	.....	London	28th July.
G. Kettlewell	2nd	32	Clifton, 896 tons	.....	London	29th July.
Geo. Danford	2nd	28	Mermaid, 472 tons (*as mate*)	386178	London	28th July.
Robert Roe	2nd	28	Queen, 1350 tons (*as mate*)	29514	London	27th July.
William Henry Vickerman	2nd	25	Henry Walley, 305 tons	.....	London	29th July.
Robert Pratt	2nd	32	General Hewett, 961 tons (*as mate*)	34958	London	28th July.
Robert Beaton	2nd	35	Codrington, 210 tons (*as mate*)	19163	London	2nd Aug.
Richard Keating Johnston	2nd	23	Queen, 1350 tons (*as mate*)	33174	London	3rd Aug.
William Garrock Matches	2nd	28	Lancaster, 424 tons (*as mate*)	162821	London	5th Aug.
John Bell	2nd	35	Samaritan's Hope, 203 tons	.....	S. Shields	5th Aug.
John Weller	1st	22	Cowasjee Family, 450 tons (*as mate*)	.....	London	9th Aug.
William Champion	2nd	35	Sir Robert Peel, 730 tons	.....	London	5th Aug.
Sealy U. Townsend	2nd	29	Viceroy, 700 tons... (*as mate*)	.....	London	11th Aug.
Richard Owen Poole	2nd	23	Cambria, 760 tons... (*as mate*)	117671	London	11th Aug.
George Jones Sagon Page	3rd	23	Cadet 376 tons ..... (*as mate*)	62832	London	10th Aug.
Robert Troupe Moodie	2nd	25	.....	.....	Newcastle	10th Aug.
George Bird	2nd	27	Thomas and Joseph, 239 tons	.....	S. Shields	14th Aug.
James Gilbert Hoseason	1st	47	Hopewell, 480 tons	.....	London	16th Aug.
George Farmer Trader	2nd	23	Marion, 648 tons ... (*as mate*)	99797	London	14th Aug.
Edward Wm. Pitt	1st	30	.....	.....	Leith	16th Aug.
Henry John Wolfe	1st	43	Avon, 1107 tons ... (*as chief officer*)	252704	Portsmouth	16th Aug.

Robert Steer Norton	1st	31	Avon 1107, tons ...	.....	Portsmouth	16th Aug.
Robert Woolward	2nd	21	Avon, 1947 tons... (*as mate*)	154617	London	12th Aug.
Harvey Houson	2nd	21	Marion, 684 tons ... (*as mate*)	31765	London	16th Aug.
Walter Scott	2nd	25	Margaret, 623 tons (*as mate*)	386778	London	16th Aug.
John Owen	2nd	29	Cadet, 376 tons..... (*as mate*)	8501	London	16th Aug.
Charles Wm. M'Kerlie	1st	35	....	.....	Leith	20th Aug.
Rober Stobo	2nd	30	Eagle, 800 tons.....	.....	Portsmouth	23rd Aug.
Robert Thornhill	1st	44	Duke of Bedford, 720 tons	.....	London	21st Aug.
Frederick Augustus Fuller	2nd	37	Herald, 911 tons ...	34176	London	24th Aug.
John Porter	2nd	37	Enchantress, 150 tns	22422	London	23rd Aug.
Thomas Beazley	2nd	36	Nimrod, 240 tons ...	.....	London	20th Aug.
Jas. Mansfield Robertson	1st extr	33	.....	.....	Leith	24th Aug.
George Yates Mercer	2nd	24	Severn, 1800 tons... (*as second officer*)	16576	Portsmouth	27th Aug.
Alexander Lawrence	1st	34	Lady Clarke, 430 tns	....	London	30th Aug.
J. Artis Martyn	1st	31	Lalla Rookh, 372 tns	.....	London	26th Aug.
John Scott	3rd	25	Tagus, 265 tons..... (*as mate*)	.....	S. Shields	31st Aug.
Jas. Hildrith	3rd	32	Penelope, 397 tons... (*as mate*)	.....	S. Shields	31st Aug.
William Howard Smith	1st	34	.....	.....	Newcastle	31st Aug.
Bloomfield D. Freeman	2nd	31	Doris Anna, 486 tns	.....	London	30th Aug.
Samuel Cornish Walker	2nd	33	Ann, 800 tons	.....	London	30th Aug.
Andrew Abbott	1st	30	Jamaica, 361 tons... (*as mate*)	276606	Liverpool	31st Aug.
Robert Broadbeet Trotter	1st	31	Argentina, 245 tons	88391	Liverpool	31st Aug.
James Walker Gray	1st	27	Sir E. Parry, 575 tns	.....	London	2nd Sept.
John Rendle	3rd	27	Osprey, 93 tons.....	97904	Plymouth	3rd Sept.
R. Bradley	2nd	29	Wandering Shepherd, 226 tons.....	.....	S. Shields	2nd Sept.
William Hailey Gilson	2nd	32	Diana, 600 tons.....	.....	London	4th Sept.
Hugh Price Lewis	2nd	24	Ann, 800 tons..... (*as mate*)	4781	London	3rd Sept.
T. William Glover	2nd	22	Montrose, 283 tons (*as mate*)	98914	London	4th Sept.

MATES.

Thos. M'Adam Rowe	2nd	21	John Bibby, 547 tns	343829	London	4th June
Geo Dickeson	2nd	20	Culdee, 387 tons..... (*as midshipman*)	170648	London	17th June
Geo. Frederick Benett	2nd	26	Pauline Houghton, 240 tons	327564	London	24th June
Charles Billing Cow	3rd	21	Sea Park, 800 tons	26625	London	1st July
Wm. Hen. Bent	3rd	23	Duchess of Clarence, 274 tons	15418	London	2nd July
Henry Thomas Dunsford	3rd	22	Saint Ann's, 435 tns	7561	London	3rd July
C. Tomlinson	3rd	30	Child Harold, 560 tns	34650	London	29th July
Algernon Overbury	3rd	32	Anna Robertson, 447 tons	14497	London	11th Aug.
E. Geo. Toms	3rd	21	Anna Maria, 521 tns (*as apprentice*)	327318	Plymouth	13th Aug.
W. H. Davies	2nd	22	Kelso, 520 tons	344728	London	23rd Aug.
Edwin Charles Jas. Tate	2nd	25	John Line, 695 tons	1333	London	20th Aug.
Wm. H. Bent	2nd	23	Duchess of Clarence 274 tons	15418	London	25th Aug.

LIGHTS FOR STEAMERS.

Admiralty, Dec. 15, 1847.

"The attention of the Board of Admiralty having been repeatedly called to the necessity of establishing a uniform system of lights for steamers, directions were given (after a long and careful series of trials of various lights) to fit the several mail steamers on the west coast of England—viz., those of Liverpool, Holyhead, and Pembroke, with lights, as follows:—

"*When under Weigh.*

"A bright white light on the foremast head.

"A green light on the starboard bow.

"A red light on the port bow, to be fitted with inboard *screens*.

"*When at Anchor.*

"A common bright light.

"On the above plan being notified it was adopted by several steam-boat proprietors, and the vessels of the steam companies named below are fitting, or are already fitted, with these lights:—

"1. The British and North American Royal Mail Company.

"2. The British General Steam-packet Company.

"3. The Glasgow and Liverpool Steam-packet Company.

"4. The Chester and Holyhead Company.

"5. The Peninsular and Oriental Steam-packet Company.

"6. The West India Royal Mail Steam packet Company.

"The experiments thus made proving satisfactory, the Board of Admiralty have given directions that all steamers in her Majesty's Navy shall be fitted with the above coloured lights and *screens*; the lanterns being divided into two sizes or classes."

Promotions and Appointments.

Whitehall, *Dec.* 18 —The Queen has been pleased to direct letters patent to be passed under the Great Seal of the United Kingdom, constituting and appointing the Right Hon. George Earl of Auckland, G.C.B.; Rear Admiral James Whitley Deans Dundas; Captain Maurice Frederick Fitzhardinge Berkeley; Captain Lord John Hay, C.B.; the Hon. Alexander Milne, Esq., Captain in the Royal Navy; and William Francis Cowper, Her Majesty's Commissioners for executing the office of High Admiral of the United Kingdom of Great Britain and Ireland, and the dominions, islands, and territories thereunto belonging.

Flag Officers—Vice Admiral of the Blue, John White, to be Vice Admiral of the White.—Rear Admiral of the Red, Sir Charles Richardson, K.C.B., to be Vice Admiral of the Blue —Rear Admiral of the White, Charles James Johnston, to be Rear Admiral of the Red.—Rear Admiral of the Blue, Thomas Searle, C.B., to be Rear Admiral of the White.—Rear Admiral of the Red, F. Temple, to be Vice Admiral of the Blue.—Rear Admiral of the White, E. Ratsey, to be Rear Admiral of the Red.—Rear Admiral of the Blue, H. Hope, C.B., to be Rear Admiral of the White.—Captains W. Fisher, E. Harvey, and W. F. Owen to be Rear Admirals of the Blue.—Rear Admiral Prescott, C.B., to be Superintendant of Portsmouth Dock Yard.

Promotions.

Captains—J. Shepherd (1812), J. Meade, (1812), and D. L. St. Clair (1842) on the retired list of 1840—C. C. Gray (1842).

Commanders—C. P. Coppin (1809) on the retired list of 1840—G. Barnes (1813), J. B. Dickson (1839)—H. D. Rogers (1837)—W. Rowlatt (1838).

Lieutenants—F. A. L. Bullock, C. Grills, D. Spain, F. H. Lambert, N. G. Spencer, J. J. Barnard, G. D. Murray.

Masters—G. A. Waters, W. S. Luke, G. H. Loveridge, A. R. Elliot, H. Hill, W. H. Betts, J. Richards, R. A. Burstall, H. D. Beach, T. Osmar.

Pursers—B. Scott, L. E. Beckett, C. D. Gourd, and D. Stapleton.

Assistant Surgeons—J. Harvey and R. Pottinger.

Appointments.

Captains—C. G. E. Napier to *Avenger*—F. Bullock to *Fisgard*-J. Shepherd to *Inconstant*—Sir J. Sinclair, Bart. to *Victory*, for packet service at Southampton—B. J. Sulivan to *Victory* for special service—C. Eden to be flag captain to Admiral Sir C. Ogle—W. F. Martin to *Prince Regent*.

Commanders—G. G. Randolph to *Bellerophon*—G. E. Patey (a) to *San Josef*—H. Goold to *Blenheim*—J. C. D. Hay to *Columbine*—R. J. J. D. Macdonald to *Modeste*—W. F. Fead to *Prince Regent*.

Lieutenants—J. Compton, and H. L. Cox to *Victory*—C. J. Dunbar and E. D. G. Alpin (flag) to *Excellent*—G. G. Phillips to *Acheron*—E. Burstall to *Fisgard*—E. Morgan to *Cygnet*—J. P. Branch to *Inconstant*—T. P. Coode to *Modeste*.

Masters—P. B. Roberts to *Belleisle*—R. S. Allen to *Fisgard*—R. W. Roberts (act) to *Terrible*—J. S. Taylor to *Victory* for Surveying duties—R. Reid (add) to *Blenheim* for Portsmouth yacht—J. Thomas to *Poictiers*—Fulton to command *Hercules* store ship—H. Thompson to be chief officer of Wells station—W. J. W. Burney to Sherringham station, vice J. S. Pritchard resigned.

Mate—T. J. Macdonald to *Stromboli*

Second-Master—J. S. O'Farrell to *Avenger*.

Midshipmen—T. Saumarez, W. B. Mason, and C. Blake to *San Josef*—C. Robson to *Victory*—C. H. Johnston to *Constance*.

Masters'-Assistant—J. H. Harvey to *Cockatrice*.

Surgeons—T. M. Jewell to *Victory* —W. M. Dyne to *Inconstant*.

Assistant-Surgeons—W. M. Ogilvie to *Inconstant*—H. F. Williams to *Blenheim*—W. M. K. Saunders, J. C. Inglis, W. Patrick, and D Mc. Ewan to *Victory*.

Births.

At Bath, Dec. 12th, the lady of Capt. G. C. Adams, R.N., of a daughter.

At Carrickfergus, the lady of Lieut. Stephens, R.N, of a son.

Marriages.

At Kingston, Dec. 5th, Mr. J. T. Whillier, Master R.N., to Eliza Mary, youngest daughter of Mr. J. Oakshott.

At Chaldon Herring, Dec. 8th, Lieut. E. Burstall to Sarah, eldest daughter of William Thompson, Esq., Ramsgate.

At Trincomalee, Oct. 7th, the Rev. J. Jackson, Chaplain of H..M..S. *Fox*, to Mary Rolla, third daughter of Captain Higgs, R.N.

Capt. G. St. Vincent King, R.N., to Lady Caroline Mary Dawson Damer, sister to the Earl of Portarlington.

At Weston Park, Staffordshire, Lord Albert Conyngham to Amelia, eldest daughter of the Hon. Capt. Bridgeman, R.N.

Deaths.

At Ryde, Vice Admiral Peter Rivouleau, Dec. 16.

Com. W. Kendall, Dec. 15.

On his passage to Madiera, Lieut. F. Andrew, Oct. 11.

At Great Yarmouth, Sir George Parker K.C.B., Admiral of the Red, Dec. 24

At Gosport, Dec. 20th, Vice Admiral of the Blue, Charles Carter.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory, From the 21st of November, to the 20th of December, 1847.

Month Day.	Week Day	Barometer In Inches and Decimals.		Farenheit Thermometer In the Shade.				Wind. Quarter.		Strength.		Weather.	
		9 A.M.	3 P. M.	9AM	3PM.	Min	Max	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
		In Dec	In Dec										
21	Su.	29·86	29,72	40	42	39	43	N	N	1	1	od 2)	od 3
22	M.	29·59	29·72	43	44	40	50	W	W	1	3	bc	bcd 4
23	Tu.	29·60	29·72	55	46	45	56	SW	NW	6	2	qor 2)	bc
24	W.	30·07	30·06	42	48	37	49	SW	SW	2	2	bc	bc
25	Th.	30·12	30 03	47	50	43	51	SW	S	4	4	bc	bc
26	F.	29·89	29·83	44	43	43	45	S	SE	1	1	or (1) (2)	or 3 4
27	S.	29·29	29·19	41	47	39	47	E	E	1	1	or (1) (2)	ofd 3
28	Su.	29·03	28·96	47	47	44	48	S	S	2	4	bcp (2	bcp 3
29	M.	29·37	29·54	37	43	36	44	SW	W	2	3	bc	b
30	Tu.	29·72	29·82	52	53	36	54	SW	SW	4	3	o	od 4
1	W.	30·20	30·31	42	45	42	46	W	W	2	2	b	b
2	Th.	30·30	30·24	42	50	35	51	SW	SW	3	2	bc	o
3	F.	30·16	30·08	53	55	50	57	SW	SW	3	4	o	op 3
4	S.	29·99	29·87	41	47	40	47	SW	SW	1	5	b	qbcr 4
5	Su.	29·36	29·42	43	44	42	45	SW	W	6	6	qbcr 1)	qbc
6	M.	28·84	28·70	52	48	37	53	SW	SW	9	9	qop (2)	qbc
7	Tu.	28·66	28.96	41	41	40	42	NW	NW	5	6	qop (2)	qo
8	W.	29·55	29·70	33	39	32	40	NW	NW	3	2	b	bm
9	Th.	29·59	29·65	50	54	34	54	SW	SW	4	5	or (2	qo
10	F.	29·82	29·84	53	53	52	54	S	S	4	4	od (2)	od 3
11	S.	29·78	29·82	50	50	49	51	S	SW	2	2	od (2)	bc
12	Su.	29 99	30·03	41	48	40	50	S	S	2	3	bc	bc
13	M.	30 06	30·06	45	48	41	49	S	SE	3	2	bc	b
14	Tu	30 09	30·07	43	47	42	48	SE	S	2	2	bc	bc
15	W.	30·05	30·02	43	49	39	49	S	S	3	3	b	bc
16	Th.	29·96	29·87	49	50	48	52	S	S	4	4	o	bc
17	F.	29 83	29·73	48	52	47	53	S	SW	6	5	qo	qor 4
18	S.	29·54	29·42	49	47	47	49	S	S	5	5	qor (1) (2)	qor 3 4
19	Su.	29·46	29 48	38	46	35	47	SE	E	2	4	bc	o
20	M.	29·70	29·67	39	37	36	40	NE	NE	4	3	o	o

November, 1847.—Mean height of Barometer=29·992 Inches; Mean Temperature=46·2 degrees; depth of rain fallen=1·97 inch.

NOTICE TO OUR CORRESPONDENTS.

We are compelled to postpone Com. Heath's, and several other communications until our next.

Hunt, Printer, 3, New Church Street, Edgware Road.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

FEBRUARY, 1848.

The Great and Little Basses, and the Emergent Necessity of Fixing a Light in the Vicinity of those Dangers.

Madras, November 13th, 1847.

Mr. Editor.—The vast increase of steam communication, and the number of steam vessels employed for the conveyance of mails, rendering celerity and certainty in the transit, a matter of very great importance, point at once to the expediency of urging by all practicable means the safety and security of navigation.

Commanders of steam vessels, who are charged with the conveyance of mails, are bound to perform their respective voyages within a given time, if possible, and although every officer, so entrusted, has a still higher duty to discharge, which his own good sense will tell him is paramount to every other consideration, viz. the safety of the vessel, and the protection of all who may embark under his command, yet the vicissitudes of a sea voyage, whether in a sailing ship, or a steamer, are so precarious and perilous at times, that as little should be left to chance as possible; therefore, in my opinion, it is the bounden duty of the British, and every other government, to guard the mariner from loss or accident by all methods of precaution and prevention which past experience can devise or suggest, whereby the happy means of protecting life, and saving property, may be extended through the influence of that confidence which every seaman and navigator cannot fail to derive: when on his track to any given port, he may know that the hidden dangers of rocks and shoals are clearly defined by a thoroughly efficient lighthouse, which will serve as a conspicuous beacon by day, and the light which it exhibits, will ensure an unerring guide by night.

Such a safeguard is wanted on many a frequented position, but no where is it so essentially required as on the Great Basses, a most dangerous ledge of rocks off the south-east end of Ceylon; and as I am confident that no person, who has traversed the vicinity of that remarkable, and well-known danger, will differ in opinion with me as to the expediency and utility of fixing a light, either on the opposite coast of Ceylon, or on the rock itself. I will now, in furtherance of that object, briefly describe those dangers, and relate some of the disasters which have occurred in their immediate locality.

The Great Basses is a ledge of rocks nearly a mile in extent, elevated a few feet above water, and about nine miles from the shore; this reef is steep to, having on its outer edge 20 and 22 fathoms, and at the distance of seven or eight miles from 40 to 50 fathoms, when the bank suddenly shelves to no ground.

The Little Basses bears N.E. ½ E. from the Great Basses, distant twenty or twenty-one miles, and consists of a ledge of rocks just above water, with other straggling patches at a considerable distance; the inner edge of this reef is six or seven miles from the shore, and about mid-channel lie several sunken rocks, on which there are only 2½ and 3 fathoms: this shoal renders it exceedingly dangerous for large vessels to pass between the Basses and the coast; there are 18 and 19 fathoms close to the outer edge of the Little Basses, and from 50 fathoms, to no soundings, is not more than seven or eight miles off.

Now, Mr. Editor, although these very dangerous rocks are, as I have already observed, well known, yet the coast of Ceylon is so frequently obscured by a dense hazy atmosphere, that even in the day time those excellent land marks along shore, which, if discernible, afford an infallible guide, cannot occasionally be distinguished when close to the Basses; but a greater and a more embarrassing difficulty, is the force and uncertain direction of those extraordinary currents that generally prevail along the southern coast of Ceylon, no dependence can be placed on their set or velocity, as they have been found to run, in the S.W. monsoon, at the rate of upwards of four miles an hour. Sometimes to the N.E., E.N.E., and at intervals to the southward of east; and in the N.E. monsoon they have set in a southerly, and S.W., and westerly direction, with almost equal strength, but in both seasons these currents have set with such strength and variation in their course, as to perplex and deceive the most cautious and skilful navigator; it is obvious, therefore, that a stream so varying in all its bearings, can only be effectually guarded against by great loss of time in giving the Basses a very wide berth; or by adopting that more rational, and certain remedy, the establishment of a lighthouse, and unless this latter plan is carried into execution, I have no hesitation in saying that some fearful catastrophe will proclaim, in stronger terms than can be written, the neglect of a most important, and a most emergent national duty.

The commander of a ship when unaware of his true position, may be induced to haul off, or bear away from these dangers a much longer time than would otherwise be necessary, and discover, when too late

that the current for which he had made a most ample allowance, had subsided or changed its direction; but a proof of this loss of time on one or two occasions, may tempt the same commander when subsequently in a similar position, and at the same season of the year, to shape what he would suppose a more direct course, and then, contrary to former experience, the current may deceive him, and in its full force, danger may, unexpectedly, be close at hand. Under all these circumstances, and notwithstanding the lessons for guidance, which may be gleaned from a well authenticated record of disasters in Horsburgh's excellent Directory, which I have abridged as hereafter, together with the practical experience of many navigators, yet, I am well acquainted with instances of recent occurrence which clearly demonstrate that even the most vigilant and prudent commander may be taken by surprise, and led astray. In those cases, to which I allude, the escape from wrecks was most providential; as the rate which the vessels were going would, in their onward course, have speedily hurried them on to destruction, luckily, however, a timely warning of their rapid approach afforded the means of averting that imminent peril; but let us dwell for one moment on such a deviation from the true course during a thick, dark, and boisterous night, and the awful result may readily be conceived.

The following cases convey their own commentary and amply illustrate the subject under consideration.

The ship *Hamalyee* was wrecked on the Little Basses between 7 and 8 P.M., in September 1809.

H.M.S. *Dædalus* was lost on the rocks about mid-channel between the Little Basses and the main, and several of the Company's ships, under her convoy, bound to Madras and China, were nearly sharing the same fate; H. Co's. ship *Atlas* grazed the rocks, but fortunately escaped. This unlooked for disaster was owing as Horsburgh observes to the dry haze that prevails greatly over this part of the coast of Ceylon, and deceived them, as they thought they were much farther from the coast than they really were, and he further states that, without great caution strangers are very liable to make this mistake.

On this lamentable occasion the man-of-war, and her convoy took a correct departure from Dondre Head at sun-set on the 12th, and shaped their course so as to pass without the Basses, but Capt. Mayne of the *Atlas* kept considerably to the southward, as he supposed that course would carry the fleet into danger. At daylight her signal was made to haul up to North, still cautious Capt. Mayne only hauled up to N.N.E. ½ E. At 8h. 15m, A.M., the *Atlas* grazed on rocks *outside* the Little Basses, and soon after that event the *Dædalus* struck on a reef *within* the Basses, and the *Bridgewater*, close on the starboard quarter of the frigate, grazed over the same reef, but she bore away and passed between the Great and Little Basses as did the rest of the fleet, and when in safety their boats were despatched to the assistance of the *Dædalus*, every effort to heave her off failed; and at 6 P.M. H.M. ship heeled over to port and went down. No lives were lost, but two valuable ships, each burthen 1200 tons, had a wonderful escape.

The ship *Contractor* bound to Madras made Dondre Head on the 1st of August, 1792, she experienced an easterly current of 45 miles during the preceding twenty-four hours, her commander intended to give the Great Basses a good berth, when at 10 P.M., they were surprised with breakers on their *starboard bow*, the *Contractor* hauled up instantly to the northward, and thereby avoided destruction, and soon afterwards anchored inshore.

The ship *Soliman Shah*, in like manner got close to the Little Basses in the night, she brought up all standing, and was compelled to cut her cable next morning, to cast clear of the danger.

H.M. ship *Virginia* was nearly lost by getting unexpectedly between the Basses and the shore during the night.

H.C. ship *Ceres*, with a fleet in company, in 1798, and bound to Madras and China, made the coast before sun-set, and incautiously, as stated by Horsburgh, shaped a course which carried them too near the land, as the breakers on the Great Basses were seen from the *Lord Nelson*, and very near on her *starboard beam*, the signal of danger was then made and the fleet hauled out to the eastward between the Great and Little Basses, having unexpectedly passed inside of the former.

H.M. ship *Phœton* and *Sir Edward Hughes* in 1804, were in great danger, as they must have passed unintentionally within the Great Basses, without seeing that shoal during the night, at 5 A.M., on the 24th of May, they saw the breakers on the Little Basses bearing W. ¼ S., every attention was paid to their soundings but they must have experienced an extraordinary, unlooked for current, these Frigates made the coast of *Ceylon* on the evening of the 23rd of May.

The ship *Earl of Moira*, Capt. Hornblow, who was well known to be a most prudent and cautious navigator, was driven *within* the Little Basses, when he imagined the *Moira* was thirty miles *outside* of them, she struck at 10h. 15m. P.M., on the 27th of January, 1821, on a rock midway between the Basses and the coast, lost her rudder, got off, and came to anchor; when, on the 31st of January, in attempting to run through the Channel, between the Great and Little Basses, with a temporary rudder, and taking the precaution of having a boat a-head to sound, the *Moira* (owing to bad steerage, caused by the inefficiency of her rudder,) struck on another reef; at 11 A.M., however, she escaped all these dangers, and proceeded to Bombay. One of the passengers spoke of Capt. Hornblow's conduct on this occasion in the highest terms, and described the current, when at anchor, as apparently going at the rate of four or five miles an hour. Horsburgh, from the best information, states, it was found to set W.S.W., about four miles an hour. Throughout forty-eight hours before this disaster, the *Moira* had thick, squally, and hazy weather, and the land had not been seen.

The ship *Sultany*, Capt. Handley, when running through the Channel, between the coast and the Little Basses, on the 31st of May 1846, which he had passed on several former voyages, grazed over a rock midway between the Basses and the coast, on which there was only sixteen feet. Notice of this event has been officially published, and it

would be well for the interests of mariners, if all commanders would follow Capt. Handley's good example; *escapes* as well as *disasters* should be made public for general information.

I am also enabled to furnish you with another case elicited by enquiries on this subject, and I have no doubt many similar occurrences could be brought to light. My worthy assistant, Mr. McKennie, was second officer of the ship *Circassian*, when bound from Calcutta and Madras, to Colombo and London; she sailed from Madras on the 11th October, 1826, and a few days after her departure was off the S.E. coast of Ceylon, when at noon her latitude by observation placed the *Circassian* sixteen miles to the southward of the Basses; the wind was variable, and her commander stood to the westward with such confidence that, when the night watch was set, he gave no particular directions to look out for rocks or shoals. Mr. McKennie took charge of the deck at midnight, when the ship was on the port tack, and soon after he went on the forecastle, and saw at one glance that rocks were close under the lee bow; he called the captain immediately, when the ship was put about, and brought the Basses to bear on her weather quarter; and thus with a commanding breeze she escaped.

The narrow escape of the *Circassian* under the effect of a strong current to the northward, about the middle of October, at the close of the S.W. monsoon, and near upon the commencement of the N.E. monsoon, affords another remarkable example of the uncertain set of the current, and the danger to be apprehended by an incautious approach to the Basses at all seasons. Capt. Douthwaite was completely taken by surprise, and as Mr. McKennie says, he never failed to give the Basses a very wide berth on his subsequent voyages. The foregoing statement is derived from Mr. McKennie's vivid recollection of the *Circassian's* very critical position, when he luckily discovered danger so close at hand; his log-book is lost, but the precise date of that ship's departure from this port is ascertained from records in my office.

Most assuredly the foregoing statement of disasters and very providental escapes, proclaim at once the expediency and utility of fixing a light on the Basses. The occurrences therein narrated shew that all the ships (except the *Moira* and the *Circassian*) were coming from the westward, consequently their course was towards the Great Basses, and on that track H.M.S. *Dædalus* was wrecked about 9 A.M.; and, as she probably was within a few miles of the Great Basses before day-break, a light would have warned her gallant commmander of the error in his reckoning, and as she must have been very near the rocks at day-light, a beacon or lighthouse thereon would have been easily distinguished. All these cases prove beyond the shadow of a doubt, that the display of a light on the Great Basses would have effectually guarded against wreck or accident.

From Horsburgh's description, and from my own experience, having myself passed the Basses repeatedly by day and night, it is obvious that the first indication of soundings is also an indication of a very near

approach to these dangers, and at times the breakers vary so little from the ordinary surge of the wave, that a vessel may be close upon the Little Basses before the reef is discernible, and the visible part of the Great Basses cannot be seen clearly by day, until within a few miles.* How materially every difficulty and perplexity must increase in thick, squally, and rainy weather, will be evident to every impartial person who gives this subject the least consideration. In a word, there is no locality of danger, that I am aware of, more perilous in causes and effects, than the Great and Little Basses; and there is none that admits of being more completely guarded against; and here I may observe, that those able and scientific improvements which are so prominently in operation along the sea-boards of Europe and America, evince an anxious desire on the part of those who have directed them, to promote and extend both coast and harbour works of illumination.

In pursuance of these important and invaluable designs, which, in the course of events will ensure to a large extent, the safety of navigation and commerce, the Ceylon Government are now, in a most praiseworthy manner, erecting an iron lighthouse at Point de Galle; whilst, Horsburgh's imperishable fame is at length receiving that homage due to so good and distinguished a character, by the projected lighthouse on Pedra Branca, at the eastern entrance of the Straits of Malacca, which will very appropriately bear his name, and remain a lasting memorial of his worth. These exemplary instances of due attention to the security of navigation are well worthy of our common country.

The position of the Great Basses corresponds very nearly with that of the Eddystone and Bell Rock; each of these remarkable rocks is small in circumference, and a few feet above water at low spring tides, and their respective distances from the coast is very similar. Here, Mr. Editor, we may pause, and contemplate the vast number of ships, the amount of property, and the number of lives which must have been saved from destruction by those proud monuments to the cause of humanity.† Skill and science surmounted every obstacle to the accomplishment of those great national designs, which were reared in the midst of sea and tempest, far exceeding in rage and violence all that has ever been experienced on the southern shore of Ceylon. I am, therefore, convinced that there would not be one tithe the amount of natural difficulty or impediment to contend against on the Basses, as those which were so nobly and skilfully overcome in the construction of the Eddystone and Bell Rock towers; whether the lower part of the pillar on the Basses should be built of granite, and the upper of cast iron, or whether the plan of construction should assimilate to those splendid edifices I have noticed, are questions for other persons to decide.

* Suppose a steamer going at the rate of ten knots an hour, towards the Basses, from sounding to the verge of that danger, she would make it in forty minutes.

† South Stack light in St. George's Channel, near Holyhead, 25 *years* before the light was put up, 36 ships and vessels got on shore; with five of them, all on board perished; in seven others part of the crew were drowned. 25 *years* since this light was exhibited, only three vessels ran on shore, one a sloop, but all on board perished. Surely this is a case in point.—*Extracted from evidence before the House of Commons on Shipwrecks.*

I cannot believe at this most enlightened period, when national improvements, and the advancement of every art and science which can tend to promote the welfare and prosperity of mankind, are in progressive operation, that any well devised project, which indisputably bears the same generous stamp of character, can be cast aside or rejected; false notions of economy sink still further into insignificance, when they are permitted to bear an imaginary comparison with the value of human life, but if property alone is admitted into the scale, it is well to bear in mind that the worth of H.M.S. *Dædalus* would pay for three efficient lighthouses.

Having given this subject a very attentive consideration, and adverting to the remarkable haze which is so prevalent on the coast of Ceylon, I am decidedly of opinion, that the lighthouse should be erected on the rock, and not on the main land, and a first rate light, properly elevated, would be visible beyond the Little Basses.

The ways and means may be attainable by the conjoint aid of the Colonial Government, the East India Company, and the Peninsular and Oriental Steam Navigation Company, their interests are so materially at stake, that I cannot imagine when once a conviction of the absolute necessity of the light is brought home to those influential parties, that they will hesitate about the undertaking, and assuredly Lloyd's, and all other Insurance Societies, ought to contribute their share.

I have endeavoured to prove the risk which steamers incur, but it should also be borne in mind, that all ships approaching the Bay of Bengal, and all ships bound for Bombay and Ceylon, to China, in the S.W. monsoon, haul close round the Basses, and are equally exposed to the same danger, in fact, those ships which are bound to Madras during that season, are compelled to hug the S.E. coast of Ceylon, otherwise, they might fall so much to leeward, as to lose a considerable time in beating to that port.* And when we reflect on the additional number of ships from Europe, from the Cape, and from the Mauritius, bent on that same course, we must admit the necessity of a more vigilant prevention against calamitous results.

Besides those strenuous arguments which I have adduced in favour of the light in question, we should recollect that the absence of all means of obtaining the latitude, for even one day, when approaching Ceylon, and the liability of the compass and chronometer to deviation and error, may lead ships into imminent danger. Independent of such liabilities, several of the foregoing cases which I have recited clearly prove that even a departure from Dondre Head, a distance of only sixty miles from the Great Basses, and within 24 hours of reaching from the one position to the other, had not the desired effect of correcting the dead reckoning and averting those disasters which did occur. Therefore, as no reliance can be placed on the ordinary means of ascertaining the run of a ship within so short a time and space, there certainly remains no other remedy

* There have been several instances of ships, when bound to Madras, getting so far to leeward, that they have in despair, bore away for Calcutta.

than that which I have so earnestly recommended. It is evident that the ships referred to were driven by a current beyond all calculation, and although those examples have produced the effects of warning the mariner, and inducing a more than ordinary good look out, yet I am so forcibly impressed with the peril which may ensue, if no other means of guidance are provided, that I say again, a light should speedily be fixed on the Great Basses, and the sooner that important object is attained the better.

On the very important subject of Colonial Lighthouses, and the modern improvements in their construction, whether on isolated rocks or on the main land, I recommend all who take an interest in such national concerns, to give their earnest attention to the observations thereon, by that zealous and talented member of the Institution of Civil Engineers, Alexander Gordon Esq, as published in the *Nautical Magazine* for 1846, page 170; and I may say in conclusion that, when we do know that lighthouses have been substantially built *on rocks under water*, we may readily believe a similar building on the Great Basses, where, except in strong breezes and a heavy sea, the *rocks, as already observed, are always above water*, can on that position be constructed with far more ease, and with as perfect safety and security.

I am, &c.,

CHRIS. BIDEN, *Master Attendant.*

To the Editor N.M.

THE BRITISH NAVY AND ITS SEAMEN.

EVERY thinking person must be impressed with the paramount importance of this subject; and the honest patriot will ever pray that by wise councils, his country may be enabled not only to hold, but uphold, with justice its exalted station among the great nations of the earth.

The state of continental Europe at this moment demands the utmost vigilance of Great Britain, and, no doubt, receives it; but if there be one point in her own relations having a bearing upon that state or condition, and which calls imperiously for the closest attention, it is that of manning her fleet.

The number of seamen drawn by ballot for home service, may voluntarily enter for a limited period, or for the entire time of war, for general service in any part of the world; by which, those who enter into the contract will secure certain advantages to themselves.

Men drawn by ballot for Home service.

1st may voluntarily enter for 5 years	}	Pensions per annum to commence after the tenth year of servitude.
2nd " " " " 7 "		
3rd " " " " 10 "		
4th " " " " for the term of the whole war.		Auxiliary Bounty given for the whole war-service only.

Voluntary enlistment of men not drawn.

1st 2nd 3rd 4th	As above	As above, and Bounty given for ten Years service also.

Now for the working of the scheme. Let us suppose that the state requires 60,000 seamen, A. B's, and O. S. (exclusive of landsmen and boys) and that the total number liable to be drawn for home service, as registered amounts to 300,000. Draw, in the usual way 60,000.

Again, suppose it should happen that only 30,000 of the men thus drawn are at home, (in the United Kingdom); see from the returns of voluntary entry at the different rendezvous, whether the number still required is likely to be made up in that way, or not.

If likely, then there will be no necessity to draw a second time to complete the sixty-thousand needed. But, should the entry be slow, and the necessity urgent, draw on until the number wanted be obtained. Then follows the entry, voluntarily, for general service of the men drawn.

It is premised there will be Tenders at the different ports of the kingdom to receive the men who are drawn; and other vessels ready to convey them to Portsmouth, Plymouth, &c.

I shall say nothing about the indulgence granted to the men of choosing their ship, as circumstances may not always admit of it; but it is one which has a good effect.

The vacancies from death, &c., which will occur, may be expected to be filled by the men who voluntarily enlist among those who are not drawn, for we may reasonably suppose, when the advantages are made enticing, there will be a great many ready to offer their services.

The apparent partiality in taking at once those men who happen to be at home among the number drawn, cannot be avoided; it will, perhaps, correct itself by those men who are abroad, and who have been drawn, volunteering for general service on the stations where they happen to be at the time, or they may do so immediately on their return home.

Thus, after the fleet has been fully manned, those men serving in merchant vessels would be exempt from molestation, for at least five years; a point of itself so gratifying that, the whole scheme would, in all probability, please the general body of seamen; and thus, also, impressment hitherto "a terror to all Blue-jackets", would receive its "*quietus*"; another point that would not only give satisfaction, but delight, to a class of men invaluable to the country; and who, whatever may be their faults, will, we may ardently hope and expect, merit all that that country can do for them, by emulating in war, the noble deeds of their predecessors.

But, as I remarked in the former paper, as "necessity" in such a weighty affair as the perservation of a kingdom, rises above law, the power, no matter how obtained, of impressing sea-faring men must be held as the *dernier resort;* and it will be the fault of the seamen themselves if

it be put in force, should a reasonable scheme to obviate it be adopted; and that fact should be stated in any accompanying proclamation.

It appears so obvious that—whatever plan be put in force as a substitute for impressment, it should be widely promulgated long before the time arrives for its fulfilment, for the purpose of quieting the minds of the seamen, and preventing their quitting the sea-service, or stealing away in foreign vessels from the country, under the impression that the old system will be adopted: I shall not dwell on that point here.

The rough scheme here submitted appears to me so reasonable, and free from serious objections that, I cheerfully offer it as a pendant to the preliminary paper, and have only farther to remark that

> To be in all prepared to meet your foe,
> Is half the battle won without a blow.

Trial Cruizes of Trincomalee and Amphitrite.

34, *Montague Place, Dec. 4th.*

Sir.—The unsatisfactory way in which newspaper reports of trial cruizes are usually written, induces me to send you the accompanying table, in the hope that those who write those documents will make use of it, and thus give the public a clear notion of the merits of the respective ships when working to windward.

Your obedient servant,

L. G. Heath, Commander, R.N.

To the Editor N.M.

Number of points between the direction of the wind, and the direction of the other ship.	Multiplier.	Number of points between the direction of the wind and the direction of the other ship.	Number of points between the direction of the wind and the direction of the other ship.	Multiplier.	Number of points between the direction of the wind and the direction of the other ship.
¼	·998	15¾	4¼	·67	11¾
½	·996	15½	4½	64	11½
¾	·99	15¼	4¾	·60	11¼
1	·98	15	5	·56	11
1¼	97	14¾	5¼	·51	10¾
1½	·96	14½	5½	·47	10½
1¾	·94	14¼	5¾	·43	10¼
2	·93	14	6	·38	10
2¼	·90	13¾	6¼	·34	9¾
2½	·88	13½	6½	·29	9½
2¾	·86	13¼	6¾	·24	9¼
3	·83	13	7	·20	9
3¼	·80	12¾	7¼	·15	8¾
3½	·77	12½	7½	·10	8½
3¾	·74	12¼	7¾	·05	8¼
4	·71	12	8	·00	8

Rule.

Multiply the observed distance by the decimal in the middle column, the result will be the required distance.

If the number of points between the direction of the wind, and that of the other ship be less than 8 she is to windward of you, but if it be greater, then she is to leeward, (and would pass astern of you, if on opposite tacks.)

Example.

Oct. 10th, at 8h. 30m. A.M., observations were taken on board the Amphitrite

Trincomalee bore	S. 1 pts. W.
Direction of wind	S. 4 " W.
Angle between	3

Observed distance . . .	750 yards.
Multiplier for 3 points . . .	·83
	2250
	6000
	622·50

Therefore, at 8h. 30m. A.M., Trincomalee was 622 yards to windward of Amphitrite.

At noon Trincomalee bore .	N. 3 pts. W.
Direction of wind . .	N. 12 " W.
Angle between . . .	9

Observed distance . . .	1800 yards.
Multiplier for 9 points . . .	·20
	360·00

Therefore, at noon Trincomalee was 360 yards to leeward of the Amphitrite, and thus we see that in the course of the trial the Amphitrite gained 982 yards to windward.

Remarks on a Court Martial.

We have received a curious and interesting paper detailing the proceedings of a Court Matrial on "Mr. First Mate Pilot, W. H. Harrison," for the loss of the "ship *Stalkart*" on Saugor Island, but which we regret is too long for insertion in our pages.

It is not, perhaps, generally known, except to those commanders who have frequented the port of Calcutta, that the whole pilotage of the river and sandheads which requires a large and expensive establishment, is

a government service, and the officers of it (warranted servants of the East India Company) appointed at home, and entitled to pensions, &c., after their term of service, like the Civil and Military Officers, of our great Indian Empire. A few years ago some very serious complaints were made before the Shipping Committee of the House of Commons of abuses said to exist in the pilotage of the Hooghly. The Court of Directors, as we learn, most creditably sent out strict orders, not only, that the special matters complained of should be enquired into; but, that means should be taken to establish a court, which, while it would give full protection to the great trade of the port, would also afford the Pilots due and fair protection against the complaints of those who, without any deliberate ill intentions might unfairly attribute to the fault of the pilot what was in fact, unavoidable, in such a river; which is in truth the *most* dangerous one in the world, when its great length, tremendous tides, and bores, shifting sand, and singular sudden formations of new lumps in the oldest and clearest channels, which rise up like the swelling of a moving bog or a quicksand are considered.

[It is to be hoped that Courts of Enquiry for every loss, or even serious accident on complaint may be established in all foreign ports, since we conceive that much public advantage may be derived from them. The trial ended in the acquital of the Pilot, and the remarks of the court in explanation of the finding, go to show that the ship appears to have been most wretchedly found, that her crew were in a most inefficient state; and as far as relates to the carrying into effect the orders of the Pilot, unaccountable delay, and slackness appears to have prevailed throughout. These we much fear are but too often the cause of such frequent losses and their melancholy results, we cannot fancy that in that highly useful branch of the Company's service, their pilot establishment, any but men of undoubted experience, established after a severe examination, should be placed in charge of the lives and property of individuals, and we heartily concur in the result of the present enquiry. Our correspondent at Calcutta has our best thanks for his attention.—Ed. *N.M.*]

Tidal Harbour Commission.

[A correspondent in the *Nautical Standard* in pointing out some of the principle causes of so frequent shipwrecks among Merchant Ships, mentions the following important one, *that of overloading them*, a practice as disgraceful as it is dangerous, we think his observations worthy of record, and heartily lend our aid in exposing the evil.]

My letter in your number of the 11th instant, bore upon the non-examination of captains of merchantmen, and their consequent incapacity. I pointed out in it, the remedial measures to be taken to remove one of the principal causes of the daily shipwrecks which occur on our coasts, by the practical and theoretical education of our seamen. Until this is done, very little good indeed can be expected; but there are also many other things to be looked into as causes of disaster;—one, which seems to have escaped the attention of everybody, and is never mentioned

in any report that I have seen, is, the overloading of ships; yet this is one of the greatest and most important features in any act that would tend to the improvement and safety of navigation: it is indeed an indispensable condition—a "*sine quâ non*,"—so much so, that if we do not attend to it, all our efforts will be vain and fruitless.

I will relate some two or three instances, among many that came to my knowledge on that head.

Some years ago, a brig belonging to Sunderland, came to Cardiff to take a cargo of iron. She was only eighteen months old—her measurement, per register, was 237 tons; she took 463 tons of iron, within 11 tons of double her registered tonnage. She met with bad weather in the Bristol Channel, beat about for a few days, and put into Swansea in a sinking state. She was so much strained, that all her trenails had started. She had to unload and repair, but she was never after that a sound vessel. Another case is that of a ship of 700 tons register, coming into the same harbour, at the same time, to get a cargo of coals for Aden. She took 1,300 tons, went to sea, and was never heard of afterwards.

I could give you cases of that kind, almost *ad infinitum*. Let any one go out as far as Gravesend, — let him inquire on board of some hundred or more vessels moored there, the difference between the registered and the real carrying tonnage, and he will to a certainty find a difference of from 50 to 100 per cent.

A new way of measuring the tonnage of vessels should be adopted:—the old and new measurements are exceedingly defective, and do not even give any approximate idea of the capacity of vessels; indeed, the new is, if possible, worse than the old system—they are only calculated to cheat pilot, tonnage, and light dues. What is the use of measuring a ship, if it is not to ascertain how much she can carry?—As it is done now, it is a farce. I could name many, very many vessels now at sea, with cargoes double their registered tonnage. Any man in his senses must know that they must be overloaded, or the measurement be defective. Now it happens, that he would be right in both cases; everybody out of Bedlam must see that a cart built to carry two tons of goods, though it may take four tons on a very smooth and good road, will break down when it comes to ups and downs and ruts;—so it is with a ship; it may do very well in the London Docks, but at sea, there comes the rub, — in foul weather, close reefed, or on a lee shore, she is in for it, and cannot get out of it, because she is overloaded.

The old continental way of taking the measurement was the best after all, but, like every thing else, they have changed it for the worst; nothing was more simple, and it gave the exact power of the vessel. You had only to take the length on the deck from inside the stem to the stern post, the breadth inside amidship, the depth under deck to the floor. Multiply these three, one by the other, and divide the quotient by 94. I have tried that method in more than fifty instances, and found that it was within a ton, and often the fraction of a ton, what the

ship would carry in sorted goods, or casks; and if we put five per cent. more for heavy goods, we have the very weight she can take without being overladen. I remember the time when insurance offices would not pay for losses of vessels loaded over that ratio, and there were less wrecks then, than now.

We hear of vessels to be sold, stowing large cargoes and sailing without ballast: these very recommendations are their ruin. I maintain that a ship should have at least one-third of her tonnage in ballast—that she is not fit to go to sea and carry her canvass in safety, without; half would still be better, and there should be a regulation to this effect. Ballast-stations could easily be got in every harbour, either to take or unload the ballast. Captains should be made to conform to it, or be punished if they do not. There should be a ballast manifesto as well as a manifesto for goods, and the pernicious practice of throwing overboard ballast at the mouth of rivers and harbours, or on the roadsteads, should be visited with a heavy punishment. Much more remains to be said on the matter, but I must not encroach too much on your valuable columns.

B. J.

Desultory Remarks on the Trade Winds.—*By Argonaut.*

A Supplemental Chat.

The constancy of the Tropic Wind is so remarkable that it has engaged attention from the voyage of Columbus to this day. Philosophical writers have endeavoured to search out the cause, but none have afforded a more reasonable and clearer view than Dr. Halley, whose theory has generally been received as the true one.

There are, however, breaks occasionally in the regularity of these winds that are rather perplexing to account for. The Sun, or its influence, connected with the diurnal rotation, it cannot be doubted is the main cause of this grand movement of the air, of its constancy, and of its seasonal variation in direction. I would be understood not to subscribe to the theory of the earth's rotary *velocity* having any mechanical effect on the air; inasmuch as the diurnal motion of the earth on its axis, shifts the points of greatest rarefaction more and more westerly, it is operative and in that way alone.

Causes are secondary it is true, in any consideration of phenomena; but the mind does not rest satisfied alone with the classing of facts which are to form a registered system of the aërial currents of the ocean; the desire is active to complete what observation and experience point out, by linking cause with effect, albeit the reasoning power is often at fault.

The seasonal changes in the direction of the trade winds from being coincident with the sun's place, no doubt are attributable to that cause.

The learned Humboldt has said that, in the summer "when the sun entering the northern signs, rises towards the zenith, the breeze from the N.E. softens and at length ceases; this being the season at which the difference of temperature between the tropics and the continuous zone is least." He also states that the north polar supply of air ceases during this season.

With every respect for such high authority, I cannot chime in with this opinion if it be meant to be taken literally. It seems to me that, the *design* of the process is, a change of air; and that there can be no suspension of that process whilst rarefaction goes on; which, there can be no doubt it does throughout the year. It is true that there exists but little difference at this season, between the temperature of the Temperate zone in continuity with the Tropic, but the effect would be, and indeed is according to observation, merely a lessening of the force of the N.E. trade wind.

According to the philosopher's words, a general calm must ensue, which we know is not the case. By the same parity of reasoning by which we account for the flagging of the N. E. Trade wind in summer, we arrive at the cause of its activity in the winter; but, the process of intermixture of airs is, I believe, carried on, principally, independent of wind.

Let there be ever so little difference in the temperature between the air within and without the tropic, the mixing will go on, and it is perpetuated, and regulated on one side by the amount of rarefaction, and the density of the atmosphere on the other side nearer the pole.

The mean lateral limit of the N. E. Trade wind* towards the equator is greater in winter, and less in summer; that is to say: the wind extends to about the 8th and a half degree north from April to August; and from November to March to about the 5th degree north.

But variations occur in these limits in different years; the difference of three and a half degrees between the summer and winter limit cannot therefore be relied on, the changes being regulated by causes which we cannot calculate upon; but, however complicated and inexplicable these may appear to us, we may safely believe that the natural system is perfectly regular.

The phenomenon of the S. E. trade wind over shooting its hemisphere and pushing on from two to five, and occasionally many more degrees north of the equator is very remarkable. What are the causes? The radi of the parallels are said to be greater in the south than in the north; and the sun is a trifle longer in the northern signs. Can these operate? Probably but little.

The presence of the equatorial current may be an assisting cause; and I think it by no means chimerical to infer that, the remarkable circumstances of the barrier of ice in the southern hemisphere being ten degrees of latitude nearer the equator than the belt of ice in the north is, may be an agent in the prolongation of this wind across the line.

* Of the Atlantic.

From the information of a friend, a naval officer, I find that, when homeward bound, on the 1st of November 1826, he carried the S.E. trade wind to 70° 30′ N., in longitude 24° W. The wind then became variable with intervening calms, until the 6th, when he experienced N.E. and E.N.E. breezes to the 12th. The wind on that day changed to S.E., vacillating more easterly, and then veering to S.E. and south, up to the 16th in lat. 16° and long. 29°. After which the N.E. trade became steady. On the 14th the S.E. wind blew strong, with a heavy sea running! On the 20th, in 23° 10′ and 33° 46′, the wind came from the westward, and so continued until the 24th, in 28° 58′ and 29° W., when it veered to N.N.E. The change of wind to the west had no effect on the barometer which was at 30·30; but it fell during the night of the 21st, when the wind blew in heavy squalls, and rose as the wind veered to the northward.

These mutations in the regular course of the N.E. trade whether we account for them from local causes acting on different strata of the atmosphere, or otherwise, appear as clear proofs that the velocity of the earth's rotary motion can have no mechanical effect on the air. The same officer, outward bound, in 1824, in May, carried the E.S.E. wind from the equator to 20° 02′ S. and long. 38° 11′ W. about two degrees from the Brazillian coast, when it veered to N.N.E. and continued to 30° S. and long. 46° W. The wind then came from the N.W., shifting to the south, and round again to the northward.

At the season of the year the wind is generally from the southward of the east point*; the instance given is therefore remarkable, and probably owed its origin to local causes; it is curious, inasmuch as the air was in motion from a *lower* towards a *higher* latitude, contrary, *apparently*, to calorific theory. In all such irregularities, it is desirable that in the progressive run, the state of the thermometer be regularly noted; the top† is a better place than the deck for its suspension. This northerly wind, it appears, was steady for 600 miles, flowing in a direction parallel with the general trend of the coast. How was the current running at the time? It is not mentioned; but here it is said to run with the wind. I am of opinion that currents often give a direction to light winds, the courses of which previously to reaching the current run towards, a different point.

Suppose the E.S.E. trade to approach the Brazil coast gently flowing, in reaching this implied current to the southward, it will turn from its E.S.E., course, and follow that of the water stream; so that the popular opinion is reversed, and reasonably, because it is not likely, unaided, that *light* wind would propel water into a stream; or turn it if flowing, in an opposite direction; a strong wind may turn it aside; but weak or fresh, alone it creates only a drift.

The seasonal changes in the direction of the S.E. trade wind may be

* What is called the southerly monsoon of the coast.

† Because there is less of the local atmosphere of the vessel or of radiation from the decks, &c., to affect the instrument.

attributed to the sun's place. The drift current from the open ocean meeting with the resistance of the coast will be turned one way or the other; for, the water pressed onward will seek its level; in this case, the prevailing wind becomes operative, and the repelled water will go with it either to the southward, or the northward, according to the season. But, in the other instance, it was the season of the southern "monsoon," as it has been, perhaps, not very correctly, termed, when the northerly coast *set* is said to be established. If that was the fact, the current must have been running in opposition to the local N.N.E. wind; but I have assumed that, the stream was still running to the southward and so drew the wind with it. Of course no decision can here be given; but what I have said will show the propriety of seamen noting the direction of current as well as wind that the truth may be arrived at. Had the wind drew round to the northward from a more eastern quarter during the night only, then we might have hazarded a conjecture of the cause being the result of two contrary winds, the easterly from the ocean, and the westerly from the land; but it continued steady throughout for a distance of 600 miles. Calm is also often induced between the limits of the ocean breeze and the land-wind; and near islands the process of the renewal of the sea breeze is extremely curious, as if the land-wind had the effect of an opiate; in the evening, the Tropic wind gradually "goes off into a sound nap," in the morning, as though refreshed by its slumber, the air nearest the land begins to bestir itself, to breathe gently, and, crab like, "backing astern", until the potent power that rules it, having attained a few degrees of elevation, re-asserts its influence, it rushes in with a voice of gladness, dispensing its blessing far and wide.

To account for this N.N.E. wind, out of season, is not indeed an easy matter, but it is possible that during the rains (which set in in April) to the northward, the air had been greatly lowered in temperature by electrical discharges, and the increased activity of evaporation, whilst warm dry weather was prevalent to the southward, and rarefaction busy, hence a movement would follow from the lower to the higher latitude, so that the reversal of the ordinary course of operation would, as hinted, be only apparent. Some such cause probably occurs to create the Brazilian wind from the S.W., known by the local name of "Rebojos."

The old idea that wind always followed a rectilinear course is giving place to a new theory, the curvilinear. It is not, however, to be understood that the wind does never follow a straight course, but that it is often found to flow in a curve. Some of its movements are indeed very perplexing, as the causes are not cognizant to the senses: take, for instance, the often occurring phenomenon of its pendulum-like action, commencing at 1, veering regularly to 2, 3, 4, 5, and so on, and then as gradually returning from the last point to the first! As a single principle, or agent, calorific influence, so governing in ordinary cases; seems, as far as our knowledge and intelligence act, utterly inoperative.

The capriciousness of aërial currents, which has become a proverb, is a *design;* the result springing from their inconstancy in the extra-tropical regions of the earth, impresses us with that conviction, though we

should fail in discovering the causes. The sun has been called the "god of the day"; it is also the god of the winds, but it has many subordinate agents in its service for the promotion of aërial agitation, and none perhaps more accessary in the government, than electricity.

Within the tropics wherever large islands lie in groups, they often influence the direction of the wind; but, calms are still more puzzling than the fluctuations of wind. What cause can be assigned for a column of air being in a state of quiescence between two opposite winds? Or, still more curious, a circle of calm in the heart of the trade wind! I have run with the trade wind (in the West Indies) gradually declining in strength, until the air became motionless, at least, apparently so; in a certain time after, a fresh breeze from the *west* pushed into this column of quiet air, and—What? Imparted to it a motion! That is questionable. What then drove the whole body to the eastward, merely causing it to shift its position, whilst the western stream of air pushed into its place! Who can decide? If another ship had been to the eastward, and we could have got a sight of her log subsequently, we should be better prepared to answer the question.

It may seem ridiculous, but some insight into these curious and interesting matters, may be gained by (under similar circumstances) ships chasing the wind! Had I been independent and could have ran back with this (temporary) west wind* on the same line, I had come, I should have found out what became of the calm, and whether, the trade wind fell back, as the blustrous west advanced its opposition to the east, or stood a "brush."

Had they been both of the same strength and met, what then? Greek against Greek! "and the tug of war!" Even, so, probably, a gale, with a strong tendency to a circular motioned electricity forming the ring, whilst the helpless calm would be shut up in the centre, as in a glass case, and the very genï would be weeping for joy! This would be, we think, very like an insipient hurricane.

In these aërial contests, as, sometimes, in gladiatorial combats, the stronger, though prevailing for a time, ultimately, from exhaustion, yields to its weaker opponents.

The interloping west wind I have spoken of, after a brief bluster, and a scowl that was enough to create alarm "beat its march back," but how far it had pushed its advance, I cannot say, it, however, began to breathe short, as the fancy would say, became "winded;" which symptom no sooner showed itself, than the old trade, peeped in side ways, and finding its opposer at the last gasp, gained "pluck," and so threw in "right and left" (variable squalls), and after occupying an hour or two "crowing" over the defunct, came sliding in, and whistling its usual tune, as complaisantly as if nothing had happened to interrupt its wonted equanimity.

I have often laughed at the idea of how close a resemblance may be made between these aërial doings, and the actions proceeding from the

* It could not have gone far, as it lasted but a short time.

capricious workings of the human heart! This strain may be very undignified, and very poor philosophy, true it may be; but, it is more, it is true.

"Philosophy is not science," so it is said; I have nothing to do with the question: what I wish, and have a great desire to see, is, the practical seaman of deep thought, habitually become observant of natural phenomena; and not only record the facts, but state his opinions freely, a single good idea may sometimes be found among much matter that is of little value, and thus without any pretensions to subtilty in science, he may be useful to it.

I am in this chat, merely skimming the *surface* here and there with hasty wing. But, to proceed:

The variations in the northern limit of the N.E. trade of the Atlantic are inferred to be consequent on the sun's place: but even in one season there are variations in the general line. The received opinion is that, when the sun is in the southern signs the general line is about the 27th degree north; and, in the reverse season it reaches as high as the 30th, and 32nd degrees. It would seem, however, that the variations of this line, are not solely influenced by the sun's place, for, if the luminary alone acted, the general line would change with regularity, which is not the case.

Two ships crossing the tropic under the same longitude, one a year after the other, on the same day of the month, will find a difference of one, two, or three degrees of latitude in this line; and two vessels crossing southerly, but under different meridians, in the same day, will meet with the settled trade in different parallels; but there is not a doubt that the sun has a governing influence on the extension of the action of this wind in the different seasons. I have as little doubt, too, that the general character of the atmospheric temperature of the Boreal regions has something to do in the process, but even in that we must fall back upon the sun and the seasons.

There is a belt northward of the tropic of Cancer, and southward of the latitudes, wherein the westerly winds are prevalent, which has been termed by seamen "The Variables", being a sort of neutral space between the N.E. trade and westerly winds. Within this belt the temperature varies little from that of the tropic line, and calms, and light fluctuating breezes are therein prevalent. These features seem to be derived from the position of the space being intermediate of the two winds moving in opposite directions; and the local atmospheric changes going on within it, must in some degree influence the bordering currents of air on either side, perhaps this may give a clue to the local variations which occasionally occur in the northern line of the trade wind.

Another remarkable circumstance is that, the trade winds commence at a certain distance from the western face of the continents, between which and the starting line, there are westerly, and cross winds; along the western line of South America it is well known that a southerly wind exists.

In the Great Ocean (by no means a "Pacific" one) there are also

curious phenomena. It would appear that the regularity of the S.E. trade wind is confined between the 90th and 140th degrees west. From New Britain and the other islands situated to the south of the line, a westerly monsoon blows; extending as far to the eastward as the Society Islands; commencing in December or January, and continuing to April or May, then succeeded by the S.E. wind.

The lateral extent of this westerly monsoon is about 15 degrees of latitude, but variable, the limit sometimes spreading three or four degrees more southerly; and northerly of the line it varies one or two degrees. It is not improbable that, the chain of islands between New Guinea and Taheiti, has some influence in its prolongation eastward; but I do not think these groups of islands are direct agents in its production; the alternation, however, appears to me to give the *coup de grace* to the theory of the rotary velocity creating the tropic wind.

I shall not attempt to search out the cause, though the subject is inviting, of this westerly monsoon; it would require much sober thought, and a regular course of inductive reasoning from the string of facts widely spread and lengthened out, besides an intimate knowledge of the natural philosophy of the atmosphere &c., before a satisfactory deduction could be drawn; which I do not feel myself competent to; and a more hasty opinion would be of little value in the general estimation.

I have now brought my prattle to a close, and have only to add that however we may be perplexed in our attempts to link cause with effect, we can have no hesitation, no difficulty, in assuring ourselves that mutation or change is a governing principle in nature—with her, action is inseparable from a healthy state: it does not clash with her fixed laws.

I cannot refrain from expressing a hope that voyagers to the south of the equator will note* the character of the trade winds, particularly the N.E., in order to determine what effect the very severe winter of the north, as well as the low temperature of air may have on the tropic wind; as, if theories be right, we should expect that it must have been brisk throughout the winter and spring; and should cold weather continue general in the northern latitudes, that there will be little flagging of the wind there whilst it lasts.

I have only now to make one more remark; it will show how puzzling the action of the wind is, for that which I am about to notice, seems paradoxical enough, opposed, in fact, directly contrary to the calorific process of flowing air; it is that, as far as we can depend upon the thermometer, our own sensation, and the evidence of our eye sight, wind from the sea of *higher temperature* than the air over the land, in the season of winter, flows, into the latter: but though it does this, it does not necessarily negative the contrary fact which experiments have proved.

I state this curious circumstance, which any body may verify who will be at the pains to give his attention to the changes of weather in winter, to show how much we have yet to learn about the causes of

* In the Nautical Magazine.

wind. What explanation can be given that will prove satisfactory? It is a very difficult question, because we have no means of obtaining actual proofs.

We may conjecture, perhaps, very reasonably, that the column of air in motion, when it receives its initial velocity is of very low temperature; but, as it progresses gradually becomes elevated, and still urged by the original impulsion, at length arrives at the land lying in its course, over which the air is of a much lower temperature, and so imparts its warmth, and hence thaw succeeds frost. If this be considered likely, it will show that the pressure at the fountain-head neutralizes the distinction between hot and cold air, under particular circumstances; but there is reason for believing that a warm column of air in motion is often arrested by another column of a lower temperature, so as to produce a calm intermediately; or, if the colder column be in motion, a commotion, from the action of some mediate cause.

The elucidation of these curious, and apparently contradictiory phenomena, however, can only be undertaken by a profound scientific and philosophic mind, and from long continued and close observation of facts carefully registered.

Aberration of the Compass.

31st December, 1847. *on board the Iron Barque, Richard Cobden.*
Lat. 49° N. Long. 16° 30′ W.

Sir.—I am led to offer you the following remarks, on the aberration of a compass on board the "*Richard Cobden*", for insertion in your columns, if you think them worthy the space, This vessel has made three voyages to India, but it is only the last two, that these notes refer to.

In May 1846 three positions in this ship were corrected for the Local Attraction, by Mr. Gray of Liverpool, by the ordinary method of swinging the vessel in dock, and placing antagonist magnets in certain positions round the above places. These places are respectively, the binnacle, about 4 feet before the stern-post, a swinging tell-tale compass, placed in the cabin skylight, about 8 feet distant from the above, and a foremost binnacle, placed on the main deck, about 7 feet abaft the mainmast. They all swing about 2½ feet from the deck.

We left Liverpool on June 10th, 1846, for Bombay, at which time all the compasses agreed with each other; and all were correct also, by the bearings of different well known objects, taken whilst in the river. The first aberration I observed was off Pernambuco, on the 12th July. For having lost the north-east trades far to the northward, and got but a very scant south-east trade, I was unable to weather the South American coast, and tacked to the eastward when about 6 miles from Pernambuco.

After tacking, I found the ship's head by the binnacle compass E.b.N.,

and by the other two compasses, east. Also I found by the binnacle, she took 13½ points to come round in, which I attributed to the wind shifting whilst in stays; but on coming to examine the other compasses, and finding the above difference, I knew it must be aberration. Having stood off 24 hours, I tacked again to the westward, and found she took the same number of points again to go round by the binnacle, but by the other compasses 12 points; and I also found there was ½ a point difference between the compasses when her head was S.W., the binnacle giving S.W.½W., so that with her head to the westward, she increased the westerly variation, and with her head to the eastward she decreased it: in each case proving the north point of the compass to be driven forward. In my private journal and log book I called it easterly or westerly aberration, as her head was either to the eastward or westward. For in this case, it had to be allowed for on the course steered the same as westerly variation, and in that, the same as easterly.

As I proceeded to the southward, I found the binnacle compass varied more and more from the other two, till in the highest southern latitude I attained, it reached its maximum. For in 39° S. and 22° E.; there was 4 points aberration easterly (her head being to the eastward); viz. the ship's head was E.b.N. by the binnacle compass, and S.E.b.E. by the others. Also having occasion to tack about here, ship's head being north on the starboard tack by all the compasses, and the wind E.N.E., I found after tacking, her head to be east by the binnacle, and S.E. by the other compasses, so that whilst with the ship's head to the northward the aberration affected the binnacle compass, so as apparently to shift the wind 4 points in our favour, whilst in stays; yet, when her head was to the southward it affected the compass the other way. Also when her head was either north or south, there was no aberration apparent, all the compasses agreeing together, but the aberration arose and gradually increased as her head inclined from the meridian, the first eight points, and diminished again as her head approached the meridian the other way.

After rounding the Cape of Good Hope; in proceeding to the northward the aberration constantly decreased, and in Bombay Harbour, with the ship's head either east or west, there was only one point aberration.

On coming to the southward again after leaving Bombay the aberration constantly increased, was 3 points again off the Cape of Good Hope after rounding which, it gradually diminished as I proceeded to the northward. On arriving in the River Mersey, the compasses all agreed within ¼ of a point, and the pilot found them to be correct by his bearings.

On the 2nd voyage the compasses being in the same position, and nothing further having been done to them whilst in Liverpool, the very same results again occurred. For from leaving Liverpool the binnacle compass kept gradually deviating from the others, as I advanced to the southward, and, as before, attained the greatest deviation in the highest southern latitude. In going to the northward towards Bombay it deviated less and less, and in Bombay was the same as last voyage. Coming to the

southward, again towards the Cape of Good Hope, it as gradually increased, and decreased again in going to the northward, till now in lat. 49° N. there is no sensible difference between the compasses.

Hence it appears that this deviation regularly increases, the farther I get from the latitude of Liverpool, (where there is none,) and it seems matter of curious conjecture, when the greatest deviation would take place. I imagine the cause to be the vessel's iron stern, iron bulwarks, tiller, and wheel chains combined, acting on the binnacle compass alone, and not on the other two compasses. I may here state that the *Richard Cobden* is a flush vessel, except a break of about 3 feet to the forcastle deck. Also, that her bulwarks are iron, waterways also, that her stern is circular and overhangs considerably, and the tiller is a strong thick piece of iron.

The question arises, why should all the compasses agree in Liverpool, and not in another latitude. It is evident that the antagonist magnets placed by Mr. Gray, fully answered their purpose on the whole of the compasses, in the latitude they were corrected for, and on two of them in all latitudes. But why should not the third compass also in all latitudes? And, what unknown power is it that causes this deviation in the third compass, which was corrected at the same time, and under the same circumstances as the other two?

In putting these facts on paper, I trust they may meet the eye of some one, who can account for them satisfactorily; they may also, perhaps, serve remotely, as data for the investigating the magnetic intensity of different latitudes. In my log book and journal I have noted every day the amount of aberration on the course then steering; but, this has never been the maximum amount of the aberration unless when the ship's head has been near east or west.

The science of Magnetism is so interesting, and the laws that govern the phenomena so little understood, that it becomes all those who witness any singularity in effects resulting from its agency, to bring them forward, not only for the advancement of the science considered theoretically; but, also on account of the great value, that *a correct* knowledge of it would be practically, now that iron ship building is so much entered into. These were the motives I had in view in sending these lines, and trusting you may not find them too prolix, if you do pray dock off the fag ends.

I remain, &c.

T. LIDBETTER,

Commander of the "Richard Cobden".

To the Editor N. M.

ON THE WANT OF A BOARD OF EXAMINERS AT BRISTOL.

Bristol, Jan. 13th, 1848.

SIR.—I see in one of your notes in your last number of the *Nautical Magazine*, that you say (in speaking of the examinations of Masters and Mates,) "We would merely ask them would it injure your reputa-

tion as seamen and navigators by the possession of a warrant of your fitness"? I answer no, but quite the contrary; now, there are several of us would be happy to pass, but I will state why we have not done so, the expense is too great, as there are no examiners nearer than London.

I have just returned from a voyage to the West Indies of three months and two weeks duration, the pay is £4. per month, now it would take at least £5. to go to London, pass the examination and back: so it would you see, Sir, take rather more than a third of my pay, and as the majority of the Masters and Mates out of Bristol are married men with families, and nothing to depend upon but their pay, I think you will see we cannot afford it. I think, Sir, as there are so many ships out of the Port of Bristol, we ought to be favoured with a Board of Examiners here as well as at Dundee, &c.

If it is not trespassing too much on your kindness. Sir, perhaps you will mention in the your next number of the *Nautical Magazine*, whether it is likely we shall have a Board of Examiners at Bristol or not, and you would much oblige us all by so doing.

I am, &c.,

A Bristol Mate, and a Constant Subscriber.

To the Editor N.M.

[We give the above letter publicity with much pleasure, and with the hope that the interest that has been lately evinced with regard to the examination of Masters and Mates, will induce the proper authorities to render them every facility. We know not why the Port of Bristol should have been overlooked.

The writer, it appears, has the wish, but not the means of passing, and we trust that 'ere long Bristol will possess a Board of Examiners, in order, that his wishes and those of many others may be fulfilled.

It may be that at Bristol, there is no Coporation of Trinity House, or a Branch Board, consisting of sub-commissioners of Pilotage; even the "Ballast Board" at Dublin has authority to examine Masters and Mates. We are inclined to think that the omission of Bristol must have happened from some such cause as the above, as we find upon reference to the regulations originally issued by the Board of Trade, the following note annexed; "Other Ports will be added to this list when there exist authorities competent to undertake the duty."

Our correspondent will perhaps point out what authorities there are at Bristol, who might with propriety be entrusted with this duty.—Ed. *N.M.*]

On the Difficulty Attending the Embarkation and Disembarkation of an Invading Army.

Royal Harbour, Ramsgate, Jan. 14th, 1848.

Sir.—Having received several most anxious letters on the subject of this Harbour, and the possibility of an armed force suddenly crossing the Channel, and *taking it in possession*, I venture to offer a few remarks; and since I speak principally of the impracticability of embarking or disembarking troops from, or at, any of our tidal harbours, and the diffi-

culties that would attend if attempted on our levels; I do so through the medium of your pages, and first I will contemplate the attempt as about to be made by a fleet of steam-vessels steering for, and intending to enter the said harbour.

Vessels of an enemy could only enter one at a time, the tide sweeping strong across the Harbour's mouth which is narrow, and should one of them fall athwart, he would block out all the rest, I have found some difficulty in getting a French steamer berthed in any moderate time with all the assistance I could render them, how a fleet of them encumbered with troops would pick up berths for themselves I cannot conceive, but that "confusion worse confounded" would follow the attempt I am certain. It requires a quick eye and steady hand on the part of the helmsman to enter any of these tidal harbours in proper seaman-like style, even with a clear head-way in the area, and if I mistake not, the entrance itself would be obscured by the smoke of a steady and well directed fire from its walls, for be it remembered a body of troops may be passed down from Canterbury in thirty minutes, and I am sure they would be supported by our hardy population, fellows,—who fear not to face the Goodwin Sands and the tempest, are not likely to cower down before the enemy.

I cannot imagine a more dangerous experiment than this for an invading force to make, to run pell mell into a circumscribed area, out of which there are but two or three narrow streets, which of course would be barricaded effectually even by the levelling some of our own houses by artillery. There is no other passage; at a time of tide when they could approach our shores the sea leaves the base of our chalk walls, the white cliffs, and it is very rarely free from uncomfortable undulations.

Again—If it was desirable to block them out of the harbour, I would do this effectually in one hour with blocks of stone and crafts which we have always at hand, the entrance might be closed at a short notice in such a way as to make it a work of many days to clear again. It is true they might march from any other point and take possession, but we should be fools indeed to leave behind us in our retreat an available port of communication for or with their fleet: so much for Ramsgate harbour as it would be found available for an invading foe. As for Dover, the Lord Warden held that for King John, and his successor would find no difficulty in doing the same for Queen Victoria. Margate, Folkstone, Rye, Newhaven, Shoreham, *beautiful harbours!* capacious quays, and long lines of wharfs, for disembarking cavalry and artillery! Where? Echo replies, "where?" Steam packet masters quarrelling about room for turn and precedence, offer a fine prospect for transports capable of conveying fifty thousand men.

No! no!—To make any calculation upon the facilities of our harbours on this line for disembarking cavalry and artillery would prove erroneous; and equally so in my opinion the embarking them from Dunkirk, Calais, Boulogne, or Dieppe, with any thing like the celerity anticipated, they being all tidal harbours, and only available for large steam men-of-war

at high water. As for Cherberg or the Seine, the width of the channel there preserves us from the meditated surprise, and enables our heavy ships of war, to manœuvre and circumvent them. I presume to offer an opinion, having commanded steam vessels more than twenty years,—let us then consider that vessels calculated to approach our shores, would carry 250 rank and file each, with their ammunition and commisariat necessary for the attempt, in addition to their officers and crew. Here then is a necessity for a fleet of 200 sail to be got out of a tidal harbour, and marshalled in defensive divisions outside of it, before they could venture to give way, and go-ahead, with their 50,000 men. Have the alarmists given it a thought, that the speed of every one of these vessels will differ? that 250 men and materiel would reduce many small class steamers to a third of their speed. What is to be said of those with transports in tow. I opine they would form an indiscribable line, scattered in a tide way, and extending from one side of the channel to the other. Will the fast vessels wait for the sluggards? If so, we shall have plenty of time to prepare for them.

Oh! but they will wait an opportunity, to combine sail and steam. Bravo! I should like to be in a fine sailing frigate of fifty guns to give them a welcome; I can also fancy the steamer *Terrible* unencumbered with supernumeraries saluting the commander-in-chief and his staff, when they "all were half seas over." But the main body does approach the shore, we will suppose, and avoiding fortified points they present themselves before one of the levels on the British coast, they are all similar, but I will take my own locality, the marsh level, and Sandwich flats; they have beaten off a fleet in the Downs, saluted the Lord Warden at Walmer Castle, their heaviest steam frigates have anchored to cover the disembarkation, and their light vessels make for the shore; but it is a *long muddy flat* and for a mile, (and at some places more,) they must wade on in slush, out of which a sportsman with a light fowling piece, finds it difficult to drag one leg after the other; a nice position for sea sick battalions rather different perhaps to a frontier crossing in parade order, with comfortable camp equipage, ration waggons, and squadrons of cavalry for their protection in flank and rear. I suppose there would be some splashing of the ducks and drakes from what artillery we could muster, some drenching of uniforms and swamping the ammunition in their cartouch boxes, granted; and the 50,000 which left La Belle France, have become beautifully less; but after hours of miserable fatigue the army of invasion have drawn up in line upon the stedfast shore: is night coming on? they cannot advance a foot, the windings of the muddy Stour intersect their way, and dikes are filled with water and lowlands flooded! Is it daylight? They must traverse the marsh to the scarp of the higher ground, and in lieu of flying to London, a day would be expended in reaching the vicinity of Canterbury; every thing has been driven away on their approach, there is no feasting on the fat oxen of the levels, and the nation which lost one of the finest armies in the world in an attempt to occupy Spain, and in an invasion of Russia, have now to try the mettle of Englishmen backed by enormous resources, united as one man in the most sacred cause which can actuate a brave and determined people.

But is it to come to this? Have we given up our commerce to other nations, and the narrow seas to our ambitious neighbours? Where is the channel fleet? If there is indeed cause for the slightest apprehension, (and the opinion of so acute and distinguished a tactician who has ventured an opinion, is entitled to more than respect on such a subject.) where is the channel fleet? We then look at a large and valuable fleet of Merchantmen riding in the Downs, we lament insubordination among the crews, tyranny too often on the part of the officers, and other delinquencies to which our Mercantile Marine are exposed, and Is there no appeal afloat for protection? no pendant to overawe the lawless and give confidence to the upright? In addition to this take the following case, nearly 300 sail of Merchant Vessels moored within the walls of this harbour, with them two French national ensigns floating in the breeze, and in these two men-of-war upwards of 150 armed men, thanks to the commanding officers, their conduct was most respectful and quiet, and their discipline, kept the crews in perfect order during a period of several weeks, had it been otherwise, much trouble might have ensued compromising the peace of our respective countries. Why then, is there no guardship in the Downs? the very sound of a morning and evening gun, gives a feeling of confidence and security, and challenges respect from the cruizers of other nations passing through this never ceasing thoroughfare of commerce, while the junior officers employed in the prevention of smuggling, and the protection of our fisheries, would have head quarters for instructions, without beating down channel to Spithead. As a civilian, I speak fearlessly, and disinterestedly, there is not a point on all our circling coast where the honour of our country's flag requires support, more than this Downs anchorage, and it would be well if a block ship like the *Blenheim* or some other, occasionally steamed across the channel on a fine summer's day to try her speed and efficiency within view of the opposite coast.

It would shew our neighbours that sort of preparation which their military ardour would hesitate to encounter, when packed in dense masses on board small vessels, and unable to change front, or manœuvre; much less to retire.

Let us not, however, encourage an over-weening confidence. The navy is the legitimate defence of an island, of equal importance to us as the standing army of Prussia is to its existance, as an independent state, nations are less to be trusted than individuals, and the most treacherous coalitions sometimes burst upon the political atmosphere, like a clap of thunder upon the natural, giving little time for preparation against the fury of the storm, consult the sense of the British people, they would bear an exclusive tax to support their much cherished navy.

There is not a man who has five pounds to spare, who would not part with half of it in such a cause if convinced of the necessity; and as a nation, I doubt not the means would be furnished to commence an Auxiliary force of fifty steam frigates by voluntary contribution; and how are they to be manned? That must be left to the wisdom of the legislature, but England must be poor indeed in patriotism if it could

not enrol among its maritime population resident upon its sea port towns, ten thousand sea fencibles ready, when summoned, to embark as an auxiliary force, and that with comparatively little expense to the country; but above all other considerations, let us beware, how we tamper with the navigation laws, lest we annililate our nursery for seamen.

Bear with me while I ask again, is it come to this? Are we indeed a nation of shopkeepers to be frightened by the threat of invasion? Is it indeed true, that the idolatry of mammon worship has so far debased us as to make us forgetful of our high destinies? Of our rank among nations? As the champions of political and religious liberty? Are we to forsake the colonies we have planted? The nations we have humanized? The science we have imparted, and the faith which we have defended? Never! Let us look back upon the past, and emulate our noble ancestry, who, depending on the justness of their cause, appealed to that power, in whose hands are the destinies of nations and individuals, and verified the sublime aspirations of the poet Laureate.

> Yet, midst the loudest blasts of Fame!
> While most the admiring Nations gaze,
> What for herself, does Britain claim?
> Not to herself, she gives the Praise!
> But low in dust, her head she bows,
> And prostrate pays her grateful vows
> To Him! The Almighty Power, by whose decree
> She Reigns! and still shall Reign, sole Empress of the Sea.

K. B. MARTIN.

EXAMINATION OF MASTERS AND MATES IN THE MERCHANT SERVICE.

We are glad to have it in our power to lay before our readers another List of Officers who have obtained certificates down to the 31st December. It will be seen that some very well known masters of vessels belonging to the port of London have passed the required ordeal at the Trinity-House, and among others Capt. Holton of the *Mount Stewart Elphinstone*. We advert to this particularly because in a recent number of the *Shipping and Mercantile Gazette* one of its correspondents complained that although the Government had given notice that only ships commanded by qualified officers, would be hired in the public service, still the Admiralty were every day breaking this rule. It may be so under some peculiar circumstances, but in this instance the *Mount Stewart Elphinstone* has been hired as a convict ship, and Capt. Holton has at once yielded to the rule, though from his having made several voyages to the East Indies his owners would not perhaps have deemed this necessary. Another ground of complaint was that the Government only published the names of the Masters and Mates who had qualified to the "London Gazette" now this is too true and if we were permitted to offer an opinion, we certainly would advise a publication in the columns of our respectable contemporary the *Shipping and Mercantile Gazette* as far preferable, and more likely to give that publicity to the working of the system, which it must be the object of Government to effect, than can produced by the course now followed. We have, however, had much satisfaction in backing the exertions of the committee for managing Lloyd's Register Book, by giving insertion to the Lists published by that committe and thus extending the means of circulating the names of men who have been found good and efficient officers.

Continued from page 54.

Name of Party who has received the Certificate	Class of Certificate	Age	Present or last previous Service	Register Ticket	Where Exam.	When.
M. M. Milward	1st	43	J. Dugdale, 407 tons		Liverpool	Sept. 7th
J. Mazurer	2nd	29	Hamlet, 400 tons ... (*as mate*)	31092	London	— 10th
J. Cornforth	1st extr	51	Rothschild, 654 tons		Liverpool	— 14th
W. J. C. Lang	1st extr	27	Hibernia, 1400 tons (*as first mate*)	188592	Liverpool	— 14th
Alex. Gold	2nd	25	Mercury, 243 tons... (*as mate*)	36050	London	— 15th
J. Shadrack	3rd	38	Golden Fleece, 312 tons (*as mate*)	274020	London	— 15th
Wm. Watson	2nd	32	Polly 280 tons ..... (*as mate*)	.....	S. Shields	— 15th
James Allison	2nd	36	Sisters, 243 tons ... (*as mate*)	13610	S. Shields	— 16th
C. E. Stuart	2nd	29	Vancouver, 330 tons (*as mate*)	387474	London	— 17th
James Knox	2nd	39	Ann, 800 tons	.....	London	— 17th
T. Beazley	1st	36	Nimrod, 240 tons ...	.....	Portsmouth	— 20th
R. L. Frazer	1st	51	Lady Peel, 492 tons		London	— 21st
J. R. Tuit	1st	30	Japan, 359 tons	.....	London	— 23rd
Philip Helm	2nd	32	Princess Victoria, 257 tons (*as mate*)	.....	S. Shields	— 28th
Benj. Ward	3rd	50	Thomas & Mary, 208 tons	.....	S. Shields	— 28th
J. A. Cox	2nd	37	Clifton, 867 tons ...	.....	London	— 30th
J. G. Jeyes	2nd	30	Cuba, 256 tons	.....	London	— 30th
J. Sinclair	2nd	26	.....	.....	Newcastle	— 27th
George Potter	1st	26	Indian, 387tons ..... (*as mate*)	.....	London	Oct. 1st
E. D. Edgell	1st	26	O. Glendower, 1000 tons(*as chief officer*)	31049	Portsmouth	— 4th
Henry Rhodes	3rd	30	Assiduous, 215 tons	.....	S. Shields	— 4th
M. Southern	1st	27	Meldon, 228 tons ... (*as mate*)	.....	S. Shields	— 4th
Thomas Seon	2nd	27	Adelaide, 639 tons (*as mate*)	26299	S. Shields	— 6th
James Leath	2nd	32	Onyx, 278 tons ..... (*as mate*)	.....	London	— 7th
Edward Byrne	2nd	30	Ajax. 591 tons ..... (*as mate*)	37689	London	Sept. 27th
T. N. Were	1st	41	J. Cooper, 660 tons	.....	S. Shields	Oct. 9th
W. Fairbairn	1st	23	Durham, 421 tons... (*as mate*)	.....	London	— 11th
E. Thomas	2nd	24	Lady Peel, 541 tons (*as mate*)	345168	London	— 11th
G. J. Bryant	2nd	33	John Laird, 275 tons	.....	London	— 13th
A. R. de Meurant	2nd	26	Bombay, 1200 tons (*as mate*)	.....	London	— 18th
H. Redpath	2nd	28	Larkins, 701 tons ... (*as mate*)	15489	London	— 15th
E. J. Ward	2nd	26	Mercury, 243 tons...	.....	London	— 19th

S. H. Wright	2nd	23	Rajasthan, 700 tons (*as mate*)	30893	London	Oct. 19th
W. B. Collyns	2nd	24	Sophia, 550 tons ... (*as mate*)	344914	London	— 21st
W. Morgan	3rd	27	Queen Victoria, 254 tons (*as mate*)	.....	S. Shields	— 21st
J. P. Preston	2nd	33	Free Briton, 290 tons	.....	S. Shields	— 21st
Geo. Palmer	1st	33	Punjaub, 600 tons	.....	Newcastle	— 25th
W. H. Palmer	1st	27	Nankin, 567 tons ...	.....	Newcastle	— 25th
Edward Bryer	2nd	26	Recovery, 493 tons	31596	London	— 26th
John Smart	2nd	27	Two Sisters 308 tons	.....	S. Shields	— 26th
J. Larmond	2nd	28	Princess Victoria 257 tons	.....	S. Shields	— 26th
D. Mainland	2nd	29	Thetis, 550 tons.....	.....	London	— 26th
A. Murdock	2nd	36	Black Cat, 142 tons	.....	London	— 27th
H. A. White	2nd	29	Matthew Pearse 240 tons	.....	London	— 22nd
James Oliver	2nd	30	Brack, 217 tons..... (*as mate*)	.....	S. Shields	Nov. 3rd
G. M'Cureas	3rd	36	Ann, 257 tons ..... (*as mate*)	.....	S. Shields	— 4th
R. M. Norris	2nd	41	Orient, 598 tons.....	.....	London	— 4th
F M. Harris	2nd	22	George, 414 tons ... (*as mate*)	26273	London	— 4th
D. Leslie, junr.	2nd	23	Majestic, 156 tons	.....	Dundee	— 4th
Wm. Richards	2nd	27	Conservative, 434... tons (*as mate*)	12460	London	— 5th
T, G. Chapman	2nd	23	Bangalore, 867 tons (*as mate*)	325346	London	— 5th
T. Goodson	2nd	29	Clifton, 867 tons ... (*as mate*)	1640	London	— 5th
David Dewar	2nd	24	Lady Flora, 750 tons (*as mate*)	27240	London	— 6th
G. M. Peart	1st	24	William Wallis, 355 tons (*as mate*)	.....	S. Shields	— 9th
T. Gummer	3rd	36	Centenary, 225 tons (*as mate*)	.....	S. Shields	— 9th
John Cass	1st	33	Thetis, 460 tons.....	.....	London	— 11th
J. Littlepage	2nd	23	Jane. 313, tons ..... (*as seaman*)	30461	London	— 10th
T. S. Kennedy	2nd	26	Catharine Greene, 378 tons (*as mate*)	15860	London	— 10th
J. W. Ballantine	2nd	23	Mary Alice, 227 tons (*as mate*)	9444	London	— 10th
C. T. Sloman	1st	32	Stamboul, 142 tons	.....	Yarmouth	— 12th
R. Howston	2rd	...	Alert, 83 tons ..... (*as mate*)	.....	S. Shields	— 14th
Wm. Wright Matheson	2nd	31	Lloyds, 403 tons.....	.....	London	— 15th
John Baker	2nd	27	Zenobia, 589 tons (*as mate*)	27712	London	— 15th
C. W. Walker	1st	27	Hibernia, 1400 tons (*as second mate*)	112958	Liverpool	— 16th
Albert Betts	1st	32	Devon, 597 tons ...	.....	Liverpool	— 16th
Daniel Numan	3rd	44	Mars, 206 tons	.....	Newcastle	— 16th
C. W. Meeking	2nd	25	Sylphiden, 350 tons (*as mate*)	388132	London	— 17th

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R. J. Wood	2nd	23	Sea Queen, 404 tons (*as mate*)	421	London	Nov. 18th
Thomas Ginder	2nd	40	Thetis, 468 tons, ... (*as mate*)	26318	London	— 18th
Fred. Acock	2nd	21	Token, 626 tons ... (*as mate*)	28819	London	— 18th
Thomas Lewin	2nd	30	Ocean, 550 tons..... (*as mate*)	86442	London	— 22nd
J. P. Westen	2nd	35	Sophia Moffat, 550 tons (*as mate*)	344586	London	— 22nd
Henry Bown	1st	26	Great Western 900 tons (*as chief officer*)	252569	Portsmouth	— 23rd
H. Marshall	3rd	33	Hermione, 238 tons (*as mate*)	.....	S. Shields	— 24th
G. W. Britton	2nd	26	Stanerding, 271 tons (*as mate*)	23990	London	— 29th
H. Thompson	2nd	33	Japan, 369 tons..... (*as mate*)	34874	London	— 29th
R. R. Liddell	2nd	28	Lady Bruce, 538 tns (*as mate*)	24734	London	— 29th
P. M'Clemon	3rd	30	Rochdale, 191 tons	26635	London	— 29th
J. T. Mills	3rd	20	Richard Dart, 269 tons (*as mate*)	152	London	— 29th
John Williams	2nd	33	Lady Peel, 591 tons	.....	London	— 29th
Sam. Palmer	2nd	27	Mary Ann, 400 tons	19153	London	— 30th
Wm. Stewart	2nd	35	Dartmouth, 733 tons	.....	London	Dec. 2nd
A. Locke	2nd	27	Himalaya, 477 tons	6114	London	— 2nd
Wm. Wright	2nd	43	Katharine Stewart Forbes, 450 tons	.....	London	— 6th
R. Maynard	2nd	23	Herefordshire, 1354 tons (*as mate*)	30807	London	— 6th
J. Cockshutt Bland	1st	27	Larpent, 614 tons ...	.....	Liverpool	— 7th
John Harrison	1st	27	Dorothea, 305 tons	.....	Liverpool	— 7th
J. S. Daines	2nd	26	Cygnet, 238 tons ... (*as mate*)	327654	London	— 9th
A. H. Muan	2nd	23	Forth, 1800 tons ... (*as mate*)	220668	London	— 9th
A. Holton	2nd	40	Mount Stewart Elphinstone, 611 tons	.....	London	— 9th
J. G. Parker	2nd	25	Medway, 1800 tons (*as mate*)	252802	London	— 9th
Joseph Raw	1st	30	Diana, 321 tons.....	.....	S. Shields	— 10th
Wm. Watts	2nd	26	Free Trade, 277 tns (*as mate*)	345865	London	— 10th
John Harvey	2nd	28	Bolton, 541 tons ... (*as mate*)	1300	London	— 13th
J. J. Church	2nd	26	John Calvin, 520 tns (*as mate*)	326731	London	— 13th
T. Flamank	2nd	29	Bombay, 1279 tons	21128	London	— 14th
G. Richardson	2nd	50	Herefordshire, 1354 tons	.....	London	— 15th
G. W. Trounsell	3rd	24	Benj. Buck Greene, 528 tons (*as mate*)	5786	London	— 15th
C. E. Pryce	3rd	28	Bombay, 1279 tons (*as mate*)	27814	London	— 16th
H. P. Brumell	2nd	28	Lina300tons as mate	390023	London	— 16th

J. P. Ridley	1st	37	Candahar, 642 tons	.....	Newcastle	Dec. 17th
Sam. Nichol	2nd	28	Viatio, 257 tons (*as mate*)	338248	S. Shields	— 17th
Alex. Cook	3rd	42	Ann, 287 tons.....	.....	S. Shields	— 17th
T. T. Watson	1st	32	Rapid. 149 tons.....	.....	Leith	— 18th
Willlam Nunn	2nd	34	Subraon, 510 tons...	27804	London	— 20th
W. B. Custard	2nd	21	Ceylon, 778 tons ... (*as mate*)	4836	London	— 20th
J. S. Byres	3rd	32	Childe Harold, 500 tons (*as mate*)	27179	London	— 20th
John Davison	2nd	25	John Calvin, 510 tns	.....	London	— 21st
C. Robertson	2nd	39	Lucknow, 440 tons	.....	London	— 21st
J. R. Lobb	3rd	31	Emerald, 94 tons ...	.....	Plymouth	— 21st
James Smith	2nd	32	Mariners, 292 tons (*as mate*)	.....	S. Shields	— 22nd
Wm. Black	2nd	24	Tasmania, 502 tons	.....	London	— 24th
Wm. Tait	2nd	37	Scio, 288 tons ..... (*as mate*)	.....	S. Shields	— 29th
Robert Kellow	2nd	30	Earl of Ripon 343tns	5217	London	— 29th
Robert Findley	2nd	23	Humayoon, 530 tons	323894	London	— 29th
T. Robinson	2nd	25	Lima Packet 210tons	.....	London	— 29th
J. Thompson	2nd	45	Thomas Blyth 372tns	.....	London	— 29th
A. K. Newman Tremearne	2nd	35	Java, 1175 tons..... (*as mate*)	324201	London	— 29th
J. Smith	2nd	23	Bangalore, 876 tons, (*as mate*)	30554	London	— 30th
Wm. Haggon	2nd	35	Dibdin, 570 tons ...	.....	London	— 30th
J. Davidson	2nd	38	Thomas Blyth, 372 tons (*as mate*)	25743	London	— 30th

MATES.

James Scott	2nd	22	Dale Park, 402 tons (*as seaman*)	27283	London	Aug. 20th
John A. Austin	3rd	21	Magician, 92 tons (*as seaman*)	376719	London	Sept. 23rd
W. F. Whitnall	2nd	21	Heroine, 307 tons ...	27907	London .	Oct. 2nd
John Drysdale	1st	24	.....	.....	Glasgow	— 12th
G. R. Hallibur-ton	1st	...	Indus, 822 tons ..... (*as second officer*)	.....	Leith	— 29th
R. H. Laws	2nd	20	Benj. Greene 397 ... tons	24179	London	— 29th
E. D. Day	3rd	21	Cadet, 376 tons	31641	Yarmouth	— 2nd
D. H. Barnes	1st	22	Olinda, 319 tons ...	.....	S. Shie ds	— 4th
Lewis Reid	1st	37	Mary Somerville 407 tons	65231	Liverpool	— 9th
E. Hudson	3rd	19	Unicorn, 305 tons... (*as seaman*)	24744	London	— 17th
J. L. Slater	3rd	23	Sovereig, 542 tons (*as seaman*)	19545	London	Dec. 2nd
J. G. Salter	2nd	20	Philip Laing, 547 ... tons (*as apprentice*)	330611	London	— 4th
Geo. Simpson	1st	38	Ivanhoe, 374 tons	272812	Leith	— 31st

Nautical Notices.

Algoa Bay.—Government Notice.

Government office, Court-house, Grahams Town, October 14th. 1847.

His Honor the Lieutenant-Governor, with the concurrence of his Excellency the Right Hon. the Governor, has been pleased to approve of the adoption of the following measures, with a view of rendering assistance in cases of shipwreck in Algoa Bay.

1st. That the port captain be provided, at the cost of the Government, with one sufficient life-boat.

2nd. That a suitable boat-house for the boat be erected, and a slip for launching attached thereto.

3rd. That the life-boat be kept mounted on a suitable carriage.

4th. That the whole be placed in charge, and under the direction of the port captain, who is held responsible to the government for having the boat, &c., at all times in a perfect and efficient state, either for launching, or being conveyed to any part of the beach where it may be required.

5th. In regard to the manning of the boat in times of danger, his Honor doubts not, that amongst the numerous and well-conducted body of boatmen and fishermen at this port, there will always be found an efficient volunteer crew for any emergency, under the following regulations, viz.:—

The port captain to call upon the boatmen and fishermen, and register the names and residence of those who may be willing to enrol themselves as volunteers for service of the life-boat. To select from the numbers so enroled such a number as he may deem sufficient to ensure coxswain and crew for the life-boat. In order to create mutual confidence amongst the crew, as well as confidence in the life-boat, and to acquire experience in its management, the port captain is empowered, upon four days in the year, to call upon the registered crew to man the life-boat, and practise with it in the bay; and he is authorised to pay the coxswain 7s. 6d.; and each of the crews 4s. 6d. per day, whilst so practising. In times of danger, when their services are likely to be required, the crew to attend at the port-office (upon signals hereinafter specified being made), and for each day they may be so kept in attendance under the direction of the port captain, they are to receive the same pay as abovementioned; and if they are kept also at night in attendance, the remuneration to the coxswain to be increased to 10s. 6d., and to the men 7s. 6d. each. It is to be observed that the rates of pay specified are to be considered as applicable only to the services of the crew whilst practising in the life-boat, or, while attending at the port-office, to render assistance when required, under the direction of the port captain; but for actual services rendered in saving life or property, it is obviously impossible to lay down any fixed scale of remuneration, as that must in such cases, always depend upon the nature and importance of the service rendered, and the circumstances under which it is effected.

The port captain is, therefore, authorised to exercise his discretion, and to name and promise the amount of reward or remuneration to the crew of the life-boat for their services, according to his opinion of the risk and nature of the duty required. The regular port-boat's crew to be entitled, when similarly employed, to the same remuneration and rewards as other boatmen, excepting for their daily attendance; but if required to attend during the night,

they are to be paid for the night's attendance, 4s. 6d. for each man, and 7s. 6d. for the coxswain, and also when employed in exercising the life-boat, they are to be remunerated at the same rate as the other crews. The port-boat's crew, as well as the registered crew of the life-boat, to attend at the port-office, whenever the port captain may desire, and the several crews are hereby made acquainted with the undermentioned appointed signals. When their attendance by day is required, a yellow flag will be displayed on the port-office flag staff. When at night, alarm guns will be fired from the boat-house.

His Excellency the Commander-in-Chief, has adopted the necessary measure for ensuring the aid of the Royal Artillery. The Royal Artillery in garrison is to take charge of rockets and blue lights provided by the colonial government, and upon occasions of a ship being stranded, a non-commissioned officer and party to be dispatched to the spot to use the rockets or blue lights, as the port captain may require. The port captain to give immediate information to the commandant of the garrison, and to the resident magistrate whenever a ship is stranded, so that a sufficient force of military and police may be sent to the spot to protect property, and maintain order.

In assigning these new and important duties to the port captain, much discretionary power is necessarily reposed in him, particularly in fixing the amount of, and promising rewards to, boatmen in the hour of peril.

By command of his Honor the Lieutenant-Governor,

JOHN CENTILIVRES CHASE,
Secretary to Lieutenant-Governor.

Trinity House, London, 24th December, 1848.

FLOATING LIGHT, BAHAMA BANK, OFF RAMSAY, ISLE OF MAN.—Notice is hereby given, that pursuant to the intention expressed in the notice from this house of the 23rd of September last, a floating light vessel has been moored off the south-eastern part of the shoal called the Bahama Bank, off Ramsay Bay; the lights on board of which will be exhibited for the first time on the evening of Saturday, the 1st of January next, and thenceforth continued every night from sun-set to sun-rise.

As respects the character and position of this floating light, mariners are to observe that two bright fixed lights will be exhibited, viz.: one on the mainmast burning at an elevation of 38 feet from the surface of the water; and one on the foremast burning at an elevation of 20 feet above the same level; whereby it will be readily distinguishable from the neighbouring shore lights on the Isle of Man, and on the English and Scottish coasts; and that the vessel is moored in 9 fathoms, at low water spring tides, with the following marks and compass bearings, viz :—

Point of Ayre lighthouse . .	N.N.W. $\frac{3}{4}$ W.
The north end of the high land of Man on with Ramsay Mill . . .	W.b.N. $\frac{1}{4}$ N.
Maughold Head . .	W.b.S. $\frac{1}{4}$ S. distant $5\frac{1}{2}$ miles.
Clay Head	S.W.b.W. $\frac{1}{2}$ W.
King William Bank Buoy . .	E.b.N. $\frac{1}{4}$ N. distant 74 miles.

By Order,

J. HERBERT, *Secretary.*

Trinity-House, London, 15th January, 1848.

WRECK IN THE S.W. REACH OF THE SWIN; ALSO ON THE RIVER MIDDLE SAND.—Notice is hereby given, that green buoys, marked with the word "Wreck," have been placed in the undermentioned situations, viz. :—

South West Reach of the Swin.—This buoy is placed 10 fathoms S.W. from the Wreck, in 6 fathoms at low water spring tides, with the following marks and compass bearings, viz. :—

Swin middle light vessel . . .	N.E. distant about 1¼ mile.
Whitaker Beacon . . .	N.N.E.
Maplin lighthouse	S.W. ½ W.

Maplin spit buoy in line with the southern pillars of that lighthouse.

South side of the River Middle Sand.—This buoy is placed 10 fathoms W.b.S. from the "Wreck," in 2½ fathoms, at low water spring tides, with the following marks and compass, bearings, viz. :—

River middle buoy .	N.W. ¾ W. distant about 1½ cables' length.
East river middle buoy	S.E.b.E. ½ E.
Outer end of south end Jetty . . .	E.N.E.
Hamlet Mill, it's apparent width open to the eastward of the Black Preventive Station-house, on the cliff	N.N.E.

By Order,

J. HERBERT, *Secretary.*

Preston, 16th December, 1847.

RIBBLE NAVIGATION.—The Directors of the Ribble Navigation Company hereby give notice, that a lighthouse has been erected on the Stanner Point, at the entrance to the Ribble, the lights of which will be exhibited on the 1st of February, 1848, and every night thereafter.

The following is a specification of the position of the lighthouse and appearance of the lights.

The Ribble lighthouse is placed on a projecting point, or spit of gravel 280 yards to the west of the Ribble landmark, on the northen shore of the entrance to the Ribble.

In this tower two fixed lights, the one over the other, will be exhibited, the uppermost being of a white or natural colour, and that below being of a red colour.

Both lights will be visible to mariners all round from the Blackpool to the Southport shores, and the following are the magnetic bearings and the distances of the undermentioned objects from the lighthouse, viz. :—

Nelson buoy . . .	N.W.b.W. ¾ W.	distance	6½ miles
N.W. light ship Liverpool .	S.W. ½ W.	"	19½ "
Great Ormshead . .	W.b.S. ¼ S.	"	38 "
Point of Lynas . . .	W. ¼ N.	"	48 "
Douglas Head . . .	N.W. ½ N. nearly	"	53½ "
Maughold Head . .	N.N.W. ¼ W.	"	55 "
St. Bees' Head lighthouse . .	N. ¼ E.	"	51 "

Mariners are to observe that at distances not exceeding eight miles, the White and Red lights will in clear weather appear separate and distinct; but beyond that distance they will cease to preserve that distinctive character, and will assume the appearance of one light only.

By order of the Directors,

E. HAYDOCK, *Secretary.*

Lewes, December 28th, 1847.

NEWHAVEN, SUSSEX.—Notice, the following regulations respecting signals at Newhaven harbour, have been approved by the Trinity Board, and the same took effect on and from the 30th day of September last. viz. :—

There shall be exhibited on the Western Pier, nightly, from sun set to sunrise, a High White Light, and in addition, during certain periods, a Low Light, or other signal, viz. :—

During the undermentioned depths of water at the Harbour's Mouth, whether flood or ebb.	*Day Signals.*	*Night Signals.*
13 feet and upwards.	A Red Flag.	A low White Light.
10 feet and upwards, and not 13.	Two Black Balls.	A low Red Light.
8 feet and upwards, and not 10.	One Black Ball.	

By order of the Trustees,

JOHN LEWIS, *Clerk.*

New York, Dec. 15th.

The buoys of Gedney's Channel were put in place on the 9th inst. These buoys, in conformity with the suggestions of Mr. Bache, Superintendent of the Coast Survey, are painted of colours similar to those of like buoys in the Delaware. They are in black and white vertical stripes, these being the colours which are henceforth specially to mark buoys placed in said channel. Those just placed in Gedney's Channel are numbered on the head as follows : "G. 1, G. 2, G. 3," No. 1, being the southernmost or outermost one.

Joseph Eyre, master of the ship *Helena*, communicated to the *Philadelphia North American* the following particulars of the disaster which befel his ship on the passage from Manila to New York :—

The accident occurred on Saturday, Aug. 21st, at 10 A.M., upon a coral flat 1½ miles N.W., from the small island of Manalipa, or Cocus, of Horsburgh's Chart, near which there is no danger intimated by either Spanish or English charts, the latest edition of both being on board. It was dead calm, and the boat was kept ahead with five oars, towing the ship. The lead was kept going, and five minutes before grounding there was no bottom at 90 fathoms. The ship was drifting rapidly past the land, with every prospect of being quickly through into the Celebes Seas.

STANLEY—*Falkland Islands*—Sept. 13.—Sir,—From the number of vessels that are continually passing and re-passing the east end of these islands, and from the few vessels that come into this port, being attributed to the ignorance of most merchant captains that there is no British settlement here, where supplies can be obtained. The governor has caused to be erected on Cape Pembroke, the easternmost point of the island, a triangular beacon, painted white and red.

Vessels on entering Port William, a pilot will come off to them.

The beacon can be seen at a distance of about five miles at sea.

(Signed) J. M. DEAN,
Agent to Lloyd's.

To W. Dobson, Esq., Secretary, Lloyd's.

Collector's office, Edgartown, Dec. 6, 1847.—A light vessel of 145 tons burthen, showing two lights to distinguish her from Cuttehunk Light, has been stationed at the south-western extremity of the rocks called "Sow and Pigs," near the entrance of the Vineyard Sound, Gayhead Light bearing S E.b E. ½ E., Cuttehunk Light bearing N.E.b.E. ½ E.

J. T. PEASE, *Superintendent.*

THE NEBULÆ.—The most remote bodies which the telescope discloses to us are, probably, the nebulæ.—These, as their name imports, are dim and misty looking objects, very few of which are visible to the unassisted sight. Powerful telescopes resolve most of them into stars, and more in proportion to the strength of the instrument; while, at the same time, every increase of telescopic power brings fresh and unresolved nebulæ into view. A natural generalisation would lead us to conclude that all such objects are groups of stars, forming systems, differing in size, remoteness, and size of aggregation. This conclusion would, indeed, be almost irresistible but for a few rare examples, where a single star of considerable brightness appears surrounded with a delicate and extensive atmosphere, offering no indication of its consisting of stars. Such objects have given rise to the conception of a self-luminour nebulous matter, of a vaporous or gasseous nature, of which these photospheres, and perhaps some entire nebulæ may consist, and to the further conception of a gradual subsidence or condensation of such matter into stars and systems. It cannot be denied, however, that the weight of induction appears to be accumulating in the opposite direction, and that such "nebulous stars" may, after all, be only extreme cases of central condensation, such as two or three "nebulæ," usually so called, offer a near approach to. Apart, then, from these singular bodies, and leaving open the questions they go to raise, and apart from the consideration of such peculiar cases as planetary and annular nebulæ, the great majority of nebulæ may be described as globular or spheroidal aggregates of stars arranged about a centre, the interior strata more closely than the exterior, according to the various laws of progressive density, but the strata of equal density being more clearly spherical according to their proximity to the centre, Many of these groups contain hundreds, nay thousands of stars.—*Edinburgh Review.*

GRANT TO THE NAVY FOR THE RELIEF SERVICE IN IRELAND.

The Lords of the Treasury having had under consideration the services of Her Majesty's ships and vessels engaged in the relief service, during the recent operations on the coasts of Ireland and Scotland, have awarded the sum of £8,600 to be distributed as gratuities to certain officers, men, and boys employed, as compensation for their extra expenses, and for the wear and tear of the clothing of the men and boys. The grant is distributed to no less than 47 men-of-war and other vessels of the navy, carrying pendants, and to three victualling lighters, the *Ant*, *Swale*, and *Arthur*, and the sums vary to the working men, from £5 to £1.

The following ships having seen the most severe duty, many of them in the partial famine of the previous year, viz:— The *Alban*, steam transport,

Master Com. Bradshaw: *Rhadamanthus*, steam transport, Master Com. Aylen; the *Dee*, steam transport, Master Com. Driver; the *Stromboli*, steam sloop, Capt. Fisher; the *Pluto*, steam vessel, Com. Lowe; the *Blazer*, steam vessel, Com. Wingrove; the *Lucifer*, steam vessel, Licutenant-Com. Smith; the *Comet*, steam vessel, Com. Johnson; the *Dasher*, steam vessel, Com. French; and *Zephyr*, steam packet, Lieut.-Com. Ladd, have had awarded to them £50 to the commanding officers. To the officers' messes of all descriptions, a sum equal to £10 each. To the working petty officers, seamen, stokers, marines, supernumerary marines, &c., £5 each; and to the boys, £2 10s. or amounts in proportion, according to the time served and employed, except the *Stromboli* and her crew, which from its numbers, will share but £3 per man. To the *Gipsy*, *Mercury*, *Emerald*, *Lively*, *Cockatrice*, *Gossamer*, *and Swallow*, £3 per man, and £20 and £25 to the commanding officers. To the *Fire-fly*, steam vessel, Lieut.-Com. Buchan, *Avon*, steam vessel, Com Smith. *Porcupine*, steam vessel, Lieut.-Com. Turnour, and *Acheron*, steam vessel, Lieut.-Com. Dunlop, commanding officers, £25 each; officer's messes, an average of £5 each; to the men £2 10s. each, and boys £1 5s.

To the following five frigate depôts:—*Madagascar*, Master Com Burney; *Andromache*, Master Com. T. Johnson; *Andromeda*, Master Com. R. Thompson; *Belvidere*, Master Com. Wellington; and *Æolus*, Master Com. Tucker, commanding officers, £25 each; gunners, boatswains, and carpenters, £7 each; other officers, £5; to the men 5s. per month, for a period of eight months; and to the boys 3s. per month for the same time; to the marines of the *Devon* lighter, £2 each, and the *Adventure*, £1:—The former having been stationed at Skull, and the latter at Kenmare. The following ships have had awards for the working men, to be equally distributed, share and share alike. Boys, half share:—The *Myrmidon*, steam vessel, Lieut.-Com. Roberts, £50; *Tartarus*, steam vessel, Lieut.-Com. Cole, £50; the *Urgent*, steam packet, Lieut.-Com. Symes, £30; *Fearless*, steam vessel, Lieut.-Com. Glynn, £20; *Sinbad*, lighter, £10; *Lightning*, steam vessel, Master Com. Petley, £22 10s.; *Shearwater*, Lieut.-Com. Sir G. Webster, £30; *Centaur*, steam frigate, Master Com. Davey, £75; *Dauntless*, steam frigate, Master Com. M'Donald, £50; *Scourge*, steam sloop, Capt. Caffin, £100; *Geyser*, steam sloop, Com. Brown, £100; *Avenger*, steam frigate, Com. Potbury, £100; *Bulldog*, steam sloop, Com. Davies, £50; *Terrible* and *Dragon*, steam frigates, Capts. Ramsay and Hall, £100; *Odin*, steam frigate, Capt. J. W. Williams, £75; *Birkenhead*, steam vessel, Com. Ingram, £30; *Portland*, 50, frigate, Com. Schomberg, £75; *Tyne*, frigate, £50.

The victualling hoys, *Ant*, *Swale* and *Arthur*, employed on the coast of Ireland, share in the grant:—The Masters £10 each; mates, £7; men, £5; and boys, £2 10s. And the Portsmouth hoymen at the royal Clarence yard have not been forgotten, but have also been duly compensated.

The master millers, bakers, leading men, &c., of the Deptford, Clarence and Royal William victualling yards, have had awarded to them for their extra duties during the relief operations sums of £20, £15, and £10 each; and the two baker's boys that were injured by the machinery have had liberal gratuities granted to them.

The clerks in charge of Her Majesty's ships, as compensation for their trouble and responsibility, in the care and custody of the relief supplies, and for the extra expenses incurred, have been awarded the sums varying from £25 to £10 each, in addition to their shares of the grant for their respective ships' companies.

The Treasury have made their awards from the extent of the services performed. Of the 50 government vessels enumerated, the meal and bread

stuffs carried and distributed by each varied from 3,200 tons to 59, and from 80 trips of distribution to one. The work, risk and labour, fell upon the small and not largely powered steam vessels, with crews from 30 to 70, and consequently the larger gratuities have been granted to them, while Her Majesty's more powerful steam frigates, such as the *Terrible*, *Dragon*, *Odin*, &c., with competent crews, made but a trip or two direct from England to Ireland; but the task of relief fell upon the *Blazer*, *Comet*, *Lucifer*, *Dasher*, *Zephyr*, and the small sailing craft, to put to sea in all weathers for the distressed and suffering parts of Cork, Kerry, Galway, &c. And it is truly remarkable, that during the eighteen months famine, and the presence of 40 men-or-war on the coasts, not an accident or mishap occurred, while to the foreign and coasting trade, the shipwrecks were many and disastrous.

The sum of £300 has been granted to the widow of the late lamented Capt. Glasscock.

The Slave Trade.

A letter has been addressed to the Editor of the *Sierra Leone Watchman*, dated 15th of November, 1846, relating to the Brazilian brigatine *Paqueta de Rio*, captured on the 27th of October, 1846, off the Sherbro. There were on board this vessel at the time of capture 556 slaves, of whom nine died on the passage to Sierra Leone. The appearance of the *Paqueta* on its arrival there is thus described by the writer who went on board of her:—

The five hundred and forty-seven human beings, besides the crew and passengers (as they styled themselves), twenty-eight in number, were stowed in a vessel of 74 tons. The slaves were all stowed together perfectly naked, with nothing but the surfaces of the water-casks, which were made level by filling in billets of wood, which formed the slave deck. The slaves who were confined in the hold (it being utterly impossible for the whole of them to remain on deck at one time), were in a profuse perspiration, and panting like so many hounds for air and water. The smell on board was dreadful. I was informed that, on the officers of the *Cygnet* boarding the slaver, the greater part of the slaves were chained together, with pieces of chain, which were passed through iron collars round their necks; iron shackles were also secured round their legs and arms. After the officers had boarded, and the slaves were made to understand they were free, their acclamations were long and loud; they set to work, and, with the billets of wood which had hitherto formed their bed, knocked off each other's shackles, and threw most of them overboard. There were several left, which were shown to me. We will leave it to the imagination of your readers what must have been the feelings of those poor people when they found they were again free —free through the energy and activity of a British cruiser. On examining the poor creatures, who were principally of the Kosso nation, I found they belonged to and were shipped to different individuals: they were branded like sheep. Letters were burnt in the skin, two inches in length. Many of them, from the recent period it had been done, were in a state of ulceration; both males and females were marked as follows:— on the right breast, J; on the left arm, P; over women's right and left breast, S. and A; under the left shoulder, P.; right breast, R. and R. J.; on the right and left breast, S. S.;

and on the right and left shoulder, S. S. She was captured off the Sherbro, not eighty miles from this place, on Tuesday, the 27th of October. This is the same vessel that cleared out from here about three weeks previous to the capture, for Rio de Janeiro. The slaves were all embarked from the slave factories at Gallinas, under the notorious Don Luiz, and the vessel under way in five hours; and had there been the slightest breeze she would have escaped. Amongst the slaves there were two men belonging to Sierra Leone; a man named Peter, once employed by Mr. Elliott, the pilot: he stated that he had been employed by a Mr. Smith, a Popohman, to go to the Sherbro to purchase palm oil, and that whilst pursuing that object he was seized and sold by a Sherbro chief, named Sherry. The other man, who stated his name to be James, had once worked for Mr. Hornell, merchant of this town: whilst at the Gallinas, he was sold by a chief, named Mannah. During the day, the marshal of the Vice-Admiralty Court landed 297 men, 67 women, 154 boys, and 29 girls."

The following is the estimate made by the writer of the letter, of the profits upon the cargo in Brazil, had the *Paqueta* reached he destination:—

"The Captain of this vessel was to have had sixty dollars per head freight. Let us examine what the profits on this human cargo would have been, had the vessel got clear to the Brazils. Presuming the deaths to have amounted to one-third, the whole number (556) 371, at sixty dollars, £4,637 10s. 7d. obtained for freight. Allowing £637. 10s. 6d. which is far too much for water, rice, and firewood, there is a clear profit of £4000!! for twenty to twenty-six days' passage. The profit on the cargo would have been nearly as follows:— the price given for a slave is about £4 sterling, in the following goods, viz.:—One piece of blue baft, one piece satin stripe, one piece romal, one musket, and one cwt. tobacco. The price of a prime slave in the Brazils, is from 400 to 500 dollars. We will, however, take an average value of 240 dollars, or £50 each. Cost of 556 slaves embarked at £4 each, £2244.

Value of 371 slaves, at £50 each		£18,550
Cost.....	£2244	
Freight, &c. &c.....	4637—	6,861
		£11,689

or a clear profit of £11,689!"

The State of the Navy.

(Those marked (*) are new ships.)

At the present time, when so much discussion has originated upon the topic of the national defences, in which the army and its augmentation have formed an engrossing feature, it may be as well to review our naval resources, in order to ascertain in what state of preparation they are for offensive or defensive warfare.

On the 1st instant, we find on reference to the *Navy List*, there were 671 ships and vessels of all classes in the Royal service; of these 233 are in commission, including 98 steamers for service of all classes. In October last we gave the state of the Navy in Commission as follows:—

	Line-of-battle ships.	Frigates.	Steam-frigates.	Sloops.	Steam-sloops.	Sailing packets and smaller vessels.	Small steamers and packets.	Store ships and stationary.
At home fitting	3	2	2	5	3	12	35	8
Mediterranean	5	3	1	3	3	0	7	1
East Indies	0	7	1	8	2	1	0	2
Brazil and Pacific	1	6	2	5	2	3	2	3
North America and West Indies...	0	4	0	4	1	2	2	1
Cape and Coast of Africa ...	0	5	1	21	4	1	2	2
Particular Service	6	2	5	1	5	0	5	4
Discovery Ships	0	0	0	2	0	0	0	0
Troop Ships	1	3	0	0	0	0	0	0
Surveying	0	3	0	2	0	2	7	0
Yachts	0	0	1	1	0	0	2	0
Lakes	0	0	0	0	1	0	2	0
Total... ...	16	35	13	52	21	21	64	21

Being a total of 243 ships in commission, including 98 steamers of all sizes with a power of 22,122 horses.

The present list gives no material augmentation or decrease in any point from the above items. An extra line-of-battle ship has joined Sir C. Napier's squadron, and Sir W. Parker's has been similarly increased, whilst the latter has also been strengthened by the addition of three steam-frigates detached from the former. An extra line-of-battle ship (the *Prince Regent*, 92,) is at home and fitting. There are in ordinary at PORTSMOUTH :—

Advanced ships.—The *Britannia*, 120; *Neptune*, 120; *Nelson*, 120; *Powerful*, 84; *Pembroke*, 72; *Hastings*, 72; *Carnatic*, 72.

In Ordinary.—*Queen Charlotte*, 104; *Princess Charlotte*, 104; *Camperdown*, 104; *Illustrious*, 72; *Melville*, 72; *Pitt*, 74; *Malabar*, 74; *Egmont*, 72; *Sultan*, 72; *Alfred*, 50; *Winchester*, 50; *Java*, 50; *Blanche*, 46; *Laurel*, 42; *Blonde*, 42; *Minerva*, 42; *Undaunted*, 42; *Sirius*, 42; *Thalia*, 42; *Pique*, 36; *Talbot*, 26; *Orestes*, 18; *Champion*, 14; *Hyacinth*, 18; *Lily*, 16; *Sappho*, 16; *Serpent*, 12; *Rolla*, 10.

Building.—The *Royal Frederick*, 110; *Princess Royal*, 90; *Leander*, 50.

Ordered to be Built.—The *Royal Sovereign*, 110; *Prince of Wales*, 110; *Shannon*, 50.

Steamers Building.—The *Arrogant*,46, auxiliary screw, and *Plumper*, sloop of auxiliary power of 600 horses.

Ordered to be Built.—The *Argus*, 360 horse power, and the *Furious* and *Resolute*, paddle-wheel steam-sloops.

DEVONPORT.—Advanced Ships ready for the Pendant.—The *Royal William*, 120; *St. George*, 120; *Royal Adelaide*, 104; *Nile*, 92; *Calcutta*, 84; *Bombay*, 84; *Clarence*, 84; *Indus*, 78; *Foudroyant*, 78; *Wellesley*, 72; *Implacable*, 72; *Dublin*, 50; *Portland*, 50; *Tweed*, 20; *Arachne*, 18; *Linnet*, 6.

In Ordinary.—The *Impregnable*, 104; **Centurion*, 80; **Lion*, 80; **Hindostan*, 78; *Cambridge*, 78; *Kent*, 78; *Armada*, 72; *Agincourt*, 72; *Cornwallis*, 72; *Invincible*, 72; *America*, 50; *Lancaster*, 50; *Nemesis*, 44; *Stag*, 44; *Hotspur*, 44; *Hamadryad*, 44; *Cerberus*, 42; *Leda*, 44; **Flora*, 40; *Sybille*, 40; **Amethyst*, 26; **Creole*, 26; *Tyne*, 26; *Pilot*, 16; *Racer*, 16; **Camilla*, 16; **Atalanta*, 16; *Savage*, 10.

Building.—The *Aboukir*, 90; *Exmouth*, 90; *St. Jean d'Acre*, 90; *Sanspareil*, 60; *Indefatigable*, 50; *Liffey*, 50; *Niobe*, 26.

Sheerness.—Advanced Ships.—The *Waterloo*, 120; *London*, 92; *Monarch*, 84; *Russell*, 72; *Achille*, 76; *Hawke*, 72; *Cornwall*, 50; *Conquestador*, 50; *Havannah*, 26; *Rose*, 18, *Star*, 10.

In Ordinary.—The *Royal George*, 120; *Wellington*, 72; *Ganges*, 84, (commissioned as a sea going ship, with full armament); *Boscawen*, 70; *Revenge*, 76; *Worcester*, 50; *Chichester*, 50; *Curaçoa*, 24; *Leonidas*, 42; *Vestal*, 26; *Satellite*, 18; *Larne*, 18; and two cutters.

Chatham.—In Ordinary.—The *Goliath*, 80; *Cumberland*, 70; *Defence*, 72; *Black Prince*, 72; *Southampton*, 50; *Gloucester*, 50; *Devonshire*, 50; *Warspite*, 50; *Isis*, 44; *Africane*, 44; *Unicorn*, 42; *Venus*, 42; *Mermaid*, 42; *Mercury*, 42; *Boadicea*, 42; *Latona*, 42; *Active*, 40; *Castor*, 36; *Samarang*, 26; *Iris*, 26; *Aigle*, 24; *Pearl*, 20; *Daphne*, 18; *Terpsichore*, 18; *Wolverine*, 16; *Elk*, 10; *Heron*, 10; *Waterwitch*, 8.

Building.—The *Cressy*, 80; *Irresistible*, 80; *Mars*, 80; *Majestic*, 80; *Severn*, 50; *Chesapeake*, 50; *Coquette*, 20; *Despatch*, 16.

Pembroke.—Building.—*Victoria*, 110; *Windsor Castle*, 110; *Brunswick*, 80; *Colossus*, 80; *Sutlej*, 50.

Woolwich.—Building.—*Royal Albert*, 130; *Nankin*, 50; *Basalisk* steamer.

Deptford.—Building.—*Hannibal*, 90; *Phæton*, 50; *Leopard* steam-frigate of 560 horse-power.

Steamers in Ordinary.

At Portsmouth	3650	horse-power.
At Sheerness	885	"
At Chatham	1180	"
At Woolwich	4180	"
At Deptford	1810	"
Total	11,795	

ready, preparing, and in order for commission.

The following table contains the number of officers on the Navy List of January, in each of the years mentioned, from 1816 to 1848:—

	1816	1831	1837	1843	1847	1848
Flag Officers	343	216	154	195	155	151
Retired ditto	...	...	...	...	53	48
Captains and Retired ditto	889	833	759	770	753	736
Commanders and Retired	894	1192	1105	1130	988	977
Lieutenants and Retired	3776	3357	2994	2689	2643	2587
Marine Officers	1336	893	831	764	754	752
Masters	693	524	454	494	449	483
Retired ditto, with rank as Commanders	...	...	...	...	40	39
Medical Officers	1537	1153	977	1095	965	948
Pursers	957	646	578	516	490	464
Naval Instructors	...	...	...	40	47	58
Chaplains, entitled to half-pay	62	71	69	89	58	58
Ditto, not entitled to half-pay	...	...	...	...	46	55
Mates	...	...	...	322	71	70
Second Masters	...	...	...	...	118	153
Acting Assisting Surgeons	...	...	...	67	71	71
Clerks	...	...	...	...	225	237
Total	10,487	8885	7921	8081	7926	7887

There are at present four descriptions of officers on the list more than there were in 1816, namely, naval instructors, mates second mates, and clerks; these amount to 518 persons, which added to 2605 officers less in 1848 than in 1816, will in reality make a diminution of 3123 persons receiving half-pay.

The following officers and seamen were actually employed on the 1st of January of 1838, 1840, 1842, 1844, 1845, and 1846:—

	1838	1840	1842	1844	1845	1846
Flag Officers	15	12	13	13	13	14
Commodores	4	4	1	2	6	4
Captains	59	63	76	56	56	93
Commanders	67	73	88	79	92	93
Lieutenants	405	423	530	509	524	565
Masters	109	115	133	116	131	138
Mates	471	387	483	433	433	474
Secretaries	12	10	14	14	17	16
Chaplains	35	36	51	50	53	57
Surgeons	133	133	150	135	149	154
Assistant-Surgeons... ...	175	195	249	201	198	215
Pursers	105	107	128	110	123	128
Clerks	314	299	349	338	346	397
Second Masters... ...	113	107	149	103	89	106
Midshipmen	381	488	569	436	456	493
Masters'-Assistants ...	345	140	205	197	189	201
Naval Cadets	451	224	302	293	302	325
Warrant-officers ...	669	673	721	756	746	741
Engineers	31	64	99	130	160	211
Schoolmasters or Naval Instructors	51	53	65	45	46	55
Petty Officers	4799	4779	6209	5969	6230	6818
Able and ordinary seamen, landsmen and boys, (including Kroomen, Chinese, Coolies, &c.)... ...	11,694	14,620	20,451	16,047	15,439	16,219

In addition, the packets employ 843 officers and seamen; the surveying vessels, 1716; and the troop and store ships, 383; to which add, marines, 10,500; boys, 2000; and the Coast Guard, one captain, fifty-one commanders, 263 lieutenants, and ten mates.

Ships Paid Off and Commissioned in 1847.

Paid off.

The *Victory*, 104, ordinary guard ship at Portsmouth; *Excellent*, gunnery ship at Portsmouth, Capt. Chads, C.B.; *Ocean*, 80, ordinary guard ship at Sheerness, Capt. Superintendent Price; *Agincourt*, 72, Capt. Hope Johnson, flag of Rear Admiral Sir T. Cochrane, K.C.B., from the East Indies, at Devonport; *William and Mary* yacht, Commodore Sir J. G. Bremer, flag ship at Woolwich; *America*, 50, Capt. Sir T. Maitland, from the Pacific and Lisbon, at Devonport; *Fisgard*, 42, Capt. Duntze, from the Pacific, at Woolwich; *Inconstant*, 36, Capt. Wise, from the Mediterranean, at Devonport; *Castor*, 36, Capt. G. Graham, C.B., from New Zealand, at Chatham; *Tyne*, 28, Capt. Glascock, from the Mediterranean, at Devonport; *Vestal*, 26, Capt. Talbot

from the Pacific at Sheerness; *Cleopatra*, 25, Capt. Wyvill, from the Cape, at Chatham; *Talbot*, 28, Capt. Sir T. Thompson, Bart., from the Pacific, at Portsmouth; *Iris*, 26, Capt. Mundy, from China, at Chatham; *Conway*, 28, Capt. Kelly, from the Cape, at Chatham; *Curaçoa*, 24, Capt. Broughton, from the River Plate, at Sheerness; *Daphne*, 18, Capt. Onslow, from the Pacific, at Chatham; *Wolf*, 18, Commander, Vansittart, from China, at Devonport; *Hazard*, 16, Commander Egerton, from New Zealand, at Portsmouth; *Pilot*, 16, Commander Wilson, from China, at Devonport; *Larne*, 18, Capt. Brisbane, from the coast of Africa, at Chatham; *Hyacinth*, 18, Commander Scott, from the West Indies, at Portsmouth; *Helena*, 16, Capt. Sir C. Ricketts, Bart., from the Cape, at Portsmouth; *Lily*, 16, Commander Newton, from the coast of Africa, at Portsmouth; *Racer*, 16, Commander Reed, from the River Plate, at Devonport; *Satellite*, 16, Commander H. R. Rowley, from the River Plate, at Sheerness; *Wolverine*, 16, Commander Hay, from China, at Chatham; *Frolic*, 16, Capt. C. B. Hamilton, from the Pacific, at Portsmouth; *Alert*, 8, Commander Ellis, from the coast of Africa, at Devonport; *Cruizer*, 12, Commander Pierse, at Bombay; *Cygnet*, 8, Commander Sommerville, from the coast of Africa, at Sheerness, *Espoir*, 8, Commander Hand, from the coast of Africa, at Devonport; *Recruit*, 12, Commander Slade, at Portsmouth; *Rolla*, 10, Commander Ellicombe, from the coast of Africa, at Portsmouth; *Sealark*, 10, Commander White, from the coast of Africa, at Chatham; *Star*, 8, Commander Selwin, from the coast of Africa, at Sheerness; *Waterwitch*, 8, Commander Birch, from the coast of Africa, at Chatham; *Dolphin*, 3, brigantine, Lieut.-Com. Miller, from the River Plate, at Sheerness; *Pickle*, schooner, Lieut.-Com. Bernard, at Bermuda; *Spider*, schooner, Lieut.-Com. Pym, from the River Plate, at Devonport.

Surveying Vessels.—The *Bonetta*, Commander Brock, from the Mediterranean; *Mastiff*, Commander Thomas, at Woolwich, from the Orkneys, and her tender, the *Woodlark*, Lieut.-Com. Thomas; *Bramble*, 10, Lieut.-Com. Yule, at Sidney.

Store Ship.—The *Belvidera*, Mast.-Com. Wellington, from Scotland, at Portsmouth.

Receiving Ship.—The *Perseus*, Lieut.-Com. Greet, at Woolwich.

Steam Vessels.—The *Victoria* and *Albert*, Capt. Lord A. Fitzclarence, G.C.H. and her tender, the *Fairy*, at Portsmouth; *Cyclops*, Capt. Lapidge, particular service, at Sheerness; *Cormorant*, Commander Seymour, from the Pacific, at Portsmouth; *Sphynx*, Commander Cragg, particular service, at Portsmouth; *Driver*, Capt. C. O. Hayes, from New Zealand, at Woolwich; *Gorgon*, Commander Crouch, from the River Plate, at Woolwich; *Hecate*, Commander West, from the coast of Africa, at Woolwich; *Hydra*, Commander Morrell, from the coast of Africa, at Woolwich; *Phœnix*, screw, Commander Dennis, *Rattler*, Commander Moorman, from the Brazils, at Woolwich; *Prometheus*, Commander Hay, from the coast of Africa, at Woolwich; *Salamander*, Capt. Hammond, from the Pacific, at Woolwich; *Spiteful*, Commander Sir W. Hoste, Bart., from China, at Woolwich; *Stromboli*, Capt. Fisher, from the Tagus, at Woolwich; *Thunderbolt*, wrecked at the Cape, Commander Boyle; *Virago*, Commander Lynn, from the Mediterranean, at Woolwich; *Cuckoo*, Lieut.-Com. Parks, from protecting the fisheries, at Sheerness; *Hermes*, Lieut.-Commander Bridge, from the West Indies, at Chatham; *Myrmidon*, Lieut.-Com. Roberts, from the coast of Ireland, at Woolwich; *Pluto*, Lieut.-Com. Lowe, from the coast of Ireland, at Woolwich; *Trident*, Lt.-Com. Ridge, from the Mediterranean, at Woolwich; *Swallow*, at Portsmouth, to be broken up.

Surveying Steamers.—The *Blazer*, Capt. Washington, from Harwich, and conveying provisions, at Woolwich; *Dasher*, Capt. Sheringham, from conveying provisions, at Sheerness; *Firefly*, Capt. Beechey, from Milford, at

Portsmouth; *Lucifer*, Commander Frazer, from conveying provisions, at Sheerness; *Porcupine*, Capt. Bullock, from conveying provisions, at Woolwich; *Shearwater*, Capt. Robinson, at Holyhead; *Tartarus*, Capt. Wolf, Ireland, from conveying provisions, at Woolwich.

COMMISSIONED.—The *Howe*, 120, Capt. Sir James Stirling, at Portsmouth, on particular service; *San Josef*, three-decker, as ordinary guard-ship at Devonport, *pro tem.* flag of Rear Superintendent Sir John Louis, Bart., Capt. B. Mends; *Victory*, three-decker, Capt. Charles Eden, flag-ship of the commander-in-chief at Portsmouth; *Excellent*, three-decker, mounting 48 guns, gunnery ship at Portsmouth, Capt. Superintendent Chads, C.B.; *Prince Regent*, 90, Capt. W. F. Martin, fitting at Sheerness; *Asia*, 84, Capt. R. F. Stopford, flag ship of Rear Admiral Hornby, C.B., just left Plymouth, on her passage to the Pacific; *Fisgard*, 42, Commodore Sir Gordon Bremer's flag-ship at Woolwich; *Bellerophon*, 78, Capt. Baynes, C.B. conveying troops *pro tem.*; *Meander*, 44, Capt. the Hon. H. Keppel, fitting at Chatham, for the East Indies; *Cambrian*, 40, Commodore Plumridge, at Portsmouth, on her way to the East Indies; *Inconstant*, 36, Capt. Shepard, fitting at Devonport; *Amphitrite*, 26, Capt. Eden, at Portsmouth, on her way to the coast of Africa; *Trincomalee*, 26, Capt. Warren, on her way to the West Indies; *Fly*, 18, Commander Oliver, at Devonport, on her way to New Zealand; *Arab*, 16, Commander Morris, at Chatham, on her way to the Cape; *Mariner*, 16, Commander Mathison, at Devonport, on her way to the coast of Africa; *Alert*, 10, Commander Dunlop, at Devonport, on her way to the coast of Africa; *Britomart*, 10, Commander W. Chamberlain, at Devonport, for the coast of Africa; *Cygnet*, 6, Commander Kenyon, at Spithead, on her way to the coast of Africa; *Nerbudda*, 12, Commander Pierse at Bombay; *Sealark*, 10, Commander Moneypenny, at Chatham; *Bermuda*, schooner, Lieut.-Com. Jolly, at Bermuda; *Bonetta*, brigantine, Lieut.-Com. Forbes, at Chatham, for the Pacific; *Dart*, brigantine, Lieut.-Com. Glinn, at Sheerness, for the coast of Africa; *Dolphin*, brigantine, Lieut.-Com. Hon. R. C. Boyle, Sheerness, on her way to the coast of Africa; *Kestrel*, brigantine, Lieut.-Com. Baker, at Portsmouth, Rio; *Spider*, brigantine, Lieut.-Com. Haydon, at Devonport, on her way to the River Plate; *Cockatrice*, Mast.-Com. Rundle, at Sheerness, on her way to the Pacific.

SURVEYING.—*Mastiff*, Commander Becher, and her tender, *Woodlark*, Woolwich, at the Orkneys; *Volage*, 26, Capt. Graves, Devonport, Mediterranean; *Bramble*, 10, Lieut.-Com. Yule, and Castlereagh, schooner, New South Wales; *Plover*, Lieut.-Com. Moore, at Sheerness, for the Arctic Circle.

RECEIVING SHIPS.—*Perseus*, off the Tower, Lieut.-Com. Greet; *Hercules*, store ship, Mast.-Com. Fulton, fitting at Chatham for the East Indies; *Seringapatam*, Mast.-Com. M. Creight, Chatham, on her way to the Cape.

STEAM VESSELS.—The *Blenheim*, port guard-ship, Capt. Yates, at Portsmouth; the *Avenger*,* Capt. G. E. Napier, at Portsmouth; on her way to the Mediterranean; *Dragon*, Capt. W. H. Hall, Woolwich, Sir C. Napier's squadron; *Odin*, Capt. Hon. F. Pelham, Portsmouth, Mediterranean; *Acheron*, Capt. J. Lort Stokes, Woolwich, now at Portsmouth, on her way to Plymouth and New Zealand, for surveying and regular service; *Fury*, Commander Wilcox, Portsmouth, on her way to the East Indies; *Growler*, Commander Potbury, Woolwich, West Indies, and coast of Africa; *Hydra*, Commander Skipwith, fitting at Chatham; *Hecate*, Commander Moorman, Woolwich, Mediterranean; *Kite*, Commander Dumaresq, at Portsmouth, transferred to the *Cuckoo*, fitting at Portsmouth, for Channel Island fisheries protection; *Stromboli*, Commander Lord A. Beauclerk, Woolwich; *Vixen*, Commander Ryder, Woolwich, West

* Since lost.

Indies; *Antelope*, Lieut,-Com. Smyth, Woolwich, Mediterranean; *Blazer* Lieut.- Com. Smith, Woolwich, on her way to the coast of Africa; *Dasher*, Lieut.-Com. Park, Sheerness, for protection of the fisheries, coast of Scotland; *Oberon*, Lieut.-Com. Gardner, Chatham, on her way to the Mediterranean; *Porcupine*, Lieut.-Com. Roberts, Woolwich, on her way to the Mediterranean; *Fire-fly*, Lieut.-Com. Ponsonby, fitting at Portsmmouth, for the coast of Africa; *Tartarus*, Lieut.-Com. Sir Godfrey Webster, Bart., Woolwich, for the Mediterranean; *Undine*, Mast.-Com. Allen, tender, at Portsmouth.

SURVEYING.—*Avon*, Commander Otter, at Portsmouth.

LOSS OF HER MAJESTY'S BRIG, SNAKE.

We have, says the *United Service Gazette*, been favoured with the copy of a letter, written by an officer of her Majesty's brig *Snake*, Commander Thomas B. Brown, describing the total loss of that vessel in the Mozambique Channel, on the 29th of August. The details contained in the letter will remove all fear respecting the safety of the officers and crew. The accident which occasioned the brig's destruction appears to have been unavoidable:—

Mozambique, Sept. 10th, 1847

"SIR,—You will be sorry to hear of the total loss of her Majesty's sloop *Snake*, which is now lying with her side open from the port gangway down to the keel, on a coral reef about six miles to the southward of this anchorage. After visiting Zanzibar and Anjuan, or Johanna, we were returning to this port, when, on the afternoon of the 26th ultimo, if I remember correctly, we made the land somewhat to the northward. We stood off to the eastward for the night, under easy sail, and the next day found that the set had driven us upwards of fifty miles to the southward. The wind was from the southward and westward, with a tremendous set directly in the contrary direction. The latter it was that baffled our endeavours to reach the port during the next two or three days. At sunset, on the 29th, the outer (or easternmost) one of the small islands off Mozambique, was observed to bear about north. When these islands ceased to be visible, owing to the coming obscurity of the night, the *Snake* steered N.N.E., so as to pass a couple of points outside of all. But the tremendous set I have mentioned, together with a flood-tide driving us in towards the land, the N.N.E. course we were steering, became a N.N.W. one, in consequence of which, at 7h. 45m. P.M., we found ourselves aground, unfortunately, just at the top of high water. As the tide receded the vessel heeled over till she reached her bearings, when she settled down with her deck at an angle with the horizon, of between 30° and 35°. Being a weak vessel, her butt-ends started, when her lee, or port side, immediately filled.

"As, even then, it could scarcely be credited that the current had set us to the westward to the extent I have described, doubts began to arise as to the islands we had seen at sunset, being in reality, what we had taken them for. Hence a painful anxiety existed during the long night we had before us, for we were perfectly aware that had we to take refuge on shore, at any distance from Mozambique itself, we could only have maintained a precarious footing, by constant hostility with numerous and warlike tribes, not unprovided with fire-arms. There was some apprehension, also, lest the ship should fall over altogether on her beam ends, or the masts go by the board, neither of which could well have taken place without the loss of life to some, and severe injuries to others. But I am truly happy to be able to add, that no one has lost his life, or been hurt in any manner; indeed, we have not had a death on

board since we were put in commission, now nearly twenty months ago. From the inclined position of the ship, nobody can live on board, and the crew are accommodated on shore abreast of her, at the distance of about two miles, in excellent tents made with the sails and some spars. They are busy in saving stores, &c., and will, probably be removed to this place in a few days, the governor having removed the soldiers from the San Domingo barracks to make room for their reception. The French barque-corvette *Voltigeur*, of 20 guns, arrived here on the 7th inst. As there is no British man-of-war in the Mozambique Channel, I believe that, if none arrive here before the end of the month, merchant vessels will be taken up to convey us to the Cape.

"P.S. *Sept.* 18*th*—I have nothing particular to add since the foregoing was written. The whole of the crew were removed here on Monday last, the 13th inst. I have reason to think that this will reach you before the *original*, as that was sent *via* Zanzibar. It was found impossible to get the guns out by means of the lower masts, as their inclination had already caused an immense strain on the weather rigging, the heart of which was gone; and, owing to the surf, it was found impossible to rig a derrick on the bottom, consequently the saving of the guns is for the present given up. But a Portuguese man-of-war schooner is going out on Monday morning, manned by a portion of our crew, to watch the breaking up of the vessel, now near at hand, and, if possible, to pick up some of the guns."

The Loss of the Avenger.

At length, by the arrival of the Levant mail, full particulars of the wreck of the *Avenger* have arrived. The worst fears have been realised; there is no ground to hope that more than four persons have escaped. Our Malta correspondent, dating the 5th inst., gives us the following information:

"H.M. steam sloop *Hecate*, arrived on the 2nd from Tunis. Previously to entering the harbour, she signalised, 'Have four of *Avenger's* crew on board*—rest all perished.' The *Hecate* cruized about the Sorelli, visited the Island of Galita, the mainland of Africa, but not a vestige of any survivors could be found, nor any particle of the ill-fated ship. She must have gone literally to pieces and every soul have perished. This loss has created a strong sensation here. Some have lost relatives, many have lost friends. The total number lost is computed at about 250. There were a number of officers, principally assistant surgeons, seamen, and boys on board, as supernumeraries for the fleet."

We have been favoured by Lieut. T. W. Langton, the Admiralty agent on board the *Pasha*, with the following narative of his parting intercourse with the captain of the ill-fated *Avenger*:

"The *Pasha* arrived at Gibraltar shortly after noon on the day of the 17th of December, and having landed the mail for that town, I proceeded by water to wait upon Capt. Napier, the senior officer; on my way I met him in his gig, accompanied by a military officer of rank, going to call upon the governor, Sir Robert Wilson; as I had the same duty to perform, I begged permission to accompany them. We landed at the Ragged Staff, and on our way I related all the English news I had to communicate. Capt. Napier and

* Lieut. Francis Rooke, Mr. Larkham, gunner, W. Hill, steward, J. Morley, boy.

myself were received by his Excellency, the military officer waiting for us below. As I understood, the *Avenger* was detained in consequence of the non-arrival of the Indian mail. He now received from the governor his despatches for Sir W. Parker, the commander-in-chief, and we took our leave. In the event of our arriving before him, he charged me with a message to Sir William Parker. As he expected a package by the packet he sent a boat with an officer to make the necessary inquiries, to whom I delivered the latest English papers in my possession. The *Avenger* steamed out of the New Mole about four o'clock, and shortly after rounded Europa point. The *Pusha* completed coaling, and by half-past nine the same evening proceeded. On the morning of the third day the *Avenger* was seen, and continued so until within a few hours of the dreadful catastrophe."

The following narrative from one of the survivors of the wreck, has also been forwarded:

"We were running at the rate of ten knots an hour, from Lisbon to Gibraltar, bound to Malta, when, on the night of the 20th of December, at four bells (10 o'clock), in the first watch, the ship suddenly struck on a reef of rocks. At this moment Capt. Napier was on the paddle box, talking to the master. Lieut. Rooke, one of the survivors, was in his cabin, in the act of taking off his coat. The gunner (another survivor) ran on deck in a state of nudity. Immediately she struck, all hands rushed on deck; as they did so, she heeled over on her broadside, the mainmast fell across the paddle-box boat, and no doubt a number of those engaged in clearing it away were killed. The crew appeared completely paralyzed; nothing was heard but now and then an exclamation, 'Oh, God! Oh, God! we are all lost.' Heavy seas swept over the vessel, and scarcely a man could retain his hold. The last seen of Lieut. Marryatt was his being washed from his hold, and carried away, with some twenty more, to leeward. At last, Lieut. Rooke, the purser, second master, gunner, and four others, contrived to get into a quarter-boat. Here Providence interposed to save them: in lowering the boat, the foremast fall got jammed, and the after one going freely, the boat had her stern in water, and her bows in the air, when a jacket belonging to one of the men fortunately got into the sheave-hole of the after-fall, stopped it, and enabled them to cut the falls adrift. After pushing off from the wreck, they endeavoured to regain her, to render such assistance as was possible, and to pick up any of the crew; to approach her they found impossible. The wind blew a gale from the southward. The sea was very high, and breaking completely over her.

"After remaining as near as they could get for two hours, they bore away for Galita, distant about fourteen miles, in an hour after they had done so the wind suddenly shifted to the north, and blew harder than it had done from the other quarter. This compelled them to bear up again, which they did, for the coast of Barbary. On their way they passed the wreck, over which the sea was making awful sweeps. Soon after daylight, they made the coast of Barbary, having run all night under a small lug-sail, and steered with an oar. In running the boat in, she grounded on a reef, and all hands were thrown out; the boy, however, regained the boat, kept to her, and drifted ashore alive. Of the remainder, only Lieut. Rooke, the gunner, and steward were saved. The others perished in the surf. The Arabs treated them kindly, dried their clothes, and gave them warm milk. After a repose, they walked thirty-six miles, till they could procure horses, on which they rode to Biserta. Here they received every hospitality from the governor and the consuls. A boat took them to Tunis, whence Sir Thomas Reade sent a despatch to Malta. The *Hecate* started immediately for the fatal spot,

whither the Bey of Tunis had already sent vessels, but not a vestige of the wreck remained. It is supposed that, with the shift of the wind, she heeled over into deep water, and sunk. There are from 30 to 50 fathoms all round these rocks, which are steep to within a ship's length. The total number lost is 253."

We cannot close the narrative of this melancholy disaster without offering a tribute of thanks, so justly due to Capt. Penhoat, of the French steam-corvette *Lavoisier;* in this we are assured that every Englishman will join, for the noble and generous motive that actuated this gallant officer to continue his search after our unfortunate countrymen, in the hope that he might rescue them. As a record of his endeavours, we have reserved a space for the translation of his letter:—

Translation of a letter addressed by M. Penhoat, captain of the steam-corvette *Lavoisier*, to M. de Lagan, consul-general and *charge d'affaires* of France, at Tunis:—

"*Lavoisier, Goletta, Dec.* 27, 1847.

"SIR,—In accordance with your instructions to me respecting the loss of the English steam-frigate, near Galita, I left on the 25th at 11 o'clock in the morning. At 45 minutes past four in the evening of the same day a large three-masted steamer crossed our route. When I arrived sufficiently near I hoisted my colours and fired a gun. She at once made towards us, hoisting the English ensign. I sent an officer on board to inform her of my mission. We found her to be the *Pacha*, Capt. J. Olive, belonging to the Peninsular and Oriental Steam Company, which left Malta on the 24th of December, for Southampton. She had encountered the frigate *Avenger* on the 20th at Cape Bougoroni, then off Bona, at five P.M. The vessel, with the wind N.W., would make from 11 to 12 knots an hour, and must have struck between nine and ten o'clock in the evening on the Sorelli rocks. I sent a note by an officer to Capt. Olive, and, what was very laudable, although he had passengers he sent word that he would remain beside us. This fine ship had double the speed of the *Lavoisier*, but slackened her speed and remained behind us at a little distance during the whole night. We explored together the south part of the Gelletons and of Galita, and the *Pacha* found on the south of Galita a piece of wreck consisting of a board painted white, with a brass handle on it; a tub, and a portion of the paddle-boxes, which the captain showed me. We did not pick up any of the wreck, but we saw a chair belonging probably to the cabin of the captain, or to that of the officers. That which left no doubt of the fearful disaster, and of the loss of the crew (except those who reached the African coast), was that we perceived some barrels which could only have come out of the hold, and which proved that the ship had been entirely broken up; and at length we saw several strong pieces of wood, which I supposed to be some of the exterior planking, which confirmed my opinion. At eight o'clock, A M., on the 26th, I hailed the *Pacha*, saying I intended to go myself near the Sorelli Rocks, where I had little doubt that the wreck had taken place. I desired that she would follow in my wake, willing, that in case of accident, she might be informed of it by the *Lavoisier*. I went as near as possible to the rocks, and when I found, by sounding, that we were near them, I stopped, and ordered look-out men on all the mast-heads, which had also been done on board the *Pacha*. We came to the conviction that there remained no trace of the English frigate on the rocks, and left.

"On the 26th, in the morning, I again sent an officer on board the English vessel with a letter, informing the captain that being certain that not a man remained in the south part of Galita, and not a man of the wreck was to be seen on the Sorelli, I advised him to continue his route, and I would pass to the north of Galita and ascertain whether more of the sufferers were there. I must, however, say, in honour of this captain, that he again offered to follow me; but as he could be of no further use to me, I advised him to continue his voyage, and we separated at 20 minutes past 12.

On the north of Galita, near land, I perceived a fishing-boat with five men on board. But though I fired three guns and hoisted the pilot signal, though not wanting one, they only hoisted the Sicilian flag, and remained stationary. It was my intention, and I had given orders to that effect, to send a boat to reason with these men, but the sea increasing, and the wind blowing in heavy gusts, I feared for its safety. From all this it is to be concluded that there was not an Englishman on Galita, and the small islands surrounding it, for there is no doubt, that if any of the sufferers had been on Galita they would have endeavoured to join us in that boat; as it would have been the work of 20 minutes in the direction of the wind. After having made the most conscientious search, I left Galita on the 26th, at three o'clock in the evening, for Goletta, where I arrived this day, the 27th, in the evening.

" (Signed) Commandant PENHOAT, *du Lavoisier*."

UNITED YACHT CLUB, LONDON.

In the *Nautical Magazine* for the year 1846, p. 266, we announced the formation of the United Yacht Club, a society intended as the head quarters of the Eleven Royal Yacht Clubs, then existing, and now in 1848 increased to fourteen. The United Yacht Club has recently moved from 87 to 85 St. James's Street, owing to some difficulty about the accommodations in the first house. The Committee have, from the success of the Club, been at last enabled to reduce the subscription from eight guineas a year, to two guineas. The New Club house is next door to the Conservative Club, and the following are the rules at present in force:—

I. The United Yacht Club shall, on and after the first of June, 1846, be limited to Seven Hundred Members; and the same shall be under the management and direction of the Committee, to be appointed as hereinafter provided. To be eligible for the United Yacht Club, a Candidate must become, or have been, or be either a Member of some Royal Yacht Club, or be an officer of or above the rank of Lieutenant in the Royal Navy.

II. The Lords Commissioners of the Admiralty, and the Ambassadors and Representatives, Consuls inclusive, of all maritime powers at the court of St. James's, who have granted privileges to English Yacht Clubs, shall, during their stay in England be *ex-officio* Honorary Members of the U.Y.C. and be exempt from Entrance-fee and Annual Subscription. This privilege may be extended also to the Honorary Secretaries and Secretaries of all Royal Yacht Clubs, by ballot.

III. The election of the first 300 Members shall be made by the Committee, three to be a quorum, and one black ball to exclude; the remaining Members to be elected by general ballot, one black ball in every ten to exclude. No entrance money on admission to the Club shall for the present be charged. The Annual Subscription shall be £2. 2*s.* which is due on the 1st of January in each year, but is not to be paid after their first year by such Members as become Supernumerary. [*See* Rule XI.]

IV. The name, residence, profession, if any (at length) of each Candidate, together with the name of the Yacht Club to which he belongs, shall be inserted in the Candidates' book, to be kept for that purpose, at the time of his nomination, and each Candidate duly proposed and seconded, shall be submitted to ballot, in the numerical order in which he stands in the Candidates' book.

V. On the admission of each new Member, the Secretary shall notify the same to him (in duplicate if abroad), and request him to remit an order to his banker, or agent, for the amount of entrance money and subscription. Subscriptions can be remitted by Post-Office Order, payable to Messrs. Frederick and Charles Willis, 85, St. James's Street, London.

VI. As the payment of his subscription will entitle a Member to enjoy every

benefit the Club can impart, so is his acquiescence in the Rules of the Club thereby distinctly implied.

VII. No newly-elected Member shall be eligible to participate in any of the advantages or privileges of the Club, until he has paid the sum due from him on his admission.

VIII. No Member of the Club shall incur any risk or responsibility whatever beyond the amount of his Entrance Fee and Annual Subscription.

IX. The name of every Member failing to pay his Annual Subscription, due on the first of January, shall be placed over one of the mantlepieces of the Club-House on the first of March following, after notice has been sent to him, or to his banker or agent, by post, by the Secretary; and if the Subscription be not paid on or before the first of May, the defaulter shall cease to be a Member of the Club, and his name shall be erased from the books accordingly. He may, however, be re-admitted by, and on giving to, the Committee, a satisfactory reason for the delay, and on then paying his arrears. To avoid inconvenience, it is earnestly requested that the agents of Members shall be furnished with authority to pay their Annual Subscriptions due on the first of January.

X. Any Member who shall enter the Club-House after the first of January in any year, shall pay his Subscription for that year.

XI. Any Member who may be absent from the United Kingdom, during the whole period within which the Annual Subscription is payable, may, at his option, be considered a Supernumerary Member, and be exempt from the Subscription during the continuance of such absence. Upon his communicating, in writing, to the Secretary, his return to England, and upon paying his Subscription for the then current year, he shall be re-admitted to all the privileges of the Club. The name of every Member availing himself of this indulgence, must be entered in the "Book of Supernumerary Members," on the Secretary receiving notice of the opinion being made; and if his wish to rejoin the Club be not expressed to the Secretary within three months after his return to the United Kingdom, he is no longer to be considered a Member.

XII. The Committee (inclusive of the flag-officers of Yacht Clubs, who when Members of the U.Y.C. are *ex-officio* Members of its Committee), shall consist of not more than thirty Members selected by the original Members of the Club; and, in the event of any vacancies occurring in the Committee, the Committee itself shall have the power of filling them up.

XIII. No Member shall take away from the Club, or injure or destroy, upon any pretence whatsoever, any newspaper, pamphlet, book, chart, model, or other article, the property of the Club, under the penalty of expulsion.

XIV. Any Member can introduce his friends to the coffee-room of the Club, but not to the reading-room, and by giving a day's notice can, according to the priority of his application, be accommodated with a private room, in which such Member can entertain his friends. But the Committee, with a due regard to the general comfort of the Members, shall have power to limit, from time to time, the number of stangers admissible by each Member to the coffee-room.

XV. The Committee may call a General Meeting of the Club, on giving fourteen days' notice, specifying the object in the form of a Resolution, and confining the discussion to that object only. In such case the notice shall be posted up in a public room in the Club at least fourteen days previous to the day of Meeting. The Committee shall also call an extraordinary General Meeting on the written requisition of Twenty-five Members (not being of the Committee), under restrictions similar to the preceding.

XVI. There shall be a General Meeting of the Members of the club in May in each year, for the purpose of receiving a Report of the concerns of the Club, and for the consideration of any questions that may arise. *That no alteration shall be made in the Rules except at the Annual Meeting.*

XVII. When the Funds of the Club permit, Lectures on naval subjects will

be given, and prizes be offered for yacht racing, and donations made to maritime charities.

XVIII. The Committee of the Club shall take immediate cognizance of any infraction of the Rules and Regulations.

XIX. Any cause of complaint that may arise is to be written and signed by the Member so complaining on his bill, which complaint must be especially noticed by the Committee; and any inattention or improper conduct of a servant is to be stated by letter, under the signature of such Member, which being put in the Secretary's box, must be laid before the Committee at their next Meeting.

XX. All Members are to pay their bills, for every expense they incur in the Club, before they leave the house; the steward having positive orders not to open accounts with any individuals, and being under the necessity of accounting for all monies passing through his hands, to the Committee at their Weekly Meeting.

XXI. No Member is on any account to bring a dog into the Club-house; nor shall any smoking be permitted except in the room set apart for that purpose.

XXII. It shall be the duty of the Committee, in case any circumstances should occur likely to endanger the welfare and good order of the Club, to call a General Meeting, giving fourteen days' notice, and in the event of its being voted at that Meeting by two-thirds of the persons present, to be decided by Ballot, that the name of any Member or Members should be removed from the Club, their Subscriptions for the current year shall be returned, and he or they shall cease to belong to the Club.

XXIII. No game of chance shall, on any account be ever played, nor dice used, in the Club-house.

XXIV. The Club-house shall be opened, and ready for the reception of Members, at nine o'clock on each morning, and it shall be finally closed for the day at one o'clock A.M.

XXV. The Members of the Club are requested to communicate their addresses from time to time to the Secretary, and before leaving town for the coast to notify whither their letters are to be forwarded.

XXVI. These Rules and Regulations shall be printed, and a copy of them transmitted to every Member of the Club, by post, by the Secretary; and no Member shall be absolved from the effect of these Rules, on the allegation of not having received them.

(Signed)
WILLIAM KNIGHT, R.H.Y.C., *Honorary Secretary.*

10*th January*, 1848.

*** One of the objects of the Club being to form a Naval Library and collection of Charts and Models, Members are invited to present a volume or work in aid of this object. These rules and lists of the fourteen Royal Yacht Clubs, and notices of their meetings and regattas, will be constantly found at the U.Y. Club.

THE ROYAL MERSEY YACHT CLUB.—The general monthly meeting of the members was held as usual at their Club-house, in Slater Street, Liverpool, on Tuesday, 7th of December. The Commodore, always at his post when at home, was in the chair. The Minutes of the previous meeting were read and confirmed. A ballot took place, when Mr. Cotton Symonds was duly elected. J. J. Ivey Esq., the owner of the beautiful *Prima Donna*, was nominated, and will be elected at the next meeting, A fine opportunity was offered to our worthy Commodore to propose, by acclamation, the admission of that daring and adventurous yachtsman, J. Brook, Esq., "the Rajah of Sarawak", and Her Majesty's Governor and Commander-in-chief of the

Island of Labuan and its dependencies, as an honourable member of the Royal Mersey Yacht Club. The election was unanimous; every individual appeared to be animated with but one feeling of admiration. The Honorary Secretary introduced to the notice of the meeting some of Houldsworth's vulcanized India rubber life buoys, which had been sent to hm, and observed that, from its suppleness and power of suspension in the water, he considered it by far the best general life buoy that had been introduced; in which opinion the body of members concurred, and no doubt, it will be generally used, but more especially on board yachts, when it becomes better known. Notice of motions, to be submitted at the next meeting, were handed in by Mr. Kay, for the alteration of an existing rule, and to enact additional laws for the better regulation of the Club.

The British Association.

On some Recent and Remarkable Examples of the Protection Afforded by Metallic Conductors against Heavy Strokes of Lightning; *by Sir W. S. Harris.*

The possibility of guarding buildings and other structures against the destructive effects of lightning, has been made a great question in practical science, from the time of Franklin, to the present day; and it is of considerable public importance, seeing the frequent damage which occurs to our beautiful churches and other edifices by strokes of lightning, to bring this question completely under the dominion of induction, observation, and experiment. The general principles which Sir W. S. Harris submitted as deducible from the enquiries to which he alluded are these,—If we imagine a ship or building to consist altogether of metallic substances, it would certainly be secure from any damage by lightning; and for this simple reason, that what we call lightning is the result of the electrical agency forcing a path through resisting matter such as the air, and extricating, with explosive and expansive force, both light and heat in its course. When, on the contrary, it falls upon comparatively non-resisting bodies, such as the metals, then this form of lightning vanishes, and the discharge assumes, if the metallic body be sufficiently capacious, the form of a comparatively quiescent current. Our object should be, therefore, in defending any building or ship from lightning, to bring the general mass so far as possible into that passive or comparatively non-resisting state it would have, supposing it a mass of metal. This is, in fact, the simple and single condition of such an application, without any reference whatever to assume forces of attraction or peculiar specific powers, manifested by certain bodies for the matter of lightning, and which really do not exist. This simple principle, by a careful mechanical arrangement, calculated to render it practical and applicable to all the duties which the general structure of a ship together with its masts has to perform, is now universally carried out in the navy, with the most perfect success; so that damage by lightning in the vessels so fitted has, for the last fifteen years, quite ceased. The masts are made completely conducting by capacious plates of copper, reaching from the highest points to the keel; and are tied into one general connexion with all the great metallic masses employed in the construction of the hull, and united by the large bolts of copper, passing through the keel and sides, with the copper expanded over the bottom, and with the sea. It is quite impossible that a discharge of lightning can fall on the vessel in any place, and not be at once transmitted safely by the conductors, not under the form of lightning, but under the form of a current without explosion.

On Periodic Meteors; *by the Rev. Prof. Powel.*

The chief object of this communication was to place on record a table of all the remarkable appearances of luminous meteors which the author has been able to collect up to the present time, suplementary to the very complete list given in M. Quetelet's second catalogue (Nouv. Mém. de l'Acad. de Bruxelles, tom. xv.) which comes down to the year 1840. This list is, doubtless, imperfect; but the author submits it to the British Association in the hope that its deficiencies will be filled up by the contributions of other members. He wishes to annex a few remarks on one or two points connected with the theory of these appearance. The question so much disputed as the connection of *luminous meteors* with the fall of *meteoric stones*, appears to the author to be answered sufficiently by observing —1st. That some cases of such connection are undoubtedly established. 2nd. That daylight is necessary to trace the actual fall of matter, when, consequently, a luminous meteor would be *invisible*, unless of unusual brilliancy; while the darkness which renders a meteor *visible* precludes the possibility of tracing the fall of stones. 3rd. Matter may fall in portions, or a state of division too small to trace; and there is evidence, or strong probability, of matter having a meteoric origin in various lighter forms besides that of metallic or apparently fused masses. As to the *forms* of masses known to have fallen, they are by no means generally *angular* or *fragmentary*, as sometimes asserted; in many instances being *whole*, and rounded in form — sometimes, also, broken into fragments *by their fall*. There is no evidence of a mass *bursting* to pieces by an explosion; the detonation heard may be purely *electric*. Of the *size* of meteoric masses no suffiicent evidence exists. The *apparent* diameters cannot be easily determined on account of the velocity of motion. And if they could, this would only give the size of the flame (if it be due to combustion) and not that of the solid mass, if there be one. If the height be too great to allow combustion, still less can the apparent size of the electric flash be any guide or proof of the existence of any solid body at all. Such small solid bodies *may* circulate in the solar system, but not probably in any great number, or of large size unless as truly planetary or satellitary bodies, but unformed diffuse masses of matter like that of comets or the zodiacal rings we know to be circulatingn in many parts of space; and it is by *condensation* out of this, that, as probably the existing planets, so, also, lesser asteriods and satellites may be continually forming, as likewise meteoric masses within the sphere of the earth's influence, agreeable with Mr. Strickland's hypothesis. The observations of Brande, Benzenburgh, and others, as is well known, have assigned great heights to many meteors, varying from 5 to 500 miles. But M. Quetelet has shown (2nd Mem. d. l'Acad. de Bruxelles, tom. xv.) that the *mean* height is from 16 to 20 leagues, or *within* the limits of the atmosphere. Hence the majority of them *may* become luminous from *combustion*. Electric light can be displayed in vacuo. Hence we may have various gradations of the same phenomenon from purely electric flashes or explosions at great altitudes, to more or less complete combustion at lower; by which the whole mass *may be consumed and dissipated*, or may be partially burnt, and the metalic ingredients more or less perfectly reduced or *fixed*, and in this condition portions or masses may fall to the earth. And the explosion is not the *bursting* of a mass, but an electric discharge; the particles or masses which fall are *portions*, not *fragments*, and the effect, instead of being one of *breaking up*, is one of *consolidation*.

New Charts.

(*Published by the Admiralty, and sold by Mr. Bate*, 21, *Poultry*,)

St. Martin's Cove, South America, *Lieut. E. Kendal, R.N.*, 1828, Price 3d.

Mouth of Buffalo River, S.E. Coast of Africa, *Lieut. Forsyth, R.N.*, 1847, Price 6d.

Promotions and Appointments.

Flag Officers.—The following promotions have taken place, consequent upon the death of Vice Admiral W. Granger:—Vice Admiral of the White the Earl of Dundonald, G.C.B., to be Vice Admiral of the Red.—Vice Admiral of the Blue T. Browne, to be Vice Admiral of the White.—Rear Admiral of the Red Hon. F. W. Aylmer, C.B., to be Vice Admiral of the Blue.—Rear Admiral of the White M. A. N. De Stark, to be Rear Admiral of the Red.—Rear Admiral of the Blue, W. Ward, to be Rear Admiral of the White.—Capt. Hon. A. Jones, to be Rear Admiral of the Blue.

The following promotions have taken place consequent upon the death of Rear Admiral Sir T. Ussher, C.B., K C.H.:—Rear Admiral of the Blue Sir S. J. B. Pechell, Bart., C.B., K.C.H., to be Rear Admiral of the White.—Capt. P. J. Douglas, to be Rear Admiral of the Blue.

The following promotions have taken place consequent upon the death of Admiral Sir Robert Laurie, Bart., K.C.B.:—Admiral of the Blue Sir Henry Heathcote, Knt., to be Admiral of the White.—Vice Admiral of the Red Sir Charles Adam, K.C.B., to be Admiral of the Blue.—Vice Admiral of the White Sir William Parker, Bart., G.C.B., to be Vice Admiral of the Red.—Vice Admiral of the Blue William Henry Brown Tremlett, to be Vice Admiral of the White.—Rear Admiral of the Red Richard Thomas, to be Vice Admiral of the Blue.—Rear Admiral of the White Arthur Lysaght, to be Rear Admiral of the Red.—Rear Admiral of the Blue Robert Elliot, to be Rear Admiral of the White.—Capt. Barrington Reynolds, C.B., to be Rear Admiral of the Blue.

Promotions.

Captain—G. A. Halstead.

Commanders—C. H. Baker (1847)—G. R. Woodriff (1811)—H. Leworthy and T. E. L. Moore (1842).

Paymaster and Purser—F. Cleeve.

Appointments.

Admirals—Vice Admiral of the Red Earl Dundonald, G.C.B., to West India Station, *vice* Sir F. W. Austen—Rear Admiral of the Red the Hon. Donald H. Mackay, to Cork Station, *vice* Rear Admiral Sir T. Ussher, C.B., K.C.H., deceased.

Captains—G. Goldsmith to *Wellesley*, to be flag captain to the Earl of Dundonald—W. A. Herringham to *Havannah*—L. T. Jones to *Penelope*.

Commanders—C. F. Schomberg to *Wellesley*—R. J. Otway to study at the Steam Factory, Woolwich—S. Grenfell to *Blenheim*—J. A. Paynter to *Star*.

Lieutenants—J. B. Cater to *Avon*—J. R. Rodd to *Prince Regent*—W. D. Lyster to *Inconstant*—W. Cashman to *Sealark*—Hon. A. A. Cochrane to be flag lieutenant to Vice Admiral the Earl of Dundonald—A. C. May, S. F. Douglas, A. Butler and W. S. Miller, to *Wellesley*—H. Hammond, I. M. Jackson and D. Spain, to *Havannah*—R. H. Risk to command *Lucifer*—C. Dyke to be flag lieutenant to Rear Admiral the Hon. D. H Mackay, commander-in-chief of Cork Station.

Masters—C. T. A. Noddall to *Wellesley*—W. J. Hilliard to *Havannah*—W. H. Thompson to *Victory*—W. Smithett to *Banshee*—W. Martin (acting) to *Confiance*—W. Tozer to *Diligence*.

Second Masters—H. Boxar (a) to *Avon*—J. Hammond (a) to *Ocean*—M. Roberts to *Adventure*—R. L. Cleveland to *Hercules*—C. Gilpin to *Wellesley*.

Midshipmen—W. H. Fenwick to *Victory*—S. Wolrige to *Wellesley*—J. Telfer to *Ocean*.

Assistant Surgeon—R. P. Chapman to *Torch*.

Paymasters and Pursers—W. T. James (1808), to *Wellesley*—W. P. O'Brien to *Havannah*.

Engineer—S. Parry, chief engineer to *Fisgard*.

BIRTH.

In Devonport Dockyard, the lady of Lieut. A. Edge, of a daughter.

MARRIAGE

At Stonehouse, Lieut. E. K. Barnard, R.N., to Augusta Sophia, second daughter of the late Capt. T. Woolridge. R.N.

DEATHS.

Lieut. P. Ambrose, aged 68.

F. Liddall, Paymaster and Purser.

At Barry's Cove Coast Guard Station, Lieut. A. B. Davies.

At Plymouth, D. P. Whipple, Surgeon, late of the *Iris*.

At Fintona, Ireland, A. Allen (1809), retired Surgeon.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory, From the 21st of December, 1847, to the 20th of January, 1848.

Month Day.	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade.				Wind. Quartr.		Strength		Weather.	
		9 A.M.	3 P. M.	9AM	3PM.	Min	Max	A.M.	P.M	A.M.	P.M.	A.M.	P. M.
		In Dec	In Dec										
21	Tu.	29·64	29·60	32	33	31	34	N	N	1	1	o	o
22	W.	29·73	29·83	33	34	32	35	NE	NE	2	2	o	og
23	Th.	29·92	29·81	33	36	33	36	N	N	1	1	o	od 4)
24	F.	29·84	29·91	37	38	32	40	NE	NE	1	1	o	ogd (3) (4)
25	S.	30·19	30·19	37	38	34	39	NE	NE	2	2	od (1) (2)	od 3 4
26	Su.	30·20	30 20	35	36	35	37	NE	NE	2	4	od (1) (2	od 3 4
27	M.	30.24	30·24	33	36	31	37	N	N	3	3	o	o
28	Tu.	30·21	30·21	34	34	33	36	N	N	4	3	opsd 2)	o
29	W.	30·13	29·93	30	34	27	34	E	SE	1	1	bc	o
30	Th.	29 73	29·81	36	37	34	38	S	NE	3	2	or (2)	or 4
31	F.	29·86	29·83	33	35	33	36	N	N	1	1	ofds 2)	ofd 3 4
1	S.	29 86	29·88	32	34	31	37	N	SE	1	1	bcm	bcm
2	Su.	29·81	29·83	39	43	31	45	SE	S	2	4	bc	bc
3	M	29·89	29 90	48	50	44	51	S	S	5	4	qbc	o
4	Tu.	30·02	29·98	42	24	42	43	SE	SE	2	2	b	b
5	W.	29·70	29·92	44	44	32	45	S	S	3	3	od (2)	o
6	Th.	29 74	29 78	32	37	31	38	NW	NW	3	3	b	bc
7	F.	29·62	29 50	32	38	29	39	S	S	2	2	ber 2)	or 3
8	S.	29·59	29·57	36	36	34	37	NW	N	1	3	o	ors 3
9	Su.	30 06	30·12	30	31	30	32	NE	NE	3	4	o	o
10	M.	30 23	30·25	32	32	31	33	NE	NE	3	3	o	o
11	Tu	30 40	30·43	30	32	29	33	N	N	1	1	o	o
12	W.	30.42	30 32	32	38	30	40	SW	NW	1	2	bcm	bcm
13	Th	30.32	30·28	43	45	40	46	NE	N	4	4	o	od
14	F.	30.23	30 10	39	39	38	40	N	S	1	1	og	ogfd 3 4
15	S.	29·90	29 96	40	40	38	41	N	N	2	6	bc	qbm
16	Sn.	29·99	29·95	28	32	27	31	W	W	1	1	bm	bm
17	M.	29·69	29 50	38	39	27	43	S	S	5	5	qo	qor 3 4
18	Tu,	29·46	29·48	32	34	31	35	NW	SE	3	2	bcm	bc
19	W,	29·44	29.56	32	34	31	35	E	E	4	2	o	o
20	Th.	29·83	29.90	29	30	28	31	NE	N	4	3	og	ops 3

December, 1847.—Mean height of Barometer=29 825 Inches; Mean Temperature=41·4 degrees; depth of rain fallen=2·05 inch,

NOTICE TO OUR CORRESPONDENTS.

The pamphlet on "Lighthouses," by A. Gordon, Esq., Civil Engineer, has been received.

We thank our correspondent in the *Caledonia* for his attention, he will find the "Directions for the Port of Akyab" in our last volume (1847) page 267.

Hunt, Printer, 3, New Church Street, Edgware Road.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

MARCH 1848.

The Isthmus of Tehuantepec.

The subject of connecting the Atlantic and Pacific Oceans having lately commanded much attention, the following extract of a letter from the Vice President of the United States, addressed to a gentleman of the city of Philadelphia, and published in the "*Spirit of the Times*," of that city may not be uninteresting.

To abridge the tedious and dangerous voyage around Cape Horn, and to give to navigation a direct and safe access to the eastern shores of the Pacific, has been a favourite scheme for centuries of scientific exploration and of mercantile hope. For a long time its practicability at any point was disputed. The best inquiries left it in doubt. Every narrow portion of the continent of America has undergone examination; has, for a while, been regarded with preference, and has again been abandoned. Difficulties sprang up as to each, and a comparison of their relative advantages, affected more or less by the desire of the respective engineers and explorers, to render the junction of the two seas specially serviceable to their own countries, excited apprehensions as to all. Still I am abundantly satisfied that, the project is not only practicable, but practicable under the joint auspices of the United States and Mexico, at a moderate cost, and within a short time.

Five routes for crossing have attracted special notice. 1. By the Isthmus of Panama. 2. By the Isthmus of Darien. 3. By the Lake of Nicaragua. 4. By the River Atrato, from the gulf of Darien, running south through Choco, in New Grenada, until it nearly meets the San Juan, which empties itself into the Pacific at the port of Charambiro. And 5. By the Isthmus of Tehuantepec. Of these routes it may in general be said that the one across the Isthmus of Panama, and the one

by the Lake of Nicaragua, have been heretofore best explored and most approved. In 1805, Baron Humboldt, who enumerated four additional routes, was discouraged as to that by Panama, because "*no measure of elevation, and no level, had ever yet been executed in that isthmus*;" and from all the information he could procure, it appeared to him that the expectation of a ship channel by canal across that isthmus "*ought to be completely abandoned.*" Since that period, however, the topography of the region has been carefully and closely investigated. Steam power and railways have become adjunctive elements for calculation and arrangement, and conclusions much more favourable, as well as better founded, may now be drawn.

In 1825, a well-reasoned, but still imperfect judgment in favour of the Panama route was published, and several others have since appeared; but the last, and far the most impressive is in a Parisian pamphlet, purporting to be an abstract of a report made to M. Guizot, the Minister of Foreign Affairs, by Napoleon Garreli, engineer-in-chief, attached to the Royal Mining Corps, in 1845, and to set out a "Project for uniting the Atlantic and Pacific Oceans, by a Canal across the Isthmus of Panama." In 1829, G. A. Thompson, a diplomatic agent of the British Government, published his "Official Visit to Guatemala;" and he therein describes the route by the Lake of Nicaragua, and the various steps which had been taken (in 1825) as well by the king of the Netherlands, as by great banking houses in England, with the legislative sanction and aid of the local government, to form a navigable communication between the two oceans, by means of that lake, and the River St. Juan. This mode of effecting the object has commended itself, after critical scrutiny, to many others, and seems to be somewhat favoured by P. Campbell Scarlett, a British traveller, in his lively work on "South America, and the Pacific," printed in 1838.

You cannot, however, be benefited by my considering further, or minutely the facilities or difficulties of the Panama and Nicaragua routes. Whatever may be the superiority of their advantages, we are not in such a relation to them as can make it of the slightest practical use to enter elaborately into their developement. Let me fix your attention exclusively on the route by the Isthmus of Tehuantepec, a route which, if practicable on almost any terms, must recommend itself over all others, by being, as it were, at the very outlets of our estuaries, or on our commercial threshold.

This route runs through the Mexican territory. It commences at the mouth of a river called the Huasacualco, emptying itself into the southern section of the Gulf of Mexico: it thence takes a generally southern and western direction, until it reaches Tarifa, at which town a canal or rail-road begins; and the route with it continues in the same course to the western lakes, which then furnish a direct highway to the river, the city, and the Gulf of Tehuantepec on the Pacific. The topography of this isthmus has been investigated with some care; it might, indeed, be unwise to begin practical operations without a fresh and thorough survey, but enough is known to render it quite certain, that the com-

munication can be opened without unreasonable expenditure of labour or money.

The width of the isthmus, from the mouth of the Huasacualco on the Mexican Gulf, to the shores of the Pacific at Tehuantepec, is about 135 miles. The central mountainous chain which, comformably to its relative position throughout both Americas, is much nearer to the Pacific than to the Atlantic Ocean, exhibits here a depression which continues from Santa Maria Patapa, to Miguel de Chimalapa. For a distance of about twenty-five miles, a summit-level or plain is formed, whose streams flow north, and whose boundaries at the south and south-east are a chain of small hills, called the Cerros (highlands) of Masalma, and of Espinosa, which separate the waters flowing north from those flowing south, and between which, here and there, are passages, such as the Portillo (gate) of Chivola, and the Portillo of Tarifa. Streams, starting from this space of depression in the great mountainous ridge, and running *north*, empty themselves in the Huasacualco; those running *south* empty themselves in the Chicapa, which, in turn, discharges itself into the lakes east of Tehuantepec; and it is one or both of these rivers— Huasacualco and Chicapa— which may be employed in effecting the transit across the isthmus, by uniting them either by a canal, a railway, or a good Macadamized road.

This route for the junction was pointed out by Fernando Cortez, the conqueror, as long ago as the year 1520. Indeed, all the three principal routes to which we have referred, Panama, Nicaragua, and Tehuantepec, were designated by Lopez de Gomarra, in his History of the Indies, as early as A.D. 1551; and it is worthy of remark, that these three routes are the only ones which, after a lapse of three centuries, and many explorations, present the least promise for the construction of a ship canal.

For more than two centuries, the hope of effecting a navigable communication between the oceans seems to have been wholly abandoned. At the close of the last century, however, this old project of uniting the Huasacualco with Tehuantepec, in Mexico, revived; and Augustin Cramer, after making some researches in 1774, under the orders of Viceroy Bucareli, proposed to carry it into effect by a canal, fed from two small tributaries of the Huasacualco. More recently, the general government of Mexico, in 1825, authorized General Orbegozo to explore this route; but that officer, misled by the defect of the only barometer he had with him, came to the conclusion that the construction of a canal there was a work almost impracticable, and restricted himself to recommending a good road. At last, in 1842, Joseph de Garay, having obtained by legislative desire, the privilege of making a communication between the two oceans across this isthmus, established a board of commissioners under the direction of an engineer, Gayetano Moro, with instructions to give the isthmus a thorough scientific exploration. Moro published his labours, and their results in 1844; and, as the information he gives is certainly the latest and most authentic, it may be agreeable to you to have it set forth briefly.

The village of Tarifa, which gives its name to the plain at the depression of the central chain of mountains to which we have referred, is seated about 700 feet above the level of the sea; the plain itself is somewhat lower. The hills which bound the plain on the south and south-east, and divide it from the waters flowing south, have but little elevation; and a cut of some fifty or a hundred yards in length would alone be sufficient to enable some of the streams on the plain to run south by the Portillo of Tarifa. One of these hills, the Del Convento, in which the Rio Monetza takes its rise, and thence flows into the Chicapa at San Miguel, stands alone, and on two of its sides, particularly at the north, are clefts so sunken that a cut through them would be a work of extreme ease.

The direct distance between Tarifa and the river Boccabarra, through which the lakes on the western side of the isthmus reach the Pacific, is about thirty-seven miles. On the southern declivity, the principal streams are the Rio Ostuta, and the Rio Chicapa, both of which empty themselves into the lakes, the latter about eighteen miles from the Bocabarra, and nineteen miles from Tarifa. All the streams on the northern declivity flow into the Huasacualco, and that river, after a very winding course, reaches the Gulf of Mexico, about 105 miles from Tarifa. One of its chief tributaries is the Malatengo, which flows into it on its left bank, about ninety direct miles from its mouth, or 160 miles following its circuitous bed. The Chicapa, gauged above San Miguel Chimalapa, by combining several rivulets flowing from the central chain, rolls a body of water estimated at about twenty-two cubic feet per second. The Ostuta is in volume five or six times larger, and, which is really remarkable, and indicates extreme thirstiness of soil, this volume of water diminishes as it lengthens its distance from its original source.

The volume of water in the Huasacualco is great, and at the lower part of its course it would be navigable for ships of any size, were it not for the bar at its mouth. The depth of water upon this bar has been, at different times, ascertained to be, by Dampier, fourteen feet; by Cramer, eighteen feet; by Orbegozo, fourteen feet; by Robinson twenty feet; by Moro, twenty feet. These differences are explainable with great probability, by supposing the bar to be intersected by submarine canals, or clefts, and the soundings not to have been made in the same one.

At about thirty-three miles from its mouth, near a place called La Horqueta (the Fork), the Huasacualco divides into two branches, the right, and chief of which, the Apotzongo, runs a course of twenty-five miles, and the other or left one, the Mistan, a course of about thirty-three miles—they encircle a large island called Tecamichapa. Below this island, the depth of water always exceeds twenty-two feet, and becomes sometimes thirty-seven or thirty-eight feet. But above the re-union of the two branches, there are shallows, which, it is thought, may be got rid of by damming the Mistan at La Horqueta. Above this latter point, the depth decreases; at some places it is found to be from twenty-five to thirty feet, but in general it is less than twenty-one,

and even sinks to seven or four. Two points only, however, may be regarded as difficult to overcome—the old Mal-paso, and the present Mal-paso; the first being between three and four miles below the confluence of the Melatengo with the Huasacualco, and the second between nine and ten miles below the first, at the confluence of the Rio Sarabria. At these two points, the rocky character of the river's bed would make its deepening difficult.

On the other side of the isthmus, the Boccabarra, which constitutes the pathway between the Pacific Ocean and the lakes, or lagoons, into which flow the Chicapa and Ostuta, has a depth of about twenty-four feet; but its opening on the lakes is obstructed by a bar, where the depth of water does not exceed nine feet. Moro ascribes the original formation of this bar, in a great degree, to the fact that formerly the river Tehuantepec emptied itself into the lake, and is of opinion that if it were removed by artificial contrivances the result would be permanent. He thinks that this removal might be accomplished by giving a direction to much of the water of the Ostuta above towards feeding the canal, and thus diminishing the force of the current in the lake. After passing the bar the depth increases; but throughout the eighteen miles, or thereabouts, of distance from the bar to the mouth of the Chicapa, not more than nineteen feet of water are to be had, though modes of augmenting its depth could be readily found.

These minute details, translated and transferred from the French publication already mentioned, the accuracy of which I perceive no reason to doubt, are introduced here in order to show that the subject has not been lightly considered. They prove that the two principal obstacles to the creation of a ship channel across the isthmus are the bars at the respective mouths of the Huasacualco and Boccabarra. Now, the bar at the mouth of the first of these rivers ceases to be an impediment as soon as its main submarine canal, over which twenty feet of water have been found, is fixed with accuracy and marked by lines of buoys; and the bar at the mouth of the other river, within the lake, is removable, either in the manner suggested by Moro, or upon the plan heretofore successfully pursued, under the direction of our corps of topographical engineers, with bars at the entrances of our rivers from the northern lakes. Then, by surmounting the inferior obstacles,—namely, the occasional shallowness of the Huasacualco, and of the lake, either by sinking the bottoms or raising the water, and the short dividing swell of land between the source of the Rio Monetza, running south into the Chicapa, and the source of any one of the streams running north into the Huasacualco—an uninterrupted water highway is effected. There does not, indeed, appear on the whole line of this route any difficulty which the present resources of our science and mechanical art may not vanquish.

We should all, perhaps, prefer a canal of large dimensions, fit to accommodate vessels of every size; and the expenditure for such a one, having reference to the route specially described, is estimated differently at from fifteen to twenty-five millions of dollars. These estimates are liberal, and are probably exaggerated by an imperfect knowledge of

the local aids in the presence and cheapness of material and labour which would be furnished. Still, the highest valuation is, in contemplation of the purpose and its incalculable results, far from being appalling. But it may be, that a canal much smaller, and, of course, less costly, would be attended by every substantial advantage; and, indeed, it is even easy to imagine that consequences very salutary and important might flow from leaving inducements to the construction of two free cities, one on the bank of the Huascualco, and the other on the banks of the Boccabarra, or the Pacific, as *termini*, to a railway.

It will appear, from a careful consideration of the commerce which may be expected to direct its course through this passage, that the number of vessels of heavy tonnage and deep draught would bear a small proportion only to those of light tonnage and shallow draught; and, in all probability, the great additional expense incident as well to the construction, as to the keeping up, of a canal on the larger scale, would not be repaid by corresponding advantages. The average burden of vessels from the United States to the ports on the Pacific, including the Sandwich Islands, to China, and on whaling voyages during the years 1845-46, was short of 400 tons; and I should doubt whether, if this junction were effected, the burden of nineteen-twentieths of the craft passing through it would exceed that engaged in our coasting navigation. A canal adequate to the perfect accommodation of the great influx from our own country might, therefore, exact an outlay of but ten millions; and trans-shipments of large cargoes, though always more or less inconvenient, could be indemnified by the rapidity of transit by steam power. It is hardly necessary to say that the American people, in the event of a speedy restoration of peace, will find themselves in circumstances of extraordinary prosperity, which will enable them to afford, out of the national treasury, to appropriate for five years five millions of dollars for the superior, or two millions for the inferior, order of canal.

Having given you this sufficiently precise description of the contemplated work, showing it to be practicable, and nothing repulsive in its probable cost, let me indulge in a few remarks of a more general character, or rather hints for you to meditate upon.

The chief objects to be attained are, a speedy communication between this country and the western coasts of North and South America, especially with our Territories of Oregon and California, an easy and quick access to China, the groups of the South Sea Archipelago, the Sandwich Islands, Russian settlements, and even before long I hope, the tempting and untouched treasures of magnificent Japan; and, finally, the facilitating and enlarging of that great source of wealth, as well as nursery of able seamen, the whale fishery.

Now, I cannot resist the impression that this junction of the two oceans at the Isthmus of Tehuantepec would Americanize this vast and augmenting portion of the commerce of the world. It would give to the people of the United States the overwhelming advantage of an abridgment, by fully one half, of geographical distances. Against the

merchants of Europe it would give ours two voyages to one. There is scarcely a region in the limitless South Sea, with which a trade would be lucrative, that could not be reached by them in half the time that would be consumed by English, French, Spanish, Dutch, or Swedish navigators. "If," says Mr. Scarlett, "this scheme were realized, it has been calculated that the navigation from Philadelphia to Nootka Sound and the mouth of the Columbia river, which, by Cape Horn, is now 5000 leagues, would be reduced to 3000 only!" In fact, the reduction would be greater. But at this rate what would the reduction necessarily be as regards the navigation in that direction from New Orleans, Mobile, St. Augustine, Savannah, and our entire southern seaboard? The interchanges of commodities between our great and teeming valley of the West, and the rich and rising regions of the Pacific, would be accomplished almost at the mouth of the Mississippi.

Nor can securing, in this way, for our own country, the just benefits of her relative position be made the subject of complaint by other nations. We do not propose—at least I hope not—to monopolize the uses of the canal; on the contrary, it would be thrown open on terms, if not of equality and freedom, of the utmost liberality. Although an artificial structure, reared by the money and policy of our people, I would give it the unchangeable character of a public highway of nations.

G. M. DALLAS.

REMARKS ON SURFS, ON ACCUMULATION ON WAVES, AND ON THE REVERBERATING ACTION OF OCEANIC WATER.

As your valuable Magazine combines such a host of knowledge, and useful information one can never be tired in reperusing articles that have come under their notice before. I for one am ever anxious to improve, I am again threading my way through your volumes, and must be pardoned for going so far back as 1837, in which will be found p. 441 an interesting paper on the surf at Nice.

As the above are subjects of such vast importance and deep interest, and embrace points which have hitherto been little considered, they admit of some brief observations in reference to the note added to the article I have mentioned, supplying Mr. Webster's original theory of the rollers.

It is a point scarcely disputable that the equatorial current in its oblique course across the South Atlantic towards Cape St. Roque, the north-east angle of South America, receives the *drift* waters pressed thither by the south-east trade wind, and that the accession, although comparatively trifling, may serve to augment the volume, though it should add nought to the velocity of that great stream. This oceanic river which passes round the elbow of the continent, in conjunction with the alternating inshore currents preserves the level of the ocean there from an

undue elevation, by carrying off the superfluous supplies as fast as these are pressed onward by existing causes, distributing and returning the amount by circuitous routes.

This view is taken not alone from the disposition of the land, the ocean, the winds and the currents; but also from the consideration that, the latter generally are designed to fulfil certain purposes in the economy of nature—the effecting a constant interchange of waters, and the preventing accumulation and preserving a general level, and that, the operation is perfect.

Admitting, the principle of the theory, which is extremely reasonable, the re-action seems to be a consequence of the constant *pressure* upon the fluid, occasioned by the maximum strength of the trade wind during its greatest height and regularity, *declining* in the season when its minimum force succeeds to that, and its constancy becomes interrupted by calms and contrary winds.

That the waters occasionally flow back* in a wide extended stream there is no disputing, but this action does not appear to be the effect of accumulated waters upon the coast from the trade wind *drift* re-acting, as will be shown, therefore the immediate cause of the periodic return of the *rollers* on the islands alluded to in the note, is, the reverberatory motion if the incumbent waters *en masse*, irresistible truly, but easy and rapid, and as an action probably unseen or unnoticed in the open ocean unless meeting with sudden resistance;—in other words the return merely of the *impressions* created by the trade wind without necessarily any flowing or streaming; and if this and the perfection of currents be admitted what need have we to insist upon an accumulation of water on the western coast?

The spherical form of the moleculæ of the water, and the active principle by which these are constantly striving to acquire an equilibrium, whenever there may be undue force, would ensure the re-action as soon as the fluid became relieved from the unequal pressure; this re-action is inevitable, but it does not necessarily follow that there should be an accumulation of water for its fulfilment, upon a long line of coast open to the free ocean, whatever cause may press the surface waters towards that line, could not, I imagine, possibly create an undue accumulation of water there; the nature of the fluid and the activity incessantly exerted in relieving itself of the action of unequal pressure, would prevent it where there is no obstacle to impede its energetic impulse. Besides, in such an extent of ocean, as we are speaking of, the lateral pressure required to raise the mass of waters, independent of the moon's attraction, upon the coast, (if there were no intervening cause to prevent it,) of the western land, even only a few feet, would be tremendous, and far exceeding any effect the wind is capable of producing in that quarter.

A great mass of water, such as the South Atlantic, acted upon† by the constancy of a brisk wind for a given time, would *swing back*, as it

* It is not improbable that this takes place, annually in the wet season.

† We do not here allude to accumulation, but to the undulatory impression which on its subsidence would impart a reverberatory action to the mass.

were, heavily from its specific gravity, but not impetuously, though with rapidity, from its great expansion, and from the attractive and repulsive forces of its particles; and not improbably also, from a certain degree of elasticity, to regain the first law impressed upon it by nature, the moment it became relieved, and this with a certainty that no obstacle could effectually check.

The easterly current which has been experienced near the *line* in the rainy season, may probably arise from the vast body of waters ejected from the mighty Amazon and other rivers, and which from the impetus acquired by their descent to the ocean, may have the power of turning the equatorial current to the "right about" the point of contact being about 40 or 50 miles only from the coast; or, if the velocity of the combined land-streams could not effect that, which from want of depth, perhaps, would not be accomplished, the fresh water from its less specific gravity might readily pass over it, and be aided in its course by the prevailing local monsoon, or by westerly winds, which are likely to blow from the land, at that period, toward the heated air over the ocean.

This operation would take place between June and November, and if we were to look to the new current as a cause of the *rollers** at Ascension, there would be no *re-action* in the proper sense of the word, but a *direct* pressure from the streaming of the waters to the eastward. This, according to my ideas on the subject, is the only way any thing like an accumulation of water could take place on the coast of the continent, because the equatorial current as a flowing line breasting the coast must receive all accessions from the eastward, and so prevent these reaching the land; and even that accumulation would be but trifling, as the rapidity (between 60 and 70 miles in the 24 hours) is too great to allow much of the supply to spread along shore, the great mass being pressed directly towards the offing by the continued descent of the fluid accessions from the mountainous districts.

During the course of my experience at sea, I have often had opportunities of observing the action and re-action of the waves upon a coast; but the idea of the *rollers* being caused by the latter never struck me, although the reverberation of the impression was plainly perceptible and remarked, as returning in opposition to the successive advancing undulations.

Hence may we not infer that, upon a large scale, when no obstacle impedes the duration of the return of the *impression* it would be continued to an indefinite extent, until exhausted, or counteracted by land?

Referring to the Atlantic *rollers*, the re-action would probably be in the direction whence the direct motion originated; in this instance it could not be expected to be towards the north, not, however, from any opposition to its free course that we might suppose it would meet with from the north-east trade wind on the other side of the *line*, as we are assured, from occular proof, of the extraordinary phenomenon of waves proceeding *directly in the "wind's eye,"* but rather from the consideration

* The season does not agree with that of the rollers.

of the unerring principle of the fluid which unceasingly urges it to attain, and whenever unopposed, to preserve its level.

The retrogade action of the *impression* upon the mass of waters south of the *line*, would strike upon the coasts of Ascension and St. Helena, with a trifling priority as to time at the commencement, on the former, which seems agreeable with fact. But, if the *rollers*, on any coast, are occasioned by *direct* action upon the ocean of *distant* gales, (and I see no reason against such within certain limits,) it is not unreasonable to conceive that, the transmission would be greatly prolonged, if the wind blew towards the point followed by the tidal wave.

In gales of wind, which last but a few days, although violent, it may be admitted, perhaps, that the undulation would not be felt at a *remote* distance; although, if waves really travel at the rapid rate assigned to them, without calculation, one would probably be deceived in estimating the distance they would reach in a short time, by merely looking at them as they passed by; for instance:—if in a gale of two days' duration, we find the velocity of the undulations to be equal to thirty miles an hour, (and this appears moderate,) and allow one-eight for decreased energy, as they receded from the source of the propulsion, it would be found that, in the given time, the distance reached would be as great as 1260 miles! The knowledge of the actual velocities of waves for every wind in the scale, and these are not many, is a desideratum in nautical science; but it is obvious that the determining of this object should be effected in the open ocean, as well as in the vicinity of land.

The giant swell of the North Atlantic, during the continuance of the strong north-westers, reaches quite across from America to Europe, but does not break into extremely heavy surf upon our shores, probaby from its force being gradually lessened by the basal banks; on the west coast of Ireland, and the shores of the bay-gulf of Biscay, they create a great surge during the winter. After a long continuance of easterly winds in these latitudes, has the effect of re-action been noticed?

The phenomenon of billows being often experienced during calm weather at sea, has been considered as arising from gales at some distance, which have lasted just long enough to transmit the undulation to a certain distance, and no farther. This is the impression on the minds of seamen, and it is also received as a sign of an approaching breeze in the same direction; no doubt these opinions are often correct, but probably not invariably so, as it is not unlikely that, on some of those occasions, a gale may have been blowing over the particular space, and which has ceased but a short time before a ship has reached it with another wind, and became stationary from calm following.

In accounting for a plurality of waves, perhaps, the operation of currents, the irresistible impulse of the tidal force, variable winds, and sudden alterations in some of the strata of air, whereby atmospheric pressure is relieved, may serve to assist in these ideas.

Along the coast of Darien, (Atlantic side,) a ground swell at a distance from the shore rolls on towards it, but it does not break into surf upon the beaches, except where shelves and ledges of rocks line

these. On observing the billows in the offing, a stranger would naturally expect to find a heavy surge lashing the shore, but the reason why this is not the case, may probably be from soundings extending to some distance off, which by offering a gradual resistance to the velocity of the undulation, checks its impetuosity, and reduces its magnitude, in accordance with the progressive diminution of depth as the land is approached, until, on arriving there, both the force or momentum and the form of the wave become inconsiderable.

At the Isle of Pines, between Carthagena and Porto Bello, this ground swell is experienced. The eastern anchorage lies exposed to it, but although entering the confined space, it does not, as might be expected, create any surf upon the broken line of coast on the main land. The western anchorage is free from it, on account of the shelter it receives from the island; but, a surf breaks continually, more or less, along the line of the main shore, westerly, from a ledge of sunken rocks, extending the whole distance of the curve, which effectually prevents landing, although a fine sandy beach presents itself to the view.

At La Guayra, on the coast of Columbia, when the air is perfectly calm, the curious spectacle of a continuous line of high surf rolling in upon the beach is observed. The succession of the billows is incessant, and the roaring noise they create is so loud as to be heard far up the valleys! People are amazed at this, to them, inexplicable motion of the waters of the ocean, under the very circumstances when they might naturally enough expect the sea to be in a quiescent state.

This violent action of the waters upon this coast cannot be attributed to reaction, from the lessening of the trade wind, as it could not be felt there, but on the shores of the islands, where no doubt it is experienced in the proper season.

It is probable, that there are several causes in succession which operate in producing this surf:—1st. From the direct pressure of the trade wind during the dry season, when it is most active. 2nd. From the action of westerly and northerly winds in the wet season, when the N.E. trade is often interrupted by those winds, and by calms. 3rd. The shifting of the current, combined with the action of the tides within a certain distance along the line of coast.

Let us recall to mind some circumstances which we have all, during our service at sea, either observed, or heard related by others. A ship, during a period of light airs, or calms, when the surface of the ocean has been unruffled, is suddenly assailed by an enormous wave, which passes by and leaves all calm again; in a short time, however, she again encounters a similar uplifting of the water, which also passes off. This extraordinary swell may be repeated several times, or once or twice only, probably according to the strength of the breeze, or the continuance of the calm which would remove her from, or retain her in one position. Much wonder has been created on such occasions in the minds of our rough tars, who, as a matter of course, began to rake up the smouldering embers of their superstitous thoughts; but, the circumstance has remained, we believe, to this day unaccounted for. May not the phenomena be

attributed to the re-action of undulatory impressions suddenly meeting with the resistance of the ship's hull.

There may be causes found, no doubt, to explain why the recurrence of the *rollers* at irregular intervals during the season of their appearance takes place; but I shall not stop here to seek these.

Sometimes ships have passed from a smooth-water surface suddenly into "fearful overfalls," as they are termed, far at sea. The transition is extremely exciting, and the danger to small vessels imminent; indeed, the extraordinary commotion is often so instantaneous as almost to confound, and does frequently create momentary confusion, especially if occurring at night; the sensation of alarm which would naturally arise from such an unexpected perilous situation, may, however, be readily excused, even in those who are habituated to contend with danger. One of the most interesting narrations of such an event that I remember, is given in Lieut. Grant's voyage to Australia in Her Majesty's *tiny* brig, *Lady Nelson.*

The impression has always been that, a *bank* existed under the space of commotion, and, no doubt, with every probability of truth; but a *bank* with deep soundings would not occasion the sea to become so turbulent as the representations allow it to have been on all such occasions, unless a heavy gale were blowing, and even then their commotion would be general, which is not the case always, for the surface has been found comparatively smooth until the vessel arrived at the broken water; indeed, it is a fact well known, that both sea and wind lessen on a ship's passing some *banks;* we may, therefore, believe that to some other cause must be attributed the swelling of the waters.

Would not the re-action of the undulatory impression explain the mystery? Until, however, the subject be investigated with care, no sort of conception can be formed how deep these reverberations may pass downwards in their horizontal transmission. If the undulations last spoken of may be identified with the re-action, the depths over the *banks* where they occur would assist our judgment. If Mr. Webster's theory needed support, the regular periodical appearance of the *rollers* on the islands of the South Atlantic, would uphold it, because it is agreeable with, and there appears no reason for objecting to, the assigned cause; and it goes directly to negative the idea of those surges being occasioned by sub-marine volcanic operations; for, however, one might be led to suppose from the origin and nature of the islands, and the line of fiery communication extending towards the south from the northward, the existence of a connection between the phenomena, the above-named fact must at once dispel it. That such operations create enormous waves have been exemplified on several occasions; but, as there is no sort of regularity observed in the periods of occurrence of such a phenomenon, and, indeed, as the action of the waters induced therefrom, seems dissimilar in some particulars, the cause which produces it, cannot, we conceive, be identified with the one which creates the *rollers* of the South Atlantic.

I mention this by the way, as the surf at Madras has been thought to

proceed from volcanic action, but which, considering its constancy and great height, it is not improbable, would be found on a strict examination of all the connected circumstances, to be produced by the alternate action of the monsoons, subjecting the waters of the Gulf of Bengal to a continued vibration, by direct pressure and by re-action, combined with other circumstances.

The *rollers* which sometimes occur at Ascension out of season, have been attributed to distant gales of wind blowing from the S.W., which explanation seems reasonable. The undulatory impression on these occasions would be direct; and admitting the gales to have been blowing near the Falkland Islands, allowing the undulation to advance on the average of thirty miles an hour, in about three days and a half it would burst upon the island.

To reconcile our opinion, Mr. Editor, as expressed in the note (to the article on "The Surf at Nice"), may we not consider, with every degree of probability, that the Mistral, or N.W. wind of Provence, had been blowing across the Gulf of Lyons (the season being favourable), although unfelt at Nice, and that re-action, during the intervals of its cessation, had taken place at such times in the undulatory impression of the water induced therefrom, which, of course, would be in a reduced scale comparatively with the *rollers* of the ocean?

But, the regular coincidence of the fall of rain with the heavy surfs, seems, as you have admitted, to point to that meteor as connected with the causes of the swelling of the water, which, however, was confined to a very short distance from the beach; the general surface of the bay being smooth, and the air usually in a state of calm, or nearly approaching to it. If, therefore, we admit the effect to proceed principally from the re-action alluded to, we must concede (and we think it may be safely done), that the *return* of the *impression* must be different from the *procedure*, as in the latter case undulation would be visible, in the former no such appearance is perceptible until resistance is offered by the line of coast. It may be observed that the beach is steep to. I am inclined to think it may be correctly inferred that, atmospheric counteraction also takes place, from the altered condition of the air during, or immediately after, the prevalence of the Mistral (or any northerly wind which may have been blowing over the sea without having been felt at the sheltered position of Nice). For, if it be supposed that this cold stratum of air as it rushes onward towards the S.E., presses the more southern, and warmer, and moister sea air upwards, or aside, progressively on its course, whereby a movement of this moist air is induced towards the N.W., and that on arriving at, and impinging against the elevated mountains, the aqueous vapours are precipitated, a probable solution of the causes as well as their coincidence may be arrived at; as it may be admitted that by the time the moist air strikes the Alps, the Mistral (blowing at intervals only) may have ceased, and the re-action of the water becomes timed with the fall of rain. I am not here endeavouring to fashion the operations of Nature to suit this purpose, so that they shall tally with the theory; the circumstances as-

sumed are such as take place, there is no doubt, often, and all I aim at is to show that they are very likely to happen at Nice during the winter. I the more dwell upon the point, as it is material to the elucidation, for if this be not conceded, I must give up the *rollers*, and be content to believe that the surf arises solely from the diminished pressure of the atmosphere consequent on the fall of rain; for, as the highest surfs and the rains were always coincident, without any other apparent cause for the commotion, to recoucile the theory, it becomes necessary to prove a cause for the simultaneous action of the *rollers* with the fall of rain.

It seems to me that the reason why the re-action, or rather the reverberatory impression is not noticed nearest the point where the effect occurs, may arise from the reverberation being felt throughout the mass of waters in a very short period of time; and as it is the actual subsidence of the waves as they drop down to regain their level when the pressure ceases or is lessened, that creates the re-action, the impression becomes modified, so that, although the operation may be seen at the line of its commencement in a slight degree, it would be unnoticed at the other extremity where the effect takes place, or in the intermediate space unless meeting with resistance.

This paper, Mr. Editor, may not inappropriately be concluded by quoting a passage from an excellent and popular work,* which may serve to emulate the wanderers, whether by "flood or field" (not of war, however,) in their search after truth, as connected with the phenomena of nature:—"Years, centuries, must roll over our heads, or equal periods of oblivion over the generation which now inhabits the earth, before the volume of this mighty book of Nature shall be opened even to the most zealous and able enquirer. While this is the case, there need no man be under the slightest apprehension that the pleasure of discovering there the facts, or the laws of Nature, shall ever have an end."

NAUTICAL SKETCHES.

Admiral Sir Edward Hawke, (afterwards Lord Hawke), His action with the French, under Admiral Conflans, Nov. 20th, 1751.

SIR EDWARD HAWKE, it will be recollected, in Admiral Mathew's partial action in the Mediterranean, with the French fleet under Admiral de Court, commanded the *Berwick*, and distinguished himself greatly, by dashing in between two of our ships that were nearly disabled, and the enemy,—one of whom he compelled to strike. Dr. Campbell stated that, there was a report of Capt. Hawke having been tried by court-martial and dismissed the service, for having broken the line, in the performance of this generous action; but it appears, from his enquiries that there was no foundation for the report.

* British Cyclopedia of Natural History.

The gallant officer served thirteen years as a captain, and was in the year 1747 promoted to his flag. It was not long before good fortune gave him again the opportunity of adding to his renown. In October, in the same year, the squadron he commanded fell in with that of the French, off Cape Finisterre, and succeeded in bringing it to action; the result was that six of the enemy's men-of-war were captured and carried into Portsmouth. The remainder, with transports, &c., escaped, and pursued their voyage to the West Indies, where many were intercepted by Commodore Pocock, who had been apprised of their destination by a ship which Admiral Hawke had despatched for that purpose.

During the action the Admiral showed a noble example of intrepidity to those who had the honour of serving under so distinguished a leader. Capt. Saumeraz commanding the *Nottingham*, was killed; he had served with Commodore (afterwards Lord) Anson in his celebrated expedition against the Spaniards in the Pacific, and by whom he was promoted during that voyage; he had the reputation of being a skilful, experienced, and brave seaman.

In the year 1755 Sir Edward was advanced to the rank of Vice Admiral. It cannot have escaped the notice of the reader who has lived for many years in the world, and paid due attention to the events which the course of time developes that, in the career of some individuals, links of a chain of eventful incidents, favoured by the smiles of what has been termed "good fortune", succeed each other in a wonderful manner; whilst there are other individuals whose abilities, acquirements, and energies are equal, who pass through life without even a single opportunity offering itself for the display of those qualities, otherwise than in common routine of duties belonging to station!

This reflection ought to dispose us to the justice of forbearing to look disparagingly on those who with every disposition to excel, are denied—by the inauspicious turn of affairs, which control their conduct, but over which they, themselves, have no power of restraint—a position whence they could perform those actions which claim the admiration of mankind, and enrol the names of the players in the temple of Fame. For, the observation, though trite and true, is of great force, which proclaims that—"a man may deserve success, but cannot command it."

It will, perhaps, be admitted, without meaning that a single leaf should be plucked thereby, from the laurel crown encircling the brows of our gallant chieftain, that, he was, among his compeers, a very fortunate man.

In the onset of his career as a captain, we find him placed just in the happy position for a display of the abilities and *dash* of an aspiring sea-officer, under, it must be remembered, very unfavourable circumstances: he hesitated not,—he disdained to wait the formality of being told to do his duty,—he anticipated the desire of his chief, and actuated by a generous, noble, and chivalrous spirit, instantly bore down to the rescue of his companions, who were greatly shattered by an overwhelming force; and thus, by skilfully thrusting his ship between the enemy and the discomfited, relieved his friends whilst securing his own fame!

Many instances of this heroic spirit are on record: there was, I remember, a fine display of the sort in the action fought off St. Domingo, which obtained universal admiration, and added greatly to the renown of the already distinguished officer who performed it. Such is, and ever will be considered, a noble achievement, which never fails to rouse all the sympathy of our generous nature to such a height as scarcely to know any bounds; and we may confidently believe that whilst our sea-officers are actuated by the feelings which point to such a line of conduct, Old England will have nothing to apprehend from any enemy that may arise to play "at balls" with her.

We now come to the most memorable of the gallant Admiral's exploits—his action, under unpropitious circumstances, with, and victory over, the French fleet, commanded by the Marquis de Conflans, consisting of 21 ships of the line, (of which 8 were sixty-fours,) two frigates and two smaller vessels. Our fleet is said to have been superior.

At 8h. 30m. A.M. on the 20th of November, the enemy was discovered, (the respective fleets had sailed on the same day, from Brest and Portsmouth.) The wind was blowing strongly from the N.W. to W.N.W., with heavy squalls. At 2h. 30m. P.M. the action began; the ships engaging as they came up; the position of the fleets being a little southerly of Belleisle. It was a running battle; the French Admiral leading round the Cardinals, while his rear was hotly contending with our ships; in two hours, one of the enemy's ships struck; and in a short time after two others were sunk; and at five in the evening another struck. The French Admiral no doubt acted according to his orders (not to fight: which to a man of high spirit, must have been anything but agreeable,) it is probable, however, that had the Marquis waited the issue of a regularly contested battle, the greater number of his ships would have been captured; as it was, he was not only roughly handled, but was sadly beaten; for the elements as well were against him; nor did his flight, save his magnificent bark, the *Royal Sun*,* from an eclipse; the "Fates" frowned upon her inglorious race; and Neptune claimed her as his spoil.

The day was now closing in, and the perilous situation of the English fleet, when the "shadows were cast", may be gathered from the British Admiral's own words: "Night was now come on, and being on a part of the coast among islands and shoals, of which we were totally ignorant, without a pilot, the greater part of the squadron being in the same situation; it also blowing hard on a lee-shore; I made the signal to anchor, and came to in fifteen fathoms water, the Isle Dumet bearing E.b.N., between two and three miles, &c."

This was a trying situation, and one not a little provoking, but there was no remedy for it but in patience; it was, however, one, such as in after years became very familiar to our blockading ships off Brest; and, indeed, many were the instances of much more perilous position, in which the experienced captains of the navy, and the skilful pilots, had to exert all their fortitude and nerve to surmount the many dangers that surrounded them.

* She is stated to have been gilded from bulwark to water-line.

At the break of day the Admiral discovered that one of his own ships, (the *Resolution*,) was on shore, and dismasted; also, two of the enemy's (one of which was the flag, *Soliel Royal*,) cut their cables and ran upon the rocks. Whilst pursuing these, the *Essex* struck, and was ultimately with the *Resolution*, lost.

Seven or eight of the enemy were seen at anchor near Point Penris, but the wind was too violent for our ships to attempt their destruction. On the 22nd the crews of the two French ships that had run on the rocks, set fire to them. The seven or eight spoken of, got into the river Villaine; but the state of the weather continued so boisterous and unfavourable, that our fire-vessels could not be sent in to attempt to destroy them.

The Admiral in his official account very justly observes that—"When I consider the season of the year, the hard gales on the day of action, a flying enemy, the shortness of the day, and the coast we were on, I can boldly affirm, that all that could possibly be done, has been done. As to the loss we have sustained, let it be placed to the account of the necessity I was under of running all risks to break this strong force of the enemy. Had we had but two hours more day-light, the whole had been totally destroyed or taken, for we were almost up with the van when the night overtook us."

The Admiral received the thanks of Parliament.

The historian says:—"It is a curious fact that, on the very day of this glorious victory, Hawke was hanged in effegy in the streets of London! This singular instance of popular violence, may teach great men how to appreciate the applauses of the multitude."

I shall now add some notices, found in our old friend the "*London Chronicle*" of the day, on this interesting subject.

The *Adventure*, transport, (in company with the *Active* frigate) was directed by the Admiral to recover the guns of the *Soliel Royal*, but the weather continued so stormy that, after being in great danger, they were obliged to desist. Some of the brass cannon were, however, subsequently, obtained, and conveyed to Plymouth. The *Active* lost her mizen-mast.

It appears also that the Admiral sent a lieutenant, with a flag of truce, on shore to the town of Croissel, to demand quiet admittance up the river Villaine, in order to effect the destruction of the French ships which had taken refuge there; the demand was refused: and the consequence to the unfortunate place was that of having about one hundred bombs thrown into it. This is one of those features in warfare that is most deplorable; for acting honourably and spiritedly the innocent inhabitants were subjected to the horrors of bursting shells, and to the liability of having their houses burned!

Is there no magnanimity in man? It was found that two of the ships in the river had fallen over on their broadside, and three were bilged: and the military had been active in throwing up batteries for their protection. A squadron was likewise sent to bombard St. Croizure. We find amidst all these manifestations of a desire to carry on the war to the

hearth, a curious piece of intelligence which is of a far more pleasing description—that of the French Marshal, the Duke d'Aiguillon, who commanded the land forces of the Province, going on board the *Royal George* to dine with Admiral Hawke. No doubt he was well entertained; and it appears, as the commander-in-chief could not with propriety quit his ship, that Lord Howe was sent on shore to return the visit. This is a most gratifying episode in the story of the Bellisle affair. Such isolated rays, as it were darting through the dark clouds of tempestuous war, have, not unfrequently, displayed their light to soften the horrors of surrounding gloom: they are excessively cheering to the generous mind; but still, war is deplorable, let the cause be what it may: no doubt we may trace the cause of war in the majority of those which in former times have desolated the world, to injuries received; but, in many instances they originate in the consummate pride and innate vanity of man, in a jealous rivalry to appear superior to his neighbour.

The crew of the *Resolution*, for whose safety the Admiral entertained some fears, happily reached the shore on rafts. The officers and seamen of the *Essex* were rescued by the fleet.

Although the victory over the enemy was not so complete as the Admiral could have desired, it was a sad blow to the French, who seem from the following account to have been greatly depressed:—

"VERSAILLES, *November 26th.*—The melancholy news of the loss of M. de Conflans' squadron is most true. Being discovered by the enemy as soon as he sailed from Brest, he steered for the Bay of Quiberon to favour the embarkation.

"Admiral Hawke had time to come up with him. It is said the English admiral made a feint of retreating; and M. de Conflans continued his course. Admiral Hawke gained the wind, and seized a favourable moment for getting between the two lines of our squadron. We have no particulars of the action, but we know too well the issue of it! M. de Conflans, with seven or eight ships, ran on shore on the coast; the rest being too far from land, dispersed, and will scarcely escape the enemy's ships that are in pursuit of them."

In the annexed account, of a later date, we find a despicable attempt made to throw the odium of the defeat on the officers of the French fleet. An admiral does not act without orders, and it is presumable that the Marquis Conflans followed his instructions, which were, probably, to avoid an engagement, and to lead the enemy into shoal water.

"PARIS, *December 14th.*—The misfortune which befel the fleet under the command of the Marshal de Conflans, is looked upon with great concern, and the more so as we are persuaded that it was owing to the bad conduct of some of the officers. The desire of the public to have justice done in an affair wherein its interests and honour are so essentially concerned, has probably given rise to the report, that the officers who misbehaved upon that occasion have been degraded from their nobility, that three of them will lose their lives, and that fifteen others will be branded with infamy! Be that as it may, the eight men-of-war, which, after that fatal day, retired into one of the ports in the isle of

Aix, have been disarmed and brought into the river Charante; but we are extremely anxious with regard to the fate of those ships that lie at the mouth of the Villaine, where, if they continue long, they cannot fail to receive great damage, on account of the shallowness of the river, and its hard gravelly bottom."

This statement appears to be the display of one of those rancorous and libellous attacks* which we find so often disgracing the press, by which it becomes an instrument to scatter poison over the land. Can it be believed that out of twenty-one captains, eighteen should have acted cowardly, and disgraced their flag, their own character, and their country's fame? We have no means of setting this matter right, but that seems almost unnecessary. No doubt the *mal-aventure* must have been particularly galling to the haughty and lofty spirit of the French monarch; but it was past remedy.

We find the following particulars given by an officer of the *Vengeance* frigate:—"The best information that we can get from the prisoners is, that they were to go into Quiberon Bay first, and destroy all the frigates that lay there under the command of Capt. Duff, of the *Rochester*, and then to take all the transports which lay in Morbien harbour, and proceed to Port Louis; all of which transports were to come out by signal: to proceed afterwards off St. Maloes, where there are eight or nine large merchant ships, of 30 guns each, full of regular troops, besides great numbers of others, with all the flat-bottomed boats, and then to proceed on to Dunkirk for the rest of the flat-bottomed boats there (each of the enemy's ships had two Dunkirk pilots on board;) then they were to make a descent somewhere on the north of Ireland." This seems to be a wild scheme to perform in winter.

"The French fleet had two months' provisions, with 200 regular troops on board each ship for landing. Conflans, the French admiral, was to have been head-general on shore, if their pernicious scheme had succeeded.

"Two French admirals chased us for about two hours, and were nearly within random shot, till our very good friend, Sir Edward Hawke, made his appearance; then Mons. Conflans turned tail, and we saw our fleet to windward of him, which was about half an hour past ten in the morning; before that time we were in the greatest distress; finding it impossible to escape him, as he could carry more sail than us. We now hauled our wind, tacked ship, and gave chase to Mons. Conflans. What a sudden change was here, when we least expected it! At daylight, in the morning, our ship was among the thickest of his fleet; this glorious day was the third time we had fallen in with the body of the French fleet; twice before in the night-time, and both times to leeward of him; at that juncture we were going express to Quiberon Bay, to save poor Capt. Duff's squadron, which was there at anchor, as the French fleet would have been in the next morning."

The Admiral states that about eleven o'clock, the *Rochester*, *Chatham*,

* Whether an artifice of the Court, or the minister, or not.

Portland, *Falkland*, *Minerva*, *Vengeance*, and *Venus*, joined him. These were the ships under Capt. Duff's orders.

The admiral's official account may be found in "Campbell's Lives;" we here give an extract of a letter* from a chaplain of one of the ships of the fleet, dated from Villaine Bay, November 23rd, 1759:—

"I most heartily congratulate you upon the very great event of our defeating Marshal Conflans on the 20th inst. As the express is on the point of setting out, my relation of the victory cannot be particular. On the 14th, Sir Edward Hawke hoisted his flag on board the *Royal George*, in Torbay, where the fleet had put in a few days before through stress of weather.

"In the evening we stood to sea, with twenty-three ships of the line and four or five frigates; and on the 16th were within eight or ten leagues of Ushant. The same afternoon we fell in with some English transports returning from Quiberon Bay, who gave the Admiral information that they had seen the French squadron the day before, consisting of twenty-four sail, standing to the south-east; and were at that time about twenty-three leagues west of Belleisle.

"The intelligenoe was received with universal acclamations, and every ship prepared for action. The Admiral lost not a minute of time, but pursued with the utmost alertness. The wind came on the next day fresh from the westward, and we spread all our canvass to court the prosperous gale.

"On the 20th, about half an hour after eight in the morning, the *Maidstone* frigate let fly her top-gallant-sails, which was the signal for discovering a fleet. About nine, my Lord Howe made the signal that they were enemies. At this critical time our Admiral paid no regard to lines of battle, but every ship was directed to make the best of her way towards the enemy. Sir Edward told his officers he was for the old way of fighting, to make downright work with them. We approached M. Conflans fast, and soon found that he was in chase of Capt. Duff's little squadron of frigates and bombs, with twenty-one ships of the line and three frigates.

"Upon their having a distincter view of our ships, they gave over their chase, and appeared to be forming a line to receive us, and we concluded, from the equality of the combatants, that the action would be very great and general; but, upon our advancing, the French admiral changed his plan, and stood right afore the wind for the shore, which was now about three or four leagues to leeward.

"It was two in the afternoon before our headmost ships could get up with them, when the *Warspite* and *Dorsetshire* opened their fire. Soon after, the *Revenge*, *Magnanime*, *Torbay*, *Montagu*, *Resolution*, *Swiftsure*, and several others, came into action.

"The firing now became very alert on both sides, and there was no distinguishing between English colours and French. The rear-admiral of the enemy, the *Formidable*, bore a very hot cannonade from the

* Not to be found, I believe, in any of the Naval histories.

Resolution; but upon the *Royal George's* coming up, they hauled down their flag, and struck to Sir Edward Hawke; this was only a point of honour with the French, the *Resolution* having the merit of subduing her.

"The *Royal George* continued advancing, and Sir Edward gave orders to his master to carry him close along side the *Soliel Royal.* Monsieur Conflans, the French admiral, appeared to have the same intention on his part; and it was a glorious sight to behold the blue and the white flags bearing down to each other. The *Torbay* was at this time closely engaged with the *Thesée* of 74 guns, and presently after sent the unfortunate ship to the bottom. On the other side was the *Magnanime,* which kept an incessant fire upon one of the largest of the French ships, and in the end obliged her to strike. She afterwards ran on shore and was burnt.

" The two commanders-in-chief were now very near, and M. Conflans gave the *Royal George* his broadside; Sir Edward returned the salutation; but, after two or three exchanges of this kind, the Marshal of France declined the combat and sheered off.

"The French vice-admiral likewise gave Sir Edward his fire, but soon followed the example of his superior; another and another did the same; but the fifth ship escaped not so well: the *Royal George* poured her whole fire into her at once, and repeating the same, down she went alongside of her! The *Royal George's* people gave a cheer, but it was a faint one; the honest sailors were touched at the miserable fate of so many hundred poor creatures. She was named the *Superb,* of 70 guns, with upwards of 750 men on board, only twenty of whom were saved, which were taken up the next morning from the wreck.

" There were now several ships at once upon the English admiral, who seemed to be got into the very centre of the French rear. Every observer pitied the *Royal George;* it seems, indeed, a kind of degradation to so noble a ship to be pitied; but really her situation would have been lamentable if the enemy had preserved any degree of composure, or fired with any sort of direction; but their confusion was so great, that amongst 1000 shot I do not believe that more than twenty or thirty struck the ship.

" The English vice-admiral, with the *Mars, Hero,* and several other ships, were crowding to the Admiral's assistance, when the obscurity of the evening put an end to the engagement. Happy circumstance for the enemy! as an hour's day-light more would have brought on their total ruin.

" When I sat down to write, I proposed to have given you only a general account, but upon this animating occasion, there is no possibility of leaving off whilst a margin remains unoccupied. We burnt* the *Soliel Royal,* of 80 guns, M. Conflan's own ship, together with the *Heros* of 74 guns; we have sunk the *Thesée* of 74, and the *Superb* of 70; and have taken the *Formidable,* the French rear-admiral, of 80 guns.

* She was set on fire by her own crew, it appears from another account.

" Seven or eight others ran aground, but got off again at high tide, and are now crept into the entrance of the little river Villaine, where we do not despair of setting them on fire. Whether we succeed in this or not, we have room to believe they have received so much damage, that very few of them will be able to put to sea again, as they lay many hours upon the ground, and were obliged to throw their guns overboard to lighten them.

" Capt. Dennis, of the *Dorsetshire*, and Capt. Speke, of the *Resolution*, have gained immortal honour, the Admiral told them, in the warmth of his gratitude, ' they had behaved like angels!'

" P.S.—We had the misfortune to lose the *Resolution*, of 74 guns, and the *Essex*, of 64, upon a sand, the day after the engagement; but have been so happy as to save almost all the people."

The eight ships of the enemy which escaped during the night from Sir Edward Hawke's fleet (not those * which ran into the river Villaine), succeeded in reaching Rochfort in safety; the former were the *Tonnant*, 80; *Orient*, 80; *Intrepid*, 74; *Dauphin Royal*, 70; *Juste*, 70; *Dragon; Brilliant*, and *Bizarre*. The *Magnifique* was supposed to have been lost.

The Paris papers mention that M. Conflans had entirely justified his conduct, but insisted on bringing several captains to a trial for disobeying his signals; and a commodore who fled with a whole division of ten ships.

Sir Edward Hawke was employed repeatedly on service; and was successively honoured with the rank of Rear-Admiral, and Vice-Admiral of England; and in 1764 was appointed First Lord of the Admiralty; in 1771 he resigned that important station; and was some years subsequently raised to the peerage as Baron Hawke, of Towton, in the county of York. He closed his brilliant career on the 17th of October, 1781, aged seventy-two years.†

LIGHT-HOUSES.

EVERY security which can be afforded to navigation on coasts that are dangerous to approach, must be desirable. We need not inform the seamen that there is scarcely any thing more delusive than the estimating of distances during the night; and, indeed, under a certain state of the atmosphere, even in the day.

* These were, the *Glorieux*, 74; *Robuste*, 74; *Northumberland*, 70; *Inflexible*, 64; *Eveille*, 64; *Sphink*, 64; *Solitaire*, 64; *Vestale*, 30; *Aigrette*, 30; *Calipse*, 16; *Prince Noir*, 16. The *Juste* and *Northumberland*, are stated to have run on shore at the embouchure of the Loire. The *Formidable*, which was taken by Sir Edward Hawke, lost her main and mizen masts.

† Campbell says, "seventy-six." His lady died October 9th, 1756, aged thirty-six, Campbell says, "28th of October."—(The monument is in North Stoncham Church, Hampshire.)—I do not know which is correct. my authority is a written memorandum.

An object seen through the medium of the refractive powers of a haze, mist, or of a slight fog, cannot be estimated with respect to its distance from an observer, with any thing like a close approximation to its actual nearness or remoteness.

This deceptive state of the atmosphere, which the eye is not capable of counteracting, has no doubt been the cause of many shipwrecks, with regard to land, ice-bergs, &c., and even when lights have been seen in time, escape has in numerous cases, been effected more by the superior qualities of the vessel, from the wind favouring, and other, perhaps, adventitious circumstances, than from the correct judgment, and promptitude of action which, in such trying situations may have been displayed.

It seems desirable, therefore, that where dangers extend sea-ward more than a mile or two from the land upon which light-houses are erected, two lower lights (the glasses may be coloured) be displayed in the directions of their bearings, which will be visible from the deck of a vessel four or five miles beyond their positions.

It often becomes desirable to sight a light in stormy weather, especially in tidal waters, in order to run a proper distance during the night, or to confirm the ship's position by account; and it is a fact known to mariners that lights considerably lower than that of the light-house, have been seen before the latter. In cases of this sort, where there happen to be dangers in the way particularly, two lower lights might become the means of saving both ship and crew.

Even admitting that the upper light be seen; a vessel might boldly stand on until the lower lights become visible, when additional confidence would be imparted to the master, from the conviction thus certified, that he was outside (at a certain distance) of the dangers, and might fearlessly shape his course along the land, or, if the threatening appearance of the weather required it, haul off until daylight.

The reason why we propose *two* lower lights will be obvious to the nautical reader—the prevention of a dangerous mistake—as it often happens both at sea and on land that, a fog rests at an elevation of from 30 to 100 feet above the level of either, whilst all is clear, or at least less opaque, below; in which case, such lower lights as we recommend would be visible when the upper one would be quite obscured.

This phenomenon clearly explains the obscure enigma of a light being seen upon the strand, before one that is considerably more elevated—as that of a light-house. If we suppose that the lights in the houses upon the beach are all extinguished, and the pharos light hid by fog, unless the land was distinguished, the vessel might be wrecked.

The very reverse of this sometimes takes place, a fog rests low; whilst all is clear above; but in such a case, as the upper light would be seen, the navigator will not be without a guide, and his judgment will readily account for the non-appearance of the lower lights when he has run in a prudent distance.

If there were but *one* lower light, unless the master keeps his judgment on the *qui vive*, and have his *weather* eye open, with respect to

the state of the atmosphere, he would, probably, as the Old Gunner said "go boughing on" to make the *lower* light, (which he has *already seen*, and *mistaken* for the upper one, this being hid by the intervention of the fog,) and so meet his doom.

There may be objections to such a plan, which do not at present strike us; but if none are found, it would be of benefit.

PHAROS.

HURRICANE THEORY.

At Sea, December 24th, 1847.

SIR.—Approving highly of the exertions of the hurricanists, and wishful to embrace any deed which science can impart, to render the lives and property entrusted to our care more safe, I have carefully examined the articles in your volume for 1846, upon this subject, and feel satisfied that, the two articles which you have there, devoted to answering the letter signed "Convert," have brought the practical application of the theory within the reach of every person of ordinary intelligence.

The above refers to hurricanes in their ordinary progress, but the great devastation committed by the West India hurricane, after it is driven out of its course, and sweeps over so large a portion of the North Atlantic, renders it highly important that this *irregular* branch of the hurricane should be investigated.

I trust that it is only necessary to call attention to the awful loss of lives and property in the North Atlantic, resulting from the violence of this portion of the West India hurricane of 1846, to ensure some light being thrown upon the subject in your valuable journal.

I have not been able to ascertain to what extent the distinguishing features of the hurricane are retained by this irregular branch of it, and whether, those are sufficiently definite to be relied upon.

Their progress is known to be to the north-eastward, but, do the winds retain their rotatory motion, and if they do, which way do they revolve from S.W. to N.E.? is it to the N.W., or to the south-eastward that they revolve? Under the impression that no use can be made of the theory with regard to this branch of the hurricane, unless, the facts collected are sufficient to establish the above points, I trust that you will be kind enough to give insertion to this letter, that attention may be called to this subject; should your present resources not be sufficient to extend the theory to this branch of the West India hurricane.

I am, Sir, &c.,

R. HUMBLE.

To the Editor N. M.

P.S. I beg to suggest as an improvement to our Atlantic Charts that, the track of this hurricane should be laid down upon them.

Local Deviation of Route of Circular Storms, &c.

Sir.—This variation was pointed out by Colonel Reid, in the traces he gave of West India hurricanes (see charts 5 and 6). From my own investigations,* I found the altered route apparent in the Barbados storm of July, 1837, as also in that of the 2nd of August following, (see *Nautical Magazine* for 1838,) and in the typhoon of 1841, at Hong Kong.

The *Albion's* storm (1808), wherein the scudding Indiamen foundered, seems to me to have been acted upon by the meeting of currents, as the meteor had three movements in different directions during the time the ships were involved; and, strange as it may appear, the *Albion* (lying to) had a veering of the wind round the compass, without having gone the round of the circle, or, probably drifting many miles from her place of entry! The *Thunder's* storm (Bahamas, 1838,†) appears also to have made an extraordinary movement. Adding the *Charles Heddle's*‡ storm, the three may be classed as the most remarkable of any which have occurred. The "Old Storm" 1780, (Jamaica) is a puzzle—*id est:* if we give credence to the account. These deviations have occurred whilst the meteors touched the land, and for a short time after, excepting the *Albion's* storm, which took place on the ocean. The eccentricity of the nucleus I do not think will account for these movements; the impression upon my mind is, that the central tube has but a very limited motion; and, although, I could not clearly determine the fact, with respect to the minor whirlwind, I am of opinion that, the circle exterior to the true hurricane zone moves eccentrically at times.

These points should be studied in order to arrive at the truth, as they would seem to offer great objection to ships scudding under sail.

There is nothing more easy than giving advice to seamen, how to take advantage of the wind of a hurricane and scud.

They have been recommended to do so in the left semicircle (intertropical). Were the advisers aware that therein the wind sometimes shifts suddenly several points? — a fact, not conjectured, but proved. Suppose the master of a ship, following such advice, starts off, under sail, with the wind from the N.W., veering westerly,—(the progressive course of the meteor W.N.W.,)—and he finds its strength too powerful for him to make a straight course; he must conform to the changes, and his curve will be towards the centre of the storm;—well, he gets the wind west, and in a short time after it shifts suddenly to S.E.; he is taken aback! perhaps, down in the trough of two contending lashing seas,—"a pretty pickle!" truly. Hundreds of fine ships, well found and manned, have disappeared in hurricanes, and my belief is that, the majority have foundered in that way.

Let not those whose opinions are at variance with what I have here expressed feel displeasure; we all are contending for one object, that of

* In point of time coincident, and before I had seen the excellent work on the Law of Storms. † *Nautical Magazine*, 1839. ‡ Ibid. 1846.

being useful to the seaman, every man is entitled to enjoy his own opinion, and if convinced that it is wrong, would only be acting a manly part in giving it up.

How is the S.E. wind in the left semi-circle to be accounted for, the wind from that quarter pertaining to the right-hand semi-circle? My belief is that, there is no break in the continuity of the circle when once formed, until the meteor is dissipated or disorganized by coming in contact with another meteor, or a lofty range of mountains. It is within probability that the meteor by lateral movement may bring a ship quickly from the second to the first quadrant, where the S.E. wind is found; but I think the *curl* of the wind inwards towards the centre within the left semi-circle will account for it more satisfactorily. Such a motion is distinctly visible in the minor whirlwind, and therefore, it may be reasonably assigned to the great one of the ocean; but as ships do pass through that portion of a storm circle with the occurrence of a regular set of changes of wind, it seems clear that the *curl* is not always present. That circumstance however, may not be taken as an objection to the inference, as we know that the central calm, which is an established feature of the hurricane, is on some occasions absent.

Those who may be desirous of satisfying themselves on this point, would do well to study the mode of operation of the *Alemene's* storm of 1780, and that of the *Theseus* of 1804; these are examples of the action of the *curl*.

I hold that the *curl* does not break the continuity of the circle, and that the effect of the anomalous changes of wind is not caused by the accession gale. Let others try their sagacity by examining the mode of operation of the two storms above mentioned.

Seamen may take what advice they think proper, but for my own part, were I to be caught in a hurrricane in the left semi-circle, I should be extremely cautious of scudding under sail in it, "whatever may be said to the contrary notwithstanding."

STORMY JACK.

P.S. That which appears now to be most required is a Hurricane Charts (in sheets):—1. Of the tracks of the Atlantic storms. 2. Of those of the Mauritius. 3. Of the Indian Ocean, and China Sea, &c. 4. Of the Pacific, and Australian Ocean.

It is essential to determine the lateral extent of their transits. New examples might easily be added to the plates as they occur.

STORMS.

SIR.—As a correct knowledge of the nature of those seasonal tempests which sweep over Great Britain and the surrounding seas is essential to the safety of navigation, it is only from multiplied observations we can expect to derive an intimate acquaintance with their mode of action and the routes they follow. Notwithstanding four years have elapsed, I have considered it my duty, as a seaman, to hand to you the remarks I

made on the three gales of wind, for insertion in the "*Nautical*," should you deem those remarks of sufficient importance to be published.—S. J.

Storm of the 19th of October.

Monday October, 16th 1843.—Hazy and calm morning. Forenoon and afternoon fine; sunshine. Evening cloudy. During the night, lightning, with showers of rain, last quarter of the moon this day.

Tuesday, 17th.—Very heavy rain before day-light. Cloudy morn, with showers, and a fresh breeze from the west, which increased during the day to a fresh gale, veering gradually to the north-westward. At 5h. 30m. P.M., wind north-west., strong gale, veering to the northward. By 9h. P.M. the wind was north. By 10h. the strength of the wind greatly lessened, and the stars appeared. I do not think the force of the gale reached above 9 at any time during its continuance. The duration was about nine hours, with eight changes.

At Greenwich, it appears by the Register, that the wind veered from south-west to north-west, force from 4 to 2.

It is stated that the gale on the coasts of England and France, was most severe on the night of the 17th. Several vessels were wrecked. It is also stated that, there was a violent tempest, about the same time, in the Mediterranean: no less than 10 vessels were wrecked in the Road of Marseilles. The storm with us, if a circular one, was moving about south-east., which is the bearing of Marseilles, its distance being about 360 miles.

In England, it is stated that, "the wind blew fearfully from west to N.N.W., all along the coast.* At Bideford the storm raged with destructive fury, occasioning serious loss of life. At Hartlepool (on the coast of Durham) several vessels were lost. From Padstow (in Cornwall) the accounts are truly distressing."

Several vessels names are mentioned as having been wrecked, foundered, or run-down and sunk; and 14 others whose names were not ascertained. At Brighton the wind is stated to have veered round as far as N.N.E. This place bears E.b.S.½S. about 130 miles from my position.

If the storm was a circular one (of which I have little doubt) it was moving to the south-east, and would subsequently pass over Marseilles.

The winds at Greenwich are remarkable, as we should have expected in a regular succession of changes, to have found the current of air veering from south-west to the eastward, and not to the north-west.

The following day, the 18th, was fine with a moderate breeze from the north, which veered to north-east in the evening; a great diminution of temperature took place, and a sharp frost followed.

Storm of the 27th and 28th of October.

Thursday, 26th.—Foggy and calm morn. The rest of the day, and the night fine, and calm, with lightning, which also occurred on the 25th.

* The coast of the English Channel, we presume.

Friday, 27*th*.—Four days after the new moon. Dense fog in the morn, which cleared away as the sun rose in altitude. A light air from the west. Forenoon and afternoon fine, occasionally overcast, air cold. Evening dull and overcast, light breeze west. Near 4 P.M., the wind shifted suddenly to the E.N.E., with drizzling rain, and gradually rose in strength. At 6h. blowing a stiff gale, veering to the east; the squalls as high as 10 with intervening lulls.

Between 6h. and 7h. the squalls heavy—the wind flying in a remarkable manner to S.E. and back to E.S.E., and E.; at intervals the lulls were reduced to a light breeze. The rain throughout was very scanty, and fell in pelting drops, wide apart. The clouds assumed a wild appearance; the sky being entirely excluded. At 7h. 30m., a few stars dimly seen in the west through the scud: wind, at this time south-east, and the squalls in the same rapid manner, flying to south, and back to south-east.

Between 8h. and 9h. this fitful action of the wind was very remarkable by "little and little", at every violent squall, the wind seemed to gain a point or two to the right, or westward. At 9h. the squalls were momentarily heavy; at 10h. they were less powerful, but still strong at intervals; wind about S.S.E.; misty rain now set in. At 11h. still squally. Midnight squally; wind about south.

Saturday 28*th*.—During the early morn, before daylight, the wind had reached to S.W., still squally; at 8h. A.M. it was W., and the gale may be said to have ended. A fresh wind continued most part of the day from the west, with flying showers in the afternoon.

At Beaumaris, Anglesea, the storm is reported to have been from the N.W. The bearing of that place, from my position, is N.W.b.N., distant about 150 miles. The account, dated 29th of October, states that, "it blew a hurricane yesterday at N.W. A schooner, in making the harbour last night, struck on the causeway and sunk, crew supposed to be drowned." A great many vessels are said to have been wrecked, stranded, and foundered, with the loss of many lives. It is remarkable that the *Great Western*, steamer, which arrived at Liverpool on Monday, the 30th of October, met a N.E. gale on the 28th, on which day the hurricane was ending in England.

It is stated in the papers that, a letter from Carthagena of the 21st ult. (October) gives a description of a "most dreadful hurricane" on the coast; several vessels were lost, and the crews perished; many vessels upset. Could this storm be identical with that experienced in England on the 27th and 28th? Carthagena lies south, about 780 miles, from England; 130 miles a day of progressive course, would complete the distance in six days; and I find, from the changes which took place at my position (a short distance from Bristol) that the meteor (admitting it to have been a circular one) was moving a little westerly of north. Its route, therefore, agrees with the relative position of both places. If this fact could be confirmed, it would show that the storms of the Mediterranean have a range of path from southerly of east to westerly of north. It is deserving of further investigation, as being of some importance to navigation.

Storm of the 3rd of November.

Thursday, November 2nd.—Foggy. Light air N.E., inclining to calm; dreary and chilly weather. Night calm; dense fog, cold.

Friday, 3rd.—(Three days before the full moon.)—Foggy, light breeze N.E. At 11h. A.M., wind drawing round southerly; sun out fine for a short time. Noon, light breeze S.; a most surprising change took place immediately in the temperature; the change of wind brought not merely warm, but *hot* air* with it! during the morning and forenoon, the air was "raw" cold, and unpleasant to the sensation of feeling. At 2h. P.M. the wind backed quickly to E., and freshened; the cold was renewed. The sun occasionally peeped through the masses of clouds which were gathering around; as the day closed, the wind began to blow in squalls, and continued in the same remarkable manner as stated of the other storm, to fly round to S., and back to E.S.E. At 8h. it was blowing a small gale from S.E.b.S. At 9h. a fresh gale, wind flitting from S.E. to S. and back; air again very warm, accompanied with small rain; sky entirely overcast. At 11h. gale blowing heavily, in fitful squalls, still between S.E. and S., and occasionally whisking suddenly to S.W., raging; and, in the lulls, backing to S. and S.E. At midnight the same weather, and flitting of the wind.

Saturday, 4th.—Heavy showers after midnight last; the wind fixing in the south, and gradually lessening.

A very fine day succeeded the commotion; warm sunshine; more like a July than a November day. Light air E., inclining to a calm—all the high vanes pointed to the south, but the smoke, at early morn, blew away to the west. A fine moonlight night, calm.

If this was a rotary storm, we may take the changes from E.S.E. to S., which will give nearly the same direction for the progressive course, a little westerly of north as assigned to that of the 27th of October.

I may now be permitted to advert briefly to the extraordinary fitfulness of the wind during the two storms of the 27th of October and the 3rd of November. As the first appears to have commenced at E.N.E. and ended at W., the centre of rotation must have passed very near to my position (a little to the right of it, or eastward), and the play of the wind laid down, in accordance with the Redfield theory, to the violent and quick eccentric motion of the gyrating centre (or vortex as it has been called); by which the regular revolution of the current of air was greatly interrupted. In the storm of the 3rd of November, the changes were from about E.S.E. to S., accompanied with similar fitful veering and backing of the wind. In this case, however, the centre appears to have passed at some distance from the locality of observation; to the left, or south-westerly; but as we were so near the north-eastern margin of the circle, there is some difficulty in applying the same cause to the effect, in the present instance, unless the storm was of small diameter,

* This sudden change of temperature I have had occasion to notice several times before.

and the eccentric movement of the centre of rotation, occasionally reached near the bounds of the circle.

Although the vessels are not so numerous in the West Indies as upon our coasts, yet, I believe it to be a melancholy fact, that there are a greater number lost in these storms, in the British seas, than among the Caribbees, where hurricanes are considerably more furious than in our latitudes. One of the reasons why this occurs is, we imagine, that the masters of vessels here endeavour to run for some near port for shelter, calculating from the point from which the wind may be blowing at the moment, and without a thought of the rotary nature of the gale, from which it may so happen, that by the time they draw in shore, it becomes a dead lee one to them. Besides, on a tidal coast, unless the moment of entry be timed with the flow of the waters, bars, and shallow depths, must, necessarily, arrest their flight. The creating of "Refuge Harbours" ought to be a national concern; until these are formed, there will be no safety from the perils attending these violent circular winds. Where there is sea-room, all ships should run off-shore, on the approach of one of these storms, and by noting the changes of the wind, the captain of an assailed vessel (if he knows anything at all about the subject) may give a rough guess of the direction in which the meteor is moving, and, consequently, anticipate succeeding changes, and regulate his movement accordingly.

OVERLADING SHIPS.

[From the *Nautical Standard.*]

SIR,—Having noticed in a number of your invaluable Journal, a letter exposing the shameful abuse of "Over-loading Merchant Ships," from an experienced correspondent, who signs the initials "B. J.," I would earnestly call your attention to the report of the accident to the barque *Cleopatra*, which, if correctly stated, was caused by overlading.

From the statement of the mate (then in command, I presume), it appears that the *Cleopatra* came "in contact with a large ship," and, in the contact, with other damages, stove "two puncheons of rum that were *stowed on the quarter-deck.*"

Now, we may naturally conclude, that if there was not room below to stow away only two puncheons of rum, there might not be room for other portions of the cargo with which the *Cleopatra* was freighted; if there was, what business had these casks on deck? But, admitting that nothing else but the two puncheons of rum were "*stowed on the quarter-deck,*" mark the result: "the binnacle lamp was upset, the flame of which catching the spirits and rushing down the companion, set the ship instantly on fire!" We may naturally infer that your correspondent's remarks are most just, for what business had *any* part of the cargo *on deck?* Surely merchant ships, whether outward or homeward bound, *must be overladen* when they carry even two puncheons of rum on the *quarter-deck.*

We come, however, to the melancholy sequel in the Commander's own words: "I am sorry to say that the master and the poor man that was at the helm, expired soon after in great agony from the injury received, and there is one man and a lad now on board in a very precarious state." The confusion resulting from vessels coming in contact is great indeed, and often attended with fatal consequences; but what must be the panic on board a ship when she takes fire under such circumstances? This vessel did so, in consequence of the spirit igniting that was stowed on deck, and it is more than likely that these valuable lives were lost in consequence, and two now in danger may be forfeited. Surely it is a disgraceful practice to overload ships. The deck of a merchant ship is sufficiently limited without lumbering it up with casks or other portions of cargo, and with regard to the loading of them, the only just conclusion we can arrive at is, if your hold is full, your ship is full.

You, Sir, have ever advocated every cause tending to the preservation of life and property, condemning all abuses, and surely this is a very great one; therefore, fully agreeing with your correspondent "B. J.," I have taken the liberty of writing these observations, hoping you will give them a place in your forthcoming valuable Journal.

I am, Sir, your obedient servant,

HUMANITAS.

[In our volume for 1839, will be found the details of a trial respecting deck-loads, with the "Report of the Committee on Shipwrecks of Timber Ships," the result of which, went to show that, the "primary cause of all mischief has been in the improper over-stowage of the ships, by carrying heavy loads of timber upon deck." This "custom of the trade" is an evil which cannot be too highly censured. It may be timber or otherwise, but it has no business there. The above accident, it appears, arose from collision; but leaving out this, the observation of "Humanitas" is very just, that, "the deck of a merchant ship is sufficiently limited without lumbering it up with casks, or other portions of cargo." In our last will be found the letter referred to from the pen of "B. J.,"* exposing the evil of overloading merchant ships, to say nothing of the deck-loads in addition.

"Humanitas" says, "if your hold is full, your ship is full," he might have added, "and often too full."

The evils spoken of, are of so serious a nature that, no opportunity should be lost in exposing them; for our part, we will always lend a hand in censuring all acts so contrary to reason, and the cause of humanity—ED.]

CALMS.

NEAR land, perhaps, the calm state of the weather may in a great measure depend upon the surrounding atmosphere over both sea and land, being at the same temperature, whereby its balance is preserved; but undoubtedly one principle alone does not regulate this phenomenon.

Calms of a short duration often occur after a gale; and sometimes before one. In the first instance, if we assume the gale as a consequence of previous disarrangement in the surrounding atmosphere, by inducing

* Also from the *Nautical Standard*.

a powerful rush of air to restore the equilibrium, we may perhaps attribute the succeeding calm to the new state of the atmosphere which has been fully and suddenly restored to a poise; and may consequently become for a time no longer an attracting medium; whence of course there would be the least possible motion in the air within the circle of equalization; and this condition may probably be the result only of sudden, violent, and brief action of the flowing air; the limit of the disarranged atmosphere being of no great extent.

We find in England, generally, that the more violently the west, or south-west wind comes in, the sooner it subsides, and a calm follows.

In the second case, when a calm precedes a gale, we may consider it as a mere alternation; as the atmosphere, after being restored to a due balance, from heat and other causes acting together, begins again to be disarranged; the circle of rarefaction becoming larger and larger: in the centre of this heated space (within or near to the torrid zone) the atmosphere will, to our senses, seem to be motionless, and remain so until the colder and more distant air in motion is attracted towards the circle; the stream gradually increasing until it reaches the centre or most attenuated part; when it rushes in as before, creating a gale, the strength of which will be regulated according to the state of the disarrangement, and the duration, to the extent of the circle of quietude.

We have noticed the wind often, on these occasions, shifting from point to point before finally settling in a particular quarter; this is what should be expected in a heated circle of large dimensions; and perhaps the coldest stratum or vien of wind will ultimately predominate.

But gales do not always follow calms, even of some days continuance; in this case, we may suppose the circle to be greatly extended, so that the disarrangement becomes gradually lessened towards the periphery; by which, the sudden rush of the air moving without, is prevented, and only a gentle and gradual flow induced. This amicable junction would follow from the little difference there would be between the flowing air, and the atmosphere of the verge of the circle. No doubt also, a great deal depends on the electric and hygrometric states of the atmosphere, and other things we know nothing of. Experimental philosophy will probably throw some light upon these operations of nature, ere long; in the mean time some accession to our present imperfect knowledge may be gained by the careful and repeated observations of the scientific officers of the Navy, and others, who take an interest in such matters.

Whenever the atmosphere preserves for a lengthened time an equable temperature, there we might expect that calms would be prevalent; and this we find to be the case at and near the equator; hence we deduce that one of the chief causes of interruption to the quiescent state of the atmosphere is, the change which takes place in temperature.

We have hitherto been speaking of calms within and near the tropics; in the temperate regions the quiescent state of the atmosphere is of shorter duration, but oftener renewed.

Not only what seamen call a "lull" often intervenes between the violent gusts in a gale, but a calm suddenly occurs, for a short time; when, the violence of the wind seems to gather fresh strength, until it becomes

again exhausted, as it were, with its own efforts, and as suddenly dies away! here, we are truly perplexed to account for two opposite extremes preceding each other in rapid succession.

The whimsical observations of sailors on these occasions, afford an apt illustration of the renewed force of the wind: "a fresh hand at the bellows."

Calms in the Arctic regions we now learn are not more frequent than with us.

What may be the case at the pole itself we cannot pretend to guess; but it is a fact often observed, even with us, that during intense frost the profoundest calms generally take place. And upon the principle of equability of temperature, as noticed respecting the equator, those who suppose that it is calm at the pole, may probably be correct with reference to the period of winter.

NAUTICUS.

THE REPEAL OF THE NAVIGATION LAWS.

On Wednesday, the 9th of February, a demonstration in favour of protection to the shipping interest took place, on the River Thames, on the occasion of the presentation of a memorial to Her Majesty against the repeal of the Navigation Laws, agreed upon by the Masters, Mates, and seamen now in the port of London The demonstration was determined upon in consequence of the alleged apathy of the seamen themselves upon this subject, and, an application having been made to the Lord Mayor to allow of a procession of 20,000 seamen through the City to Whitehall, his Lordship refused his permission on the ground of interruption to business which so vast a concourse would necessarily occasion. The promoters of the movement thereupon wisely altered their original design, and determined to have a boat-procession to Westminster bridge.

The procession commenced by an assemblage of boats towed from below bridge by steamers, in three squadrons or divisions. Unfortunately, however, the weather was so boisterous, and the consequent difficulties encountered so great, that the procession lost much of its completeness, a far less number of sailors taking part in the demonstration than was originally expected. Of the Northfleet division only a very small number reached London, the steamer engaged to tow up the boats proving altogether inefficient for the service, owing to the boisterous weather. Four or five hundred tars were excluded by this accident, and the muster of the other two divisions (those from Long Reach and Shadwell) was very materially lessened by the same cause. Each boat carried a union jack in the bows, and most of the sailors had a blue ribbon round their hats, with "The Navigation Laws" printed in gold letters thereon. The start from Shadwell did not take place until nearly one o'clock; and after a stormy voyage, on arriving at Westminster bridge, the crews disembarked, and having formed in line about ten or twelve deep, they marched through Bridge-street, Parliament-street, and Whitehall, to Trafalgar-square.

This was the rendezvous, and at three o'clock the numbers present may have been about three thousand. The members of the committee having arrived, the procession re-formed, and, headed by a band of music, returned through Whitehall to the Home Office. The sailors walked twelve abreast,

and the general effect was greatly increased by union jacks carried at intervals of a few yards.

At half-past three o'clock the deputation reached the Home Office. Mr. Wawn, M.P., for South Shields, introduced the deputation to the Home Secretary. Mr. Mather (addressing Sir George Grey) said he had the honour to place at his hands a memorial from the seamen of the various ports in Great Britain against the repeal of the Navigation Laws; and he begged that the Right Hon. Baronet, in presenting the same to the Queen, would impress upon Her Majesty the undoubted fact that it contained the true sentiments of the whole body of British seamen. If Government really did make the change said to be contemplated in those laws, he felt sure that, however much the British sailors might regret it, they would be compelled to seek employment in other countries. He hoped that it might not be so, but he felt confident that it would. Sir George Grey said he was the son of an old Naval officer himself, and he should be very sorry to see Mr. W. Mather's prediction prove well founded. He hoped and believed, however, that he was mistaken in the opinion he expressed. Mr. Mather said he felt confident, if the Right Hon. Baronet's gallant father were alive, he would not be found among the advocates of the proposed measure. If the country forsook its sailors, in self-defence they would be compelled to forsake their flag. Sir G. Grey said he hoped Mr. Mather's fears were unfounded. This much, however, he might say, that he would take care to lay the memorial before Her Majesty, and explain the feelings of those on whose behalf it had been signed. The deputation then retired, and in less than half an hour the whole procession re-embarked at Westminster bridge. Not the slightest breach of decorum occurred during the day.

We annex a copy of the Memorial:—

"THE LOYAL AND HUMBLE MEMORIAL OF THE MASTERS, MATES, AND SEAMEN NOW ASSEMBLED IN LONDON, AND THE DELEGATES REPRESENTING THE OUTPORTS OF THE KINGDOM.

"May it please your Majesty,—We, your Majesty's loyal and dutiful subjects, beg most respectfully to approach your Majesty to lay this humble memorial at the foot of the throne, believing that the subject matter of it involves not only the well-being of your memorialists, but the security of your Majesty's dominions in every part of the world.

"Your Majesty's memorialists have learned with deep regret and indignation that it is seriously contemplated to repeal the Navigation Laws, the principle of which, for the protection and encouragement of British ships and British seamen, has been the undeviating policy of this Maritime State for nearly five hundred years.

"Your memorialists most respectfully and loyally, but firmly, as ardent friends of their country, which they sincerely love, beg to represent to your Majesty that the repeal of the Navigation Laws will bring ruin on your memorialists and the Commercial Marine of Britain.

"That by such a measure, admitting the cheap foreign ships, half-paid and ill-fed foreign seamen, of which your memorialists have the most correct personal knowledge, it will reduce, by a competition the lowest in the world, the condition of your memorialists and their families, and strike a fatal blow at their very existence.

"That thus your memorialists will be driven to seek employment in another State, speaking the same language and possessing similar laws, where seamen's rights are carefully attended to, and where thousands of British seamen have already found protection; so weakening your Majesty's empire, and giving additional strength to an already great Maritime competitor.

"Your memorialists, therefore, urgently pray your Majesty to throw your Royal protection around your memorialists and the Commercial Marine of Great Britain, whose predecessors in all ages in time of war and danger your ancestors and this kingdom have ever found their best protection and their greatest glory.

"God bless your Majesty, and counsel you in wisdom. Your petitioners will ever pray.

"Signed in the name and on behalf of the Masters, Mates, Seamen, and Shipwrights of Britain, by their Delegates, assembled in London, this 1st day of February, 1848."—*Naval and Military Gazette.*

Typhoon in the China Sea.

The *Singapore Journal of Commerce*, *Dec.* 1, announces the arrival, under jury masts, of the *Swallow*, Capt. Anderson, from Hong Kong. When in about lat. 19° N., she encountered one of those singular, but destructive phenomena which have buried in the depths of the ocean so many lives. The *Swallow* had a very narrow and providential escape from foundering, passed near the centre of the storm. Lieut. Dowman, and Mr. Burns, surgeon of H.M.S. *Dido*, Mr. Gallagher, assistant-surgeon, of H.M.S. *Bramble*, and Mr. J. O. Sullivan, of the East India Company's Service, were passengers in the *Swallow*, and have borne high testimony to the coolness and intrepidity displayed by Capt. Anderson, during the typhoon, in cutting away the mast, when the ship was on her beam ends, which she was many minutes, but for which they must all have perished. Capt. Anderson has obliged us with the loan of his log book, and with the particulars afforded us thereby, we propose an examination of the typhoon experienced by the *Swallow*. The *General Wood*, Capt. Stoker, was about a degree or more distant from the *Swallow*, and experienced it, but beyond its outer edge.

These two vessels appear to have encountered similar weather up to the night of the 9th of November. Capt. Anderson deceived by a favourable N.E. wind, was carried in the direct track of the storm. On applying the "storm card" of Mr. Piddington to the position occupied by the *Swallow* on the 9th in lat. 18° 40′ N. and long. 113° E. it will be found that the centre of the storm bore about S.E. Now, in Mr. Piddington's "Laws of Storms," it is laid down as a principle, "in November the tracks are from between N.E. to the S. westward and N. westward, evidently varying with the opposing strengths of the monsoon and trade wind, and probably also influenced by the vicinity of land;" as the *Swallow* kept on her course to the S.W., she was running directly in the track of the typhoon, which on the 10th had passed to the south-westward and met the vessel in her course. At this juncture the *Swallow* was near the centre, the latter having passed a little to the S.W. of her, or she probably, would have foundered; she was utterly unmanageable. The mainmast was now cut away, and the vessel righted; but the ship was still carried by the violence of the storm in its track to the westward; since on the 11th (sea time) at 10 A.M., the Island of Tinhosa was observed bearing about N.W. of the ship. The *General Wood*, which was on the 10th to the N.N.W. of the *Swallow*, was on the outer edge or extremity of the storm, with a rapidly falling barometer, observed threatening weather and increasing sea to the E.N.E. and eastward—at this period the *General Wood* was about 80 miles to the N.N.W. of the *Swallow*. On the 10th, at 10 A.M. the *General Wood* being to the N.W. of the storm, experienced a change of wind about the time the *Swallow* having it from the S.W.

and the *General Wood* from E.S.E., and then S.E., as she was running on with a strong breeze in the direction of the typhoon—the storm consequently must have passed over the Island of Hainan. Both vessels appear to have been deceived by a treacherous wind and were running to the S.W. the "*exact course upon which they should have chased the hurricane if they had meant to do so.*"

The size of the typhoon of November 10th, appears to have 150 to 160 miles in diameter. For assuming the *Swallow* at 10 A.M. to have been near the centre, the *General Wood* was about 70 to 80 miles distant, on the northern or north-western limit. We learn from Capt. Burn, of the Atiet Rohoman, that on the 10th of November, he was to the northward of Pulo Supata, with light south-east winds, and a very heavy sea from north and eastward; so that, although, the wind did not effect the Atiet Rohoman, the strongly agitated sea affords evidence that a disturbing influence was in operation to the north and east of the last mentioned vessel.

From the preceding remarks may be gathered the very great importance of mariners paying attention to the law of storms, so beautifully developed by Colonel Reid, Mr. Redfield and others. With Mr. Piddington's Horn Book of Storms at hand, and placing the storm card on the position of the *Swallow* on the 9th (civil time afternoon of the eighth,) it would have been seen that the storm bore to the S.E., and that, as the course of the storm was manifestly to the S.W. or west, the vessel by continuing her course was passing rapidly in the direction of the storm's track, where destruction was almost inevitable; Colonel Reid significantly observes: "In a revolving storm there will be one quadrant in which it will be more dangerous for a ship to scud than in the other three; that being the one in which a vessel driven by the wind would be led in advance of the centre of the storm's track; whilst to scud in an opposite quadrant, would tend to lead a ship out of the hurricane." To the cool seaman-like conduct of Capt. Anderson, the assistance of passengers, and the steadiness and promptitude with which the crew cut away the masts and spars, are all indebted, under providence, for the preservation of their lives, at a time when their position in relation to the centre of the typhoon, threatened certain destruction. — *Hants Telegraph.*

ON THE VARIOUS DESCRIPTIONS OF LIGHTHOUSES, BEACONS, AND LIGHT-VESSELS, *their Construction, and the methods of Illumination employed therein.—By Mr. A. G. Findlay,* M.R.G.S.

Mr. Findlay commenced his paper by alluding to the vast importance to a maritime nation, like England, of having a durable and efficient mode of constructing and illuminating lighthouses, light-vessels, &c., and proceeded to point out the general uses of lighthouses. The oldest structure upon record is the celebrated Pharos of Alexandria, which served as a guide to ancient mariners during a period of nearly 1,600 years. Pliny says, "It was square, of white stone, and consisting of many stories, and diminished upwards, till it attained the height of 547 feet." The most ancient structure known to exist in this country, is the Roman Pharos at Dover castle, and this would still answer its intended purpose, after a lapse of eighteen centuries. The celebrated Cordouan Tower, in the Bay of Biscay, is another instance of stability, having been built in 1611. The Eddystone lighthouse has attracted more of the attention of the public than perhaps any other. The first of these edifices was of wood, and built by Mr. Winstanley, in the years 1696-8; but, owing to the sea washing over the lantern, it was subsequently

raised to a height of 120 feet. In November, 1703, the entire structure was washed away, and in 1706 sanction was obtained for its being rebuilt, which was accordingly done, by Rudyerd, but which was destroyed by fire in 1755. The present tower, one of the artificial wonders of England, and built by Smeaton, is 100 feet high, and has given good proof of its capability of resisting the force of the waves. The Bell Rock lighthouse is a similar structure to the Eddystone; it was built by Stevenson, at a cost of £60,000. The most recent erection of this description is on the Skerryvore rock, which cost £90,700.

The author next alluded to the difficulty of constructing permanent lighthouses in exposed situations, and the advantages of them over floating lights, as well as the much smaller annual expenditure required to maintain an efficient light. The first floating light was the well-known Nore light-vessel, moored in 1734. In order to insure stability in a lighthouse, Mr. Findlay stated that it is necessary that the structure should be capable of affording resistance to a pressure of not less than 6,000 lbs. to each square foot of surface exposed to the action of the waves. This assertion was founded on experiments made by Mr. Alan Stevenson, who ascertained and registered the force of the waves at the Skerryvore rock, on March 25th, 1845, during a westerly gale, when it was found to be 6083 lbs. per square foot; this, the greatest force hitherto registered, was cited with many others. He next proceeded to point out the inapplicability of iron to the construction of lighthouses, where the metal was immersed in sea water, which has the effect of reducing it to a body similar in its chemical properties to black-lead; and instanced the effects produced on a cannon-ball taken from the *Mary Rose*, after having been sunk off Spithead, for a period of 150 years: the iron shot upon being exposed to the air gradually, became red hot, and then fell into a red powder, resembling burnt clay. The author next described the methods which have been suggested for overcoming the difficulty of exposing large surfaces to the action of the force of the waves, and also for obtaining a firmer foundation on a sand, and especially Mr. Alexander Mitchell's screw-pile lighthouse, erected on the Maplin Sand, and Dr. Potts's method of driving piles by atmospheric pressure, as applied at the South Calliper beacon on the Goodwin sands, in 1847, and to other beacons on various shoals at the mouth of the Thames, as on the Blyth sand, and on the shingles in the Prince's channel. Another plan for the erection of lighthouses has been carried into effect at the point of Ayr, by Mr. Walker; it consists in constructing hollow cylinders, which are filled with concrete and then sunk, and from them the piles rise. Capt. Sir S. Brown has also proposed a plan for the erection of lighthouses in deep water, upon bronze standards, and a modification of his plan was adopted by Capt. Bullock. The author further alluded to Mr. Bush's Light of all Nations, and to Mr. A. Gordon's iron lighthouses at Jamaica and the Bermudas, in which the cases are filled with a solid mass of concrete; and alluded to the fact that Rennie had proposed iron for this purpose, as early as the year 1805, for the Bell Rock.

Having thus shown the different methods employed in the construction and erection of lighthouses, Mr. Findlay proceeds to remark on the various plans of illumination which have been employed: of these, the earliest was the coal fire and the Cordouan billets of oak. In 1752, the South Foreland lighthouse, previously illuminated with an open coal fire, was covered with a lantern, with large sash windows, and the fire was kept bright, by means of large bellows; the lantern was subsequently removed, and afterwards, at the commencement of the present century, fifteen large lenses, with separate

lamps were placed in it. In 1790, the only exception to the coal fire was the Eddystone lighthouse, which had a chandelier, with twenty-four wax candles, and the Liverpool lighthouses with oil lamps, and rude parabolic reflectors. An interesting historical fact was then mentioned, viz.: that parabolic reflectors were used at the Liverpool lighthouses (built in 1763), as Mr. W. Hutchinson, in his "Practical Seamanship," published that year, describes the apparatus then in use, the larger reflectors of wood, lined with small pieces of looking glass, the smaller of polished tin: this was the more curious, as it had been claimed by the French for M. Teulere, in 1783, and first used in Scotland, in 1786. The parabolic reflectors, of which some beautiful specimens were shown to the meeting, are now constructed upon the formula of the celebrated Capt. Huddart. Having explained the catoptric or reflecting principle of illumination, which received so great an improvement in the invention of the Argand lamp in 1780, or 85; several other lights were exhibited and described, viz.: the Drummond light, the Voltaic light, and the causes of their inapplicability.

The present mode of lighting is from lamps, constructed on a modification of the Argand principle. A first-order pneumatic lamp, with four concentric wicks, showing a most powerful light, was exhibited. The dioptric principle, in which the rays of light emanate from a central lamp, and are controlled and directed, by a series of lenses, placed before and around it, next occupied attention. The author claims the priority of its suggestion for an optician in London, as mentioned by Smeaton, who proposed, in 1759, to grind the panes of the Eddystone lighthouse in to a sphere of 15 feet diameter. The present form of lens, generally known as Fresnel's, was first suggested by the celebrated Buffon, to whom it is probable the catoptric system owes its origin. Sir David Brewster, in 1811, showed the practicability of constructing a lens of separate pieces, and this was first used in France, by Fresnel, and has since become universal in French lighthouses.

A comparative view of the catoptric and dioptric systems is afforded by the fixed lights of the South Foreland, the higher being from the dioptric principle, and the lower from Huddart's reflectors, which, to a distant observer appear equally bright, the only test of their efficiency. The cata-dioptric principle was illustrated by a beautiful fourth-order apparatus lent by Messrs. Wilkins, in which, above and below the light, a system of totally reflecting prismatic zones is arranged, the suggestion of Mr. A. Stevenson. Mr. Alexander Gordon's cata-dioptric system, a union of the reflector and refractor, was also described. Some particulars respecting the power of light in penetrating mist were also brought forward. During fogs, the attendants of light-vessels, sound a bell at intervals, or, as now used by the Trinity Board, a Chinese gong. Instead of this, Lieut. Sheringham, R.N., proposed, in 1842, to use a whistle, worked by bellows, and Mr. Gordon proposed to place the whistle in the focus of a parabolic reflector, to direct the sound. Mr. Findlay concluded his paper by suggesting the use of Mowbray's chemical whistle, which was exhibited and described.

British Association.

Proceedings of the British Association on the cause of the Aurora, and the Declination of the Needle, *by G. Rowell.*

As the trade winds are caused by the flowing of the denser air from the polar regions to the tropics, the superior trade winds in the higher regions of the air must be from the tropical to the coldest parts of the earth, to keep

up the equllibrium of the air; then, as it is proved by Forchhammer, that more vapour arises from tropical seas than falls there, and that more falls in polar regions than rises in those parts; and as it is proved by the experiments of Volta and others, that whenever evaporation takes place, positive electricity is carried off—it follows that there are electrical currents similar to the currents of air; the vapour, with its electricity, rising in the tropics (thus rendering those parts negatively charged) is carried thence by the *superior* trade winds to the colder parts of the earth, where the vapour falls; and its electricity escaping to the earth, renders those parts positively charged, whence the electricity rushes off along the earth's surface towards the more negative parts of the earth, and is again carried off by the rising vapour. Mr. Rowell ascribes the direction of the needle, to these currents of electricity from the positive to the negative parts of the earth, and the aurora to the interruption of these currents of electricity, by the dry and non-conducting state of the air in the *frigid regions* during *severe frosts* insulating the electricity of the clouds, where it accumulates till it flashes back through the higher and rarer air towards the more temperate regions, thus exhibiting the aurora, and at the same time causing a disturbance of the magnetic needle. The author thinks that many writers have fallen into error in supposing the height of the aurora to be far above the limits of our atmosphere: which error may have arisen from some mistake in their observations, or from some other luminous meteor being mistaken for the aurora; for as the observations of Parry, Franklin, Richardson, and others distinctly prove that the aurora does take place near the surface of the earth, and is in some way connected with the formation of clouds, the arches which are sometimes seen at such great altitudes may arise from totally different causes. He considers that the diurnal variation of the needle tells in favour of the opinion that the direction of the needle is dependent on evaporation; as very early in the morning, when to the eastward of our meridian, evaporation must be at a minimum, the declination is least: the declination then *increases* till about the time when the evaporation must be most rapid, and then decreases, till in the evening, it reaches its medium position; and the fact that the diurnal variation is more than double in summer what it is in winter, tells in favour of this view.

The cause of magnetic poles in this hemisphere he ascribes to the quantities of ice blocked up both in winter and summer in the high latitudes above the two continents, thus causing those parts to be the coldest in this hemisphere, and therefore, the magnetic poles; for, as the density of the air from the frigid regions is the cause of the trade winds, and as the density of the air increases with the degree of cold, it follows that more air must flow from the coldest parts of the earth towards the warmer regions than from any other parts, and, consequently, there must be the greatest flow of the *superior currents* of air from the warmer to those colder parts, thus bringing more vapour and electricity there than to any other parts in this hemisphere. Now if the greatest degree of cold be at the pole of the earth, and evaporation increased regularly thence to the equator, there would then be no declination of the needle, as the electricity would pass off from the coldest or positive parts towards the more negative parts of the earth in the direct lines of longitude; but as the magnetic poles are at a distance from the terrestial pole, and as those parts are more positively charged with electricity than other parts in the same latitude, the electricity must diverge eastward and westward of the direct lines of longitude in passing off to the more negative parts of the earth, and thus cause the declination of the needle.

The author contends that the fact that the aurora did not affect the

needle at Port Bowen, in 73° N. lat., whilst it had great effect at Fort Franklin, in 65° N., tells in favour of his views that the direction of the needle is owing to currents of electricity from the magnetic pole to the more negative parts of the earth, as the American magnetic pole is in 70° N.

Mr. Rowell exhibited a large diagram of the earth from the north pole to 40° N. lat., showing at one view the situation of the American magnetic pole according to Sir James Ross, and the Siberian pole according to Hansteen, the lines of equal intensity from Col. Sabine's maps, the lines of equal temperature from Humboldt, the direction of the needle shown by arrows, &c. By the diagram he showed that, in the meridian of the American pole, the lines of equal temperature descend to a much lower latitude than in any part of this hemisphere, which he ascribed to the polar seas there being land-locked and causing a great accumulation of ice in those regions, both winter and summer, whilst the magnetic force, also, is the greatest in that meridian.

In the meridian of the Siberian pole, the Polar Sea is far more open, the temperature is higher, and the magnetic intensity less. In the neighbourhood of Behring's Straits, where the Polar Sea is open to the Pacific Ocean, the intensity is still less; but in the meridian of London, or rather to the east of it, the line of equal temperature rises to a much higher latitude than in any other part of this hemisphere, the intensity of magnetism is the least, and the Polar Sea is there open from Greenland to Nova Zembla, and the ice formed in those regions is liable at all times to be broken up and dispersed by the storms of the Atlantic Ocean. He considers the magnetic poles not to be mere points in the earth, but extensive districts in the coldest parts and that even mountains, which from their elevation, are continually conducting electricity from the higher regions of the air, must have some local effect upon the needle. He contends that the opinion is erroneous which ascribes the changes of declination to a rotation of the magnetic poles round the pole of the earth; as we have no proof that the magnetic poles in this hemisphere were ever situated otherwise than in the high latitudes above the two continents; and that the change of declination may be fairly explained on the supposition that the American pole has *increased* in strength, or the Siberian pole has *decreased* in strength, and that the line of no variation where the influence of the two poles are equal, has receded during the last two centuries from some point west of England to its present position eastward of St. Petersburgh, thus bringing parts which formerly had an eastward variation to be under the influence of the American pole. He suggests that any geological change which has made the Siberian Polar Sea more open would tend to weaken that magnetic pole; or any change which may have blocked up the American Polar Sea, would increase the strength of that pole. He concludes by again suggesting the experiment of raising electrical conductors, to the height of the clouds in the frigid regions during severe frosts, which he believes would cause the aurora, and also throw some light on terrestial magnetism.

On the Atmosphere of the Moon, *by J. Groby.*

Whether the Moon has an atmosphere or body of air similar to that which surrounds the Earth, has long been a fertile subject of dispute among philosophers, some affirming its existence, and others as strenuously denying it. Some, who take the negative side of the argument, have urged in defence of their opinion, the constant serenity of the Moon's surface, always undisturbed by clouds or vapours, and even the smallest of the numerous

spots or maculæ which crowd her surface being at all times equally visible. This certainly would be a very strong argument against an atmosphere were the assertions on which it is founded to be relied upon. But this does not appear to be the case; for, on the other hand, there are many astronomers who affirm that the Moon is not always equally clear and distinct, Hevelius says, "that he has several times found, in skies perfectly clear, when even stars of the sixth and seventh magnitudes were conspicuous, yet at the same altitude of the Moon, and the same distance from the Earth, and with one and the same excellent telescope, the Moon and its maculæ do not appear equally lucid, clear, and perspicious at all times." He also adds. "From the circumstances of the observation, it is evident that the reason of this phenomonon is not either in our air, in the telescope, in the moon, or in the spectator's eye, but must be looked for in something existing about the Moon, that is (I presume) in the atmosphere." Again, the existence of a lunar atmosphere has been denied, because the stars, in an occultation, when just about to disappear behind the body of the Moon, retain their full lustre till they seem to touch the very edge, and then vanish in a moment, which phenomenon (it is urged) could not happen if the moon were encompassed with an atmosphere. Here, again, the evidence of different astronomers is at variance, one party affirming and the other denying the fact. Nay, even the same individual has sometimes observed both stars and planets to undergo a change, both in brightness, form, and colour, when close to the Moon's limb, while at other times he has perceived nothing of the kind. A third argument against the existence of an atmosphere (and the last I shall notice) is this. If (it is affirmed) the Moon were surrounded by an atmosphere, then the duration of eclipses and occultations ought to be diminished by means of its refractive power, and hence a celebrated French astronomer (in a memoir written expressly on this subject), has endeavoured to demonstrate that, if such an atmosphere did exist, and its horizontal refraction amounted to only 8″, there could never be a total eclipse of the Sun. But (he continues) in the eclipse of that luminary, which happened in 1724, the total darkness continued for two minutes sixteen seconds. Many eminent astronomers concur with the one I have just quoted, in denying that anything like refraction can exist, or has ever been observed to exist about the Moon's atmosphere; others equally eminent assert that they have observed the most unequivocal proofs of it. Both Halley and Euler speak of the evident distortion observable in the Sun's limb in total and annular eclipses. The latter, in particular, says, in the eclipse of the Sun which happened in July, 1748, he observed that when the uncovered part of the Sun resembled the Moon in her quadrature, the horns of the solar crescent appeared to be bent outwards beyond the circle in which every other part of his disk was comprehended; and when the eclipse became annular, the Sun's disk was dilated beyond the circle which formerly embraced it. This dilation was observed at Frankfort, and was estimated by Euler at 25″. Here, then, we have one astronomer observing in a solar eclipse a refraction of 12½″, while another, from his observations, denies that any perceptible refraction does or can exist. From such contradictory evidence, it seems extremely difficult to draw anything like a satisfactory conclusion. The most probable one seems to be this:—That the Moon is surrounded by an atmosphere in some respects like our own, but much rarer; and that it is differently modified by the peculiar circumstances attached to it. For when we consider that from the slow motion of the Moon on its axis the principal part of its surface is exposed to the direct force of the Sun's rays for fourteen and a-half days and nights, without any intermission, and

then, for a like period deprived of them, the one producing a degree of cold beyond anything we can conceive, and the other, a degree of heat sufficient, probably, (if there be water in the Moon), to produce a temporary atmosphere of steam,—have we not every reason to conclude that the atmosphere with which the Moon may be, and probably is, encompassed, is materially different in its constitution and properties, from that which surrounds our own globe, and which may, in some degree, account for the contradictory statements I have just noticed? An annular eclipse of the Sun, presents (I think) the most likely means of obtaining more accurate information on this subject than we at present possess.

New Era in Steam Navigation. — In the *Washington Union*, of January 5th, is a long report from a board of professional engineers and others, appointed by the Secretary of the Treasury, to test an important improvement in the construction of naval steam-engines, the invention of Capt. Ericsson. There appears to be an apparatus called an evaporator, and another a condenser, conveniently arranged amidst the machinery, so as to occupy very little space. By this, the steam, after performing its work, is converted into water, and forced back into the boiler, again and again taking the same routine.

As some of the steam will always be lost by loose joints, the evaporator supplies the deficiency from the element in which the vessel floats, and from this increased supply of steam, the condenser affords any desired amount of fresh water. The whole is said to be complete and perfect, and the following results attained:—

1. A steamer may go to sea, and complete her voyage, without ever having one particle of salt water in her boiler, if she will begin it with fresh water.

2. She need not carry any tanks of fresh water, but can make it from the sea at will; thus saving the space for fuel.

3. Besides the supply for the boiler and culinary purposes, enough fresh water can be made to allow each sailor a bath every day, the supply may be so ample.

4. The fires need never be extinguished to relieve the boilers of salt or mud, as neither salt or mud will ever get in; thus saving fuel.

5. The boiler will require little or no watching; being once arranged, the machinery will do the rest, and keep up the exact supply of pure water.

6. A boiler at sea, especially in the Gulf of Mexico, will last two or three times as long as at present, as no impurities will be admitted there, any more than on the lakes.

7. Nearly one-fifth of the fuel will be saved, as the heat will act on the plates and flues, free of incrustations from salt or mud, and the water from the condenser, while very hot, will be pumped into the boiler.

8. A low pressure engine will answer on the Mississippi and Missouri, as well as on streams of clear water, as the muddy water will be evaporated, the vapour recondensed, and forced into the boilers as clear as crystal.

9. The awful bursting of boilers, so often occurring on the western waters, may be arrested in toto, as the saving of fuel, and the equal adaption of the low-pressure engine will induce its substitution in lieu of the powder magazines, as the engines now in use may be called.

10. The oil used around the piston of the cylinder, and the rust on the boiler, may impart a little of their taste at first to the steam and water; but a very simple filter will make it as pure as when distilled in the chemist's laboratory.—*Hants Paper.*

The Discovery of Coal at Vancouver's Island.

The *Times* having noticed the important discovery of coal in Vancouver's Island, a specimen of which was brought home by the *Cormorant*, which she had been able to procure at 4s. a ton, while at Valparaiso a ton of British coal was considerably higher; the following interesting particulars, as to the locality of this treasure, are extracted from the same journal:—

"On the north and east side of Vancouver's Island, a recently discovered river debouches into Johnstone's Straits, near the mouth of which large seams of coal crop out on the surface of the soil. At the point, the trading steamer of the Hudson's Bay Company navigating the Straits of Juan de Fuca, obtains ready and plentiful supplies, which are put on board by the Indians at a mere nominal price. Mr. Dunn, who was a trader and interpreter in the Hudson's Bay Company's steamer *Beaver*, gives an interesting account of the discovery of this coal. He states—'The cause of the discovery' (of the coal) 'was as curious as the discovery itself was important. Some of the natives at Fort M'Loughlin having, on coming to the fort to traffic, observed coal burning in the furnace of the blacksmiths, in their natural spirit of curiosity made several inquiries about it; they were told that it was the best kind of fuel, and that it was brought over the great salt lake six months' journey. They looked surprised, and in spite of their habitual gravity laughed, and capered about. The servants of the fort were surprised at their unusual antics, and inquired the cause. The Indians explained, saying that they had changed in a great measure their opinion of the white men, whom they thought endowed by the Great Spirit with the power of effecting great and useful objects, as it was evident they were not then influenced by his wisdom in bringing fuel such a vast distance, and at so much cost. They then pointed out where it could be found, of the richest quality, close to the surface, rising in hillocks, and requiring very little labour to dig it out. This intelligence having been reported at Fort Vancouver, we received instructions to make the necessary inquiries and exploration. Mr. Finlaison and part of the crew went on shore, and after some inquiries, and a small distribution of rewards, found from the natives that the original account—given at Fort M'Loughlin—was true. The coal turned out to be of excellent quality, running in extensive fields, and even in clumpy mounds, and most easily worked, all along that part of the country. The natives were anxious that we should employ them to work the coal. To this we consented, and agreed to give them a certain sum for each large box. The natives being so numerous and labour so cheap, for us to attempt to work the coal would have been madness.' It is earnestly to be hoped that this rich and valuable deposit may ere long be brought within the reach of the fast increasing number of our steamers on the west coast of America and the Pacific."

Astronomy.—*Colour of the Stars.*—Some undefined circumstances in the constitution of the celestial bodies produces the effect of their exhibiting not only a different degree, but a different kind, of lustre. Their light is by no means uniform; the ray of Sirius differs not merely in intensity, but in kind, from that of Vega: that is perceptible in this country, but in those favoured regions where the atmosphere is more pure, where less of humidity and haze exist, the difference is striking, even to the naked eye; "one star differing from another in glory." One star shines as an emerald, while another glows

as a ruby, adorning the winter's sky with a rich variety of sparkling gems, differing not more in size than they do in hue or brilliancy. This circumstance of variation of colours characterises the double stars; and it is remarkable, that sometimes when one of these stars is of one marked colour, its companion is of another. There are many instances in which a red and green star are associated, or a yellow with a blue. This may be the result of optical delusion, when the stars are of different degrees of brilliancy; as the eye has a tendency, when gazing on any bright colour, to endow fainter objects near it with the opposite colour as a relief; but this is not always borne out, as many instances occur in which couples, in precisely similar situations, display no such contrast. Sir John Herschel was at first inclined to the opinion that a diversity of colour did inherently exist in each star; but he has subsequently appeared more inclined to attribute the phenomenon to some circumstances connected with the beholder.

Loss of a Whaling Ship, and Horrible Murder of her Crew.—Letters have been received at Lloyd's, dated Sydney, Aug. 17, communicating the total loss of the barque *British Sovereign*, a whaling ship, Capt. W. H. Jones, master, on the eastern side of the Sandwich Islands, and the reported horrible massacre by the natives of nearly the whole of the ship's crew. The intelligence of the appalling affair was brought to Sydney on that day (Aug. 17) by the ship *Isabella Anna*, from New Hebrides, the master of which reports as follows:—"On the 10th of May last, the *Isabella Anna*, whilst beating into the harbour on the north-west side of the Sandwich Islands, observed a man swimming in the direction of the vessel from the shore. She was hauled to, and he was picked up, when he made a statement which at first excited suspicion of doubt, but, from subsequent circumstances there is much reason to fear that it is perfectly correct. He stated his name to be Thomas Weir, a native of Dundee, and was one of the crew of the whaling ship *British Sovereign*, which had been wrecked, and he feared he was the only one who had escaped, all hands having been murdered by the natives of the island."

The Avenger.

The court-martial on Lieut. Rooke, and his three surviving companions, from the ill-fated *Avenger*, took place at Malta, on the 31st of January; Rear Admiral, Sir Lucius Curtis, Bart., President. A narrative of all the circumstances connected with the lamentable event was put in by Lieut. Rooke, and read, and after the examination of that officer, the court delivered the following sentence:—

"The Court, after having the narrative of Lieut. Rooke read, and the evidence adduced, are of opinion that, the *Avenger* was wrecked on a reef of rocks, about ten o'clock on the evening of the 20th of December last, but there is not sufficient cause shown in the evidence to account for the accident. No blame is attached to Lieut. Rooke, or the other prisoners, and they are fully acquitted. The Court consider the conduct of Lieut. Rooke to have been proper in lowering the cutter, as he was acting in obedience to orders given. The Court consider the conduct of Lieut. Rooke in laying off the ship to save the lives of any who might seek safety, and his persevering efforts for the same object, in returning to the vessel from Tunis, to have

been most praiseworthy and humane. The Court cannot separate without expressing their warm approbation of the conduct of Mr. Larcom, throughout the trying scene. The Court warmly eulogise the humanity of the Arabs, who assisted the sufferers on their reaching the land. The Court have very considerable doubts if the *Avenger* had the Admiralty charts of the Mediterranean on board.* The Court fully and entirely acquit the prisoners.

"The President, calling Lieut. Francis Rooke, thus addressed him:—'Lieut Rooke,—It is needless for me to make any comment, after the expression of the opinion of the Court you have just heard read, and I have the greatest pleasure in returning you your sword.'"

* From the above remarks, our readers would be led to infer that the ill-fated ship, and so many valuable lives were lost from there being "no charts on board for the Mediterranean station, at the period of her being wrecked." While we cannot but deeply enter into the state of mind that possessed the unfortunate sufferers at the cry "Oh God! Oh God! we are all lost!" when she struck; and truly sympathize with the hundreds of surviving relatives; yet, the authorities must be exonerated from any neglect on their part; we, therefore, take the opportunity of making public, that the *Avenger had the requisite charts on board, at the time she left Gibraltar*, for which assertion we are authorized to print the following:—

"*Gibraltar Yard, 14th December*, 1847.

"Received from Capt. the Hon. George Grey, naval officer, a box of charts for the Mediterranean station, No. 33, for the use of Her Majesty's steamship *Avenger*.

"(Signed)

"CHARLES G. E. NAPIER, *Captain*."

We have had no opportunity since the melancholy event, of offering our assistance towards receiving subscriptions for the relief of the widows and orphans of the sufferers. Such urgent appeals from our contemporaries have gone forth, and not in vain, that nothing is left for us but to tell our humane countrymen that, by this sad event, hundreds of their fellow beings have lost husbands, fathers, brothers, and friends, on whom they depended for the necessaries of life. We now offer our humble aid in receiving any contribution that may be added towards their relief; "If thou hast much, give plenteously; if thou hast little, do thy diligence gladly to give that little; for whatsoever thou layest out, it shall be paid to thee again."

We request that all contributions may be addressed to the Editor of the *Nautical Magazine*, 21, Poultry, London.—ED.

UNITED STATES NAVY.

Vessels in Commission on the 1st November, 1847.

Ships of the Line.—The *Columbus* and *Ohio* Pacific squadron. *Pennsylvania*, Norfolk, receiving ship. *North Carolina*, New York receiving ship. *Franklin*, Boston, receiving ship.

Razee.—The *Independence*, Pacific squadron.

Frigates.—The *United States*, African squadron. *Congress*, Pacific squadron. *Brandywine*, Brazil station. *Cumberland*, Gulf of Mexico.

Sloops of War.—The *Saratoga*, Gulf of Mexico; *John Adams*, Gulf of Mexico; *Albany*, Gulf of Mexico; *Germantown*, Gulf of Mexico; *Portsmouth*, Pacific squadron; *Jamestown*, African squadron; all first class. *Warren*,

Pacific squadron; *Cyane*, Pacific squadron; *Ontario*, Baltimore, receiving vessel; all second class. *Decatur*, Gulf of Mexico; *Preble*, Pacific squadron; *Dale*, Pacific squadron; *Marion*, Mediterranean; all third class.

Brigs.—The *Boxer*, African squadron; *Dolphin*, African squadron; *Perry*, Brazil station; *Porpoise*, preparing for service; *Washington*, coast surveying; *Bainbridge*, preparing for service.

Schooners.—The *Flirt*, Gulf of Mexico; *Bonita*, Gulf of Mexico; *Petrel*, Gulf of Mexico; *Reefer*, Gulf of Mexico; *Experiment*, Philadelphia, receiving vessel; *On-ka-hy-e*, Brazil station; *Taney*, Mediterranean; *Walter M.*, Pensacola; *Wave*, coast survey; *Nautilus*, coast survey; *Phœnix*, coast survey.

Bomb-gun Vessels.—The *Vesuvius*, Gulf of Mexico; *Hecla*, Gulf of Mexico; *Ætna*, Gulf of Mexico; *Stromboli*, Gulf of Mexico.

Ordnance Transport.—The *Electra*, Gulf of Mexico.

Steamers.—The *Mississippi*, Gulf of Mexico; *Princeton*, Mediterranean; *Michigan*, on the Upper Lakes; *Alleghany*, preparing for the Mediterranean; *General Taylor*, Pensacola; *Engineer*, Norfolk; *Spitfire*, Gulf of Mexico; *Vixen*, Gulf of Mexico; *Scourge*, Gulf of Mexico; *Scorpion*, Gulf of Mexico; *Waterwitch*, Gulf of Mexico; *Iris*, Gulf of Mexico.

Store Ships.—The *Erie*, Pacific squadron; *Lexington*, Pacific squadron; *Southampton*, Pacific squadron; *Relief*, Gulf of Mexico; *Supply*, Mediterranean; *Fredonia*, Gulf of Mexico.

Recapitulation.—5 ships of the line, 1 razee, 4 frigates, 13 sloops, 6 brigs, 11 schooners, 4 bomb-gun vessels, 1 ordnance transport, 12 steamers, 6 store ships.—Total 63.

Statement of Vessels which were in Ordinary on the 1st of November, 1847. —*Constitution*, frigate; *Falmouth*, sloop, 2nd class; *Yorktown*, do., 3rd do.; *Fulton*, steamer; *Savannah*, frigate, 1st class; *Plymouth*, sloop, do.; *Vincennes*, do., 2nd class; *Macedonian*, frigate, do.; *Delaware*, ship of the line; *Potomac*, frigate, 1st class; *Raritan*, do. do.; *St. Lawrence*, do. do.; *Columbia*, do. do.; *Constellation*, do., 2nd class; *Fairfield*, sloop, do.; *Vandalia*, do. do.; *St. Louis*, do. do.; *Levant*, do. do.; *St. Mary's*, do. do.; *Union*, steamer; *Austin*, sloop.

Recapitulation.—1 ship of the line, 8 frigates, 10 sloops of war, 2 steamers. —Total, 21.—*New York Express.*

PHENOMENA OF LIGHTNING.—Whenever the atmosphere is rendered arid by excessive heat, a very considerable quantity of vapour is absorbed into it, the clouds thereby formed are consequently very highly charged, and have a very dense black appearance; sailing slowly along by the wind, they absorb into them all the lighter clouds, increasing until they have spread over almost the whole of the heavens. Thus an approaching thunder-storm is usually indicated by heavy clouds advancing in one direction, meeting and absorbing into them thin filaments of light clouds that are scattered about. When a cloud thus formed, passes one negatively electrified, the fluid rushing out of it separates the air, ignites, and forms a flash of lightning; the air collapsing again after its passage, causes the rumbling noise called thunder. When the air is strong and much agitated, and the passage of the fluid meets with great resistance, it flies about in a zigzag form, which is known as forked lightning.—*Sharpe's London Magazine.*

Nautical Notices.

Waterford, February 10th, 1848.

Sir,—Having observed in the *Nautical Magazine* for November, 1847, a letter from Mr. Leighton, of the barque *John Hutchinson*, calling attention "to the omission (on the Admiralty Chart of Penedos and the entrance of the Dardanelles, 1840) of a long spit, with two fathoms water on it, extending from the shore about a mile to the westward of Kephiz point, and requesting it might be rectified and strangers guarded against its omission."

The survey of this part of the Dardanelles having been entrusted to me by Capt. Graves, I may state, that no pains were spared in defining the extent of this shoal; which, on reference to the Chart, you will perceive is laid down, though not extending so far from the shore as Mr. Leighton supposes, or as it is represented on the Chart of the Sea of Marmora and Dardanelles, quoted by him.

The peculiar nature of the locality renders it difficult to *estimate* distances correctly. I think, however, that a closer examination of it on a future voyage, will enable Mr. Leighton to bear the same gratifying testimony to the fidelity of this, that he has already given to the other portions of the Chart.

I am, Sir, &c.

To the Editor N.M. R. Hoskyn (*Master*), R. N.

Trinity House, London, 5th February, 1848.

Wreck off Mundsley. Notice is hereby given, that a Green Buoy, marked with the word "Wreck," has been placed 5 fathoms to the N.E. of a vessel sunk in the track of shipping off Mundsley. The Buoy lies in 7 fathoms at low water spring tides, about $1\frac{3}{4}$ miles from the shore, and with the following compass bearings, viz.:—

Mundsley Church	W.b.S.
Bacton Church	S.b.W. $\frac{1}{2}$ W.
Haisbro' Church	S. $\frac{1}{2}$ E.

By Order,

J. Herbert, *Secretary*.

Trinity House, London, 8th February, 1848.

The following notice having been communicated to this Corporation by direction of the Right Hon. the Lords Commissioners of the Admiralty, the same is reprinted by Order of this Board for general information.

J. Herbert, *Secretary*.

"*Hydrographic Office, 17th January*, 1848.

"Revolving Light on the North Point of Corsica.—*(Communicated by the French Government.)*—On the 1st of this month a Revolving Light was exhibited on the Isle of Giraglia, off the north extremity of Corsica, in lat. 43° 1′ 45″ N. long. 9° 24′ 17″ E. of Greenwich. It is elevated 72 feet above the ground, and 269 feet above the sea, and is visible at the distance of 27 miles. The eclipses take place every half minute, but do not appear total within the distance of 10 miles."

Trinity House, London, 14th February, 1848.

BLYTH SAND.—The Beacon upon the western end of the Blyth Sand in the River Thames having been carried away, notice is hereby given, That a Black Buoy marked "West Blyth," has been placed close to, and on the outside of the remains thereof, and will be kept there until the Beacon is re-instated.

The Buoy lies in 2 fathoms at low water spring tides, with the following mark and compass bearings, viz.:—

Pitsey Church on the body of the Thames Haven Cottages . N N.E. ½ E.
Eastern Blyth Beacon . . . . . E.b.S. ¾ S.

By Order,

J. HERBERT, *Secretary*.

FASTNET ROCK LIGHT.—COAST LIGHTS.—We have the pleasure to announce that the prayer of the memorial from the Harbour Board, mercantile community, and other inhabitants of the county and city of Cork, has so far been complied with, that an officer from the Ballast Board has been sent down to Crookhaven, for the purpose of superintending the removal of the Rock Island Light, and the substitution of a light on the Fastnet for that of Cape Clear.—*Cork Southern Reporter*.

CAUTION TO MARINERS.—The following notice has been posted in the Liverpool Underwriters' Rooms:—"John M. Gilchrist, master of the brig *Jewess*, of Liverpool, reports that on his passage from Bahia, on the 1st of January, 1848, at about half-an-hour after noon, in lat. meridian altitude of the sun that day, 23° N. and long. 24° 28′ 30′ W., by forenoon and afternoon sights for a chronometer, which on making Madeira, and arrival at Gibraltar, proved correct, saw at about a quarter of a mile distant bearing S.E.b.S., by compass, something which at first appeared to be fish sporting in the water, but upon taking the glass and looking at it, appeared like a flat rock just awash with the water. Being on short allowance of water at the time prevented him from getting out a boat and examining. As the Josyna Rock, by some considered doubtful, but said to have been seen in 1805, is supposed to be situated somewhere thereabouts, this notice may serve to put mariners on their guard.—N.B.—A brig at a short distance, which was running, appeared to haul to wind several points for about half an hour, and then continued her course.

NOTICE FROM THE CONSULATE OF HAYTI.—The following intimation has been issued by the Consul in London for the Haytian Republic, and is posted at the North and South American Coffeehouse:—"Notice is hereby given that, according to instructions received from the government of the Republic of Hayti, all manifests, certificates, &c., &c., of every ship, vessel, or steamer bound for any port of Hayti, will have to be presented at the office of the Consul here, to be viséd, with a copy of the same attached, to be left, and that, should the above regulations not be complied with, such ship, vessel, or steamer will be made liable on arrival, and subject to a fine."

REPORT OF THE BARQUE BELLHAVEN, GILKISON.—*Sand-bank at the entrance of the China Sea.*—"I beg leave to forward an extract from the *Bellhaven's* log of the 3rd of October, concerning the position of a sand-bank at the entrance of the China Sea, not laid down in Norie's charts, nor mentioned in *Horsburgh's Directory*. It is not in the fairway either for the Caramatta passage, or Gaspar's Straits; still vessels may be carried near it, as we were, with light variable winds and uncertain currents:—"October 3, A.M.—Squally weather with variable winds, much lightning, thunder and heavy rain. 9 A.M. calm, with drizzling rain; finding the current setting westward, at the rate of a knot per hour, brought up with kedge in 20 fathoms. At 11 A.M. the weather cleared up, when we saw a low sand-bank bearing west by north, distant about two miles, extending about a cable's length north and south, which is probably covered at high tide. We made it in lat, 2° 35′ S., long. 108° 19′ E. At noon a breeze sprung up at south, with which we stood away for the Caramatta passage.—August 13.—H.M.S. *Espiegle* was at Woosung on her way to buoy the north sands at entrance of Yangtsae Keang."

Trinity-House, London February 9th, 1848.

HARWICH HARBOUR.—Notice is hereby given, that, with the object of facilitating the entrance of vessels into "Harwich Harbour," in the night time, lights, as hereinfter described, will on and after the evening of this date be exhibited from the lower part of the High Light-house.

Masters of vessels, and other persons, who may be desirous of entering "Harwich Harbour" in the night time, are, therefore, to observe, that having reached the Rolling Grounds with the High Light open to the westward of the Low Light, as heretofore, a Red Light will become visible in the lower part of the High Light-house, and will so continue until the course between the Beach End and Cliff Foot Buoys is open to them, when the said light will become bright and without colour, bearing by compass N.N.W. ¼ W., and being kept in sight, will lead through the said entrance, until they have passed Languard Fort, when the usual change of course to the northward and eastward for the anchorage will be requisite.

The Light will also appear Red immediately after vessels have passed to the south-westward of the White Light, so that by tacking whenever the Red Light on either hand comes into view, they may readily and with certainty maintain their proper course in by the White Light, until they have passed Landguard Fort, as before stated.

The foregoing is to be regarded as a temporary arrangement only, pending the adoption of such further measures as circumstances may hereinafter render advisable.

By order,

J. HERBERT, *Secretary.*

British Consulate, Granville, February 1st, 1848.

SIR.—I have the honour to inform you that, it has been represented to me, in this Consulate, particularly at Cherbourg, that various British merchant vessels have arrived without a manifest: which, with cargo, they ought to have signed by the captain, and if in ballast, make a return of provisions on board on their arrival.

In consequence of which omission, or of not specifying any merchandise on board, therein, they have been seized by the French Custom-house, become liable to have the goods seized not so enumerated therein, and a

fine, which may amount to one thousand francs, independent of delay.

Fishing boats should have a license, specifying the description, tonnage, names of the owner and master.

I have to request you will be pleased to cause owners and masters of British vessels, to be warned of the penalty they incur, by entering into a French port, or even approaching the French coast, within four leagues, without such manifest or fishing license, as the French Custom-house have notified their intention of henceforth enforcing the law on this point.

(Signed) JOHN TURNBULL,
British Consul and Lloyd's Agent.

To W. Dobson, Esq., Secretary, Lloyd's.

LOS ROQUES.—Information has been received from Her Majesty's Consul at La Guavra, that the Columbian Government intend to erect a light-house on the "Los Roques," about seventy-two miles N.N.E. of La Guayra, respecting which, notice will hereafter be given.

TIDAL HARBOURS.

The following important communication from the Admiralty to the Conservators of the River Tyne was read on Wednesday last, at the Quarterly Meeting of the Town Council of Newcastle:—

"*Admiralty, January 18th*, 1848.

"SIR,—I am commanded, by the Lords Commissioners for executing the office of Lord High Admiral, to acquaint you that their lordships have taken into consideration the importance of a more accurate supervision of the harbours of this country, with a view to their preservation and improvement, and have seen fit to establish a department of the Admiralty through which it is intended that all matters which regard the tidal waters and navigable rivers of the United Kingdom, shall be brought to the notice of their lordships, and placed upon record, for the purpose of assisting their lordships in the exercise of that jurisdiction which they hold, for the public benefit, over these waters and rivers.

"Their lordships are persuaded that, in the pursuit of this object, they will meet with cordial and cheerful co-operation on the part of the commissioners, trustees, or other authorities, to whom the local jurisdiction of the several harbours may have been confided; and they have desired me to address you for the purpose of obtaining the advantage of such co-operation.

"The first step proposed to themselves by their lordships is that of procuring an accurate report of the present condition of each harbour; good charts of its waters; accounts of its tide and approaches, and of its commerce; of the dues and other sources of income raised; of the expense of maintenance, and of the works in progress, or in contemplation; abstracts of the acts and charters by which it is governed, and the constitution of the governing body; and any statistical or other interesting information which may regard it.

"Secondly, Their lordships desire to trace back the history of each harbour, and of the changes which have taken place, by physical causes, or by encroachments or improvements; and to be put into possession of copies of any ancient maps or charts which bear upon these changes.

"Thirdly, They wish to be apprised of any changes or improvements which are contemplated, or of any encroachments or danger of injury which may be apprehended. They hold it to be of very great importance that, for every harbour, lines of embankment and limits of the areas of waters should be

exactly laid down, beyond which no encroachment should, on any account, be permitted, and up to which every improvement should be advanced.

"It is most desirable that such prospective plans should be upon record, and that from year to year, some means of supervision should be established, by which the Admiralty may be kept informed of the progress of any change that may be caused by physical or artificial means; and as the influence and authority of the Admiralty will readily be exercised to prevent injury and to promote improvement, so they look for the co-operation and assistance of the governing bodies, in procuring for the present, and in carrying on for the future, that information of which, for the public good, it seems to be so essential that records and registers should be kept.

"It will be for their lordships to consider, later, whether it may not be necessary to apply to parliament for extended powers for the attainment of these objects. For the present they would merely request from you a reply to this circular, and information as to the extent to which the local authorities may be able, as my lords are assured that they will be willing, to forward its objects.

"I am, Sir, your obedient servant,

"H. G. WARD.

"*To the Secretary of the Harbour Trust, at Newcastle-upon-Tyne.*"

—*Gateshead Observer.*

THE CASE OF BURON v. DENMAN.

This remarkable case, which has been depending for a considerable period, commenced in the Court of Exchequer on Monday last, and terminated on Wednesday. The declaration stated that M. Buron, not being an English subject, was possessed of certain slaves, goods, effects, bills of exchange, &c., and that the defendant, Capt. Denman, whilst the chattels, &c., above enumerated, were out of the dominions of this kingdom, seized, took, and carried them away. The second count alleged that Capt. Denman burnt, damaged, and destroyed articles and goods similar to those mentioned in the former count, but did not represent them to be out of the kingdom. The damages were laid at £180,000. Capt. Denman pleaded *Not Guilty;* and a trial at bar was demanded, the Crown thereby taking the defence upon itself.

The Gallinas are a group of islands, at the mouth of a river of the same name, and at a distance of about 160 miles from Sierra Leone. Those islands are governed by King Siacca, who is assisted in his regal functions by his son Prince Mauna, and by a native family of "Goat Men," bearing the common name of Rogers.

In the year 1840, it came to the ears of Sir R. Doherty, governor of Sierra Leone, that Prince Mauna had detained for a pretended debt, a woman named Try Norman, and her child, both subjects of the Queen of England. The fact was thus conveyed in an official letter to King Siacca:—

"Your son Mauna has seized a woman named Try Norman, whom he formerly knew as a servant to Mrs. John Grey, in Freetown, and keeps her and her child, who was born in this colony (Sierra Leone), prisoners, and says, he will not give them up unless he gets a debt paid, which he says Mrs. Grey owes him. Now, he must give them up at once to Capt. Denman, and you must order, and cause him to do so; because, if you do not, the governor has written to Capt. Denman, to ask him to assist this government in taking them by force; and you must know what the consequences will be then. In fact, it will simply be this—that the Governor and Captain will level to the ground every town and house you have, and every establishment in the Gallinas."

Capt. Denman, was at that time the officer commanding a British squadron, which was blockading the mouth of the Gallinas, in consequence of the immense extent to which certain Spaniards carried the slave trade, and likewise, on account of certain injuries received by British subjects from King Siacca and his people. Accordingly, in pursuance of orders received from Sir R. Doherty, Capt. Denman passed the bar of the river with the boats of H.M.S. *Wanderer*, and "not only procured the surrender by King Siacca of the Sierra Leone woman and child, but concluded an agreement with that chief in the name of Her Majesty, by which, in the consideration of the injury done him, and the danger into which he had been brought, as Sovereign of the country, by the unfriendly and insolent proceedings which the Spanish slave-dealers had permitted themselves to adopt within his territory, towards the power of England, King Siacca consented to the total destruction of the slave factories of those strangers, and the delivery to Capt. Denman, for location in the colony of Sierra Leone, of all the slaves imprisoned in them, with all the chains, shackles and bar iron employed in chaining those persons and forging their chains, and whatever boats and canoes were made use of for the purpose of their embarkation in slave ships."

This tremendously lengthy sentence expresses the nature of the treaty entered into by Capt. Denman, with Prince Mauna and the Rogers' on behalf of King Siacca, who was bed-ridden at the time; and, in consequence of this convention, the Captain proceeded up the river, burnt the barracoons, liberated the slaves, and adopted such measures as appeared necessary to suppress the odious traffic in that quarter. Sir R. Doherty, in a letter to Lord Aberdeen, containing a statement of these facts, thus speaks of Capt. Denman:—

"It is not necessary that I should make much comment on the transactions. One opinion only, as it appears to me, can be entertained respecting the decisive measures adopted by Capt. Denman; nor does it seem possible, in any view of the subject, to estimate too highly the service which that very intelligent and active officer has rendered by them to the cause of the suppression."

The fact was, that the Gallinas were the most celebrated mart and strong hold of Spanish Slave Trade on the whole line of the African coast. We now come to the immediate cause of the trial which has engendered the present article.

M. Buron was a Spanish merchant, trading at the Gallinas, and many of the barracoons destroyed and slaves liberated, belonged to him; and he now sought recompense for the injury and loss he had sustained. Mr. Hill, who appeared as principal counsel for the plaintiff, contended that the defendant, Capt. Denman, was not justified by any treatise, nor by any instructions from the government at home, to adopt the violent proceedings he had carried into effect.

Mr. Hill sought to show that Capt. Denman had taken too much upon himself, and had acted an illegal part, and that M. Buron's property was beyond the jurisdiction with which any treatise, rights of search, or instructions, could possibly invest a British officer. The pleas put in by the defendant, and which proved the basis of the Attorney-General's speech in his behalf, were to the effect, that M. Buron was a Spanish subject, and that Spain had made a treaty with England abolishing the slave-trade; that by the law of the Gallinas, the slave-trade, without the consent of the King, was prohibited, and that M. Buron had no such consent; that Capt. Denman had set the slaves free by the authority of King Siacca, who was an absolute and despotic Prince; that the said slaves were born free in Africa,

and held in slavery by the plaintiff (M. Buron,) in a country not subject to English, Spanish, or any other laws, and that, to prevent the transportation of the slaves to the West Indies, the defendant (Capt. Denman,) set them free.

The principal point insisted upon by the Attorney-General, was, that M. Buron had ample time to learn the existence of the treaty under which Capt. Denman acted; and he stated, and called witnesses to prove, that immediately after the signing of this treaty, all the goods were removed from the factories, either by the Spaniards or the natives, before the storehouses were destroyed; so that the pretence that they were full of property had no foundation whatever in fact. "This done, the slaves to the number of 900, were taken on board the ships, the chiefs being as good as their word, and the whole establishment of the Spaniards entirely demolished, they, themselves, soliciting the defendant to allow them a passage to Sierra Leone from the place which they had polluted with their abominable practices."

Baron Parke summoned up, leaving it to the Jury to state whether Capt. Denman had acted of his own accord, or whether he acted under the instructions of Prince Mauna and the other Chiefs, and in pursuance of the treaty.

The Jury returned a verdict for the defendant; and thus the atrocious traffic in human beings has received another and signal blow.

New Books.

STEAM WARFARE IN THE PARANA: *A Narrative of Operations by the Combined Squadrons of England and France, in forcing a Passage up that River.—By Commander Mackinnon, R.N.* 2 Vols.—Ollier: London.

These are two very pleasant little volumes. They relate, in an off-hand sailor-like style, important war operations by steam, the accounts of which lived only in the newspapers of the day, including, of course, the *London Gazette*.

The author, with a very laudable determination of "pencilling by the way," the important events in which he was going to take a prominent part, commences his diary with the beginning of his voyage, and continues it throughout the campaign in the Parana. This includes two trips up that river as far as Corrientes (about one thousand miles of navigation), several actions on its banks, and a trip up the Uruquay.

So much service must necessarily include much personal adventure, and selected as the author was, as the bearer of despatches, gave him the opportunity of seeing much more than any of his brother officers; he makes good use of his eyes, and, naturally of an inquiring disposition, he collects a considerable stock of information on the habits of the people he found, and the wonderful resources of their country, all of which, with the account of the warfare going on, form the very interesting little work before us.

A few pages of introductory matter, very judiciously prefixed to the journal, places the reader at once in possession of the state of affairs which led to the expedition on which the *Alecto* was employed, and in which vessel the author served as lieutenant.

Some very valuable notes, translated from a Spanish MS. which fell into the author's hands, throw considerable light on the various tribes of native Indians in the country, and their habits; and will serve, with the author's observations on the extraordinary resources of those fertile regions, to perpetuate the work as a useful reference to the merchant as well as the general reader.

THEORY AND PRACTICE OF SHIPBUILDING.—Johnstone, 26, Paternoster Row, and 15, Princess Street, Edinburgh.

This subject is one that is open to such lengthened argument, that it is a difficult task to venture an opinion. All reflecting minds, however, will give due consideration to remarks offered, with the view of promoting the furtherance of this important branch of science. The repute which Mr. White has earned for himself in the science of shipbuilding, will entitle his work to the consideration of all who may be interested in this truly national subject, and those who have given it any reflection, or made it a study, will be pleased to see the rules Mr. White has laid down, and gladly give his book, which is accompanied with large diagrams, illustrative of his designs, a welcome.

There are two suggestions (in chapter 3), to which we would call the reader's attention, and which, if found praticable, will much simplify this truly noble art:—the first is, the "*sailing vessels on an even keel*," and the second and most important, is the "*building all vessels designed for the same service on the same draught.*"

A deviation from the first of these principles, Mr. White considers "an absurdity that can plead nothing in its favour but custom," and an adherence to the second he believes to have been already so fully justified in practice, as to plead for its further, if not its universal adoption.

With these remarks, then, we have much pleasure in introducing this important work to the public, and in strongly recommending it to the notice of all shipowners and builders.

We have received a very spirited and highly finished tinted engraving of H.M.S. *Meander*, from the pencil of Mr. Dutton. It reflects much credit on the talented artist, and is worthy a place in the portfolio of every lover of the Fine Arts.

NOVEL LIFE PRESERVER.

We have, of late years, seen many belts and apparatus, professing to be life-preservers, but certainly, none that will bear a comparison with AYCKBOURU'S FLOAT, which has recently been introduced to public notice; recommended by the most flattering testimonials of naval officers, pilots, yachtsmen, and swimmers, the best judges of the merits of such an article.

The points in which it differs from, and excels all rivals, are almost innumerable; amongst them we observe that, it is no bigger than a handkerchief, can be worn under, or in a coat, jacket, guernsey, or cloak, and, is, consequently, quite invisible, and not the slightest hindrance to those having work to perform; it weighs only six ounces, cannot burst, and is prepared in a moment. It likewise forms, if required, a capital life-buoy, and is the best possible instructor for those learning to swim. As an additional recommendation to preference, its price is a dozen shillings only; the inventor resolving to place it within the reach of all classes.

We quite agree with him in the remark that, the lives of ladies travelling and yachting, are equally worthy of preservation, as their more robust companions, but it must be allowed, that in the moment of danger, the former labour under the greatest disadvantages, unless, indeed, they have wisely provided themselves, beforehand, with a FLOAT, which we cannot too strongly recommend them to do.

PROMOTIONS AND APPOINTMENTS.

FLAG OFFICERS.—The following promotions have taken place, consequent upon the death of Rear Admiral Pringle Stoddart:—Rear Admiral of the Blue Cuthbert Featherstone Daly, C.B., to be Rear Admiral of the White.—Capt. Hon. George Alfred Crofton (1812), to be Rear Admiral of the Blue, *vice* Daly.

The following promotion has taken place, consequent upon the death of Rear Admiral the Hon. J. W. King:—V. F. Hatton, to be Admiral of the Blue.

PROMOTIONS.

CAPTAINS.—R. Sharp (1826)—T. Harvey (1840)—W. Loring (1841)—W. Brown from the retired list of 1830 to the retired list of 1816—G. K. Wilson Sir William Hoste, Bart.

COMMANDERS.—C G. Phillips (1833)—T. Etheridge (1840)—H. Need (1841)—T. Kisebe, W. T. Bate, W. C. Barker (retired).

MASTER.—H. T. Ellis—G. H. Forster.

PURSER.—W. C. P. Grant.

ASSISTANT SURGEONS.—H. Edmonds—T. S. Wells—W. B. Fegin.

APPOINTMENTS.

CAPTAINS.—Sir James Clark Ross (1834) to command the expedition (*Enterprise* and *Resolution*) in search of Sir John Franklin—M. T. Austen to *Blenheim*—T. Bennett (1828) to *Imuam*, at Jamaica, as second in command on that station—J. Drake (1835) to study at the Steam Factory, Woolwich.

COMMANDERS.—H. Caldwell to *Powerful*—J. Cammilleri to Chatham Ordinary—J. M. Hayes to *Champion*—W. R. Mends to *Vanguard*—F. E. Johnston to *Scout*—J. B. Dixon to *Caledonia*.

LIEUTENANTS.—H. G. Veitch and F. H. Short to *Powerful*—W. H. Browne and F. L. McClintock to *Enterprise*—W. R. Smith to *Blenheim*—P. R. Crouch and H. T. Vernon to *Star*—B. Alpin to *Ocean*, for Packet Service at Dover—J. C. Byng to *Rodney*—E. D. Ashe and C. O. H. P. St. John to *Excellent*—F. A. L. Bullock and A. Doyle to *Champion*—W. J. Pollard to *Havannah*.

MASTERS.—H. Hill to *Volage*—T. Osmer to *Champion*—W. S. Couldrey to *Enterprise*—D. W. Welch to *Fairy*.

MATE.—C. J. Forbes to *Enterprise*.

SECOND MASTERS.—W. Greet and J. G. Budd to *Hercules*—S. Court to *Enterprise*—J. B. Read to *Excellent*—E. Angier to *Spitfire*—Aldridge to *Vanguard*—E. Youel to *Hibernia*—C. O. Robinson to *Madagascar*.

MIDSHIPMEN.—H. P. de Cantzon, T. M. M. Windward, T. Andrews, and J. T. Maitland to *Powerful*—H. Hardy and J. H. Cave to *Caledonia*—J. P. Cheyne to *Enterprise*—T. L. McLeod to *Prince Regent*—J. Lewel, J. J. Barlow, J. E. S. P. Scrocold, and W. H. Anderson to *Victory*—E. Barkley to *Wellesley*—J. S. Stanton to *Havannah*.

NAVAL CADETS.—Hon. A. Ashley and J. Hay to *Havannah*—R. Blane, F. Osborn, G. A. H. Vaughan and F. W. Sullivan to *Powerful*—H. W. Brant and J. E. M. Wilson to *Caledonia*—W. King to *St. Vincent*—Hon. E. G. L. Cochrane to *Wellesley*.

MASTERS' ASSISTANTS.—A. Lidbetter to *Prince Regent*—H. J. Sutton to *Poictiers*—R. Fordes and G. Wilson to *Star*—D. Barnes to *Caledonia*—R. Coen to *Champion*—J. G. Fox to *Lucifer*—G. Grady to *Ocean*—W. L. B. Williams to *Wellesley*.

SURGEONS.—A. Millar to *Hibernia*—A. R. Bradford to *Blenheim*—T. R. Dunn to *Powerful*—J. Dunlop to *Agincourt*—J. Brown to *Queen*—J. Taylor to *Caledonia*—J. Robertson to *Enterprise*—R. Stephenson to be Superintendent of *Anna Maria* convict ship.

ASSISTANT SURGEONS.—T. S. Wells to *Hibernia*—C. F. Williams to *Locust*—J. Mauger to *Powerful*—E. Elliott to *Agincourt*—G. Clarke to *Enterprise*—J. E. Hamilton to *Ringdove*—G. Ball to *Crane*—F. Harvey to *Ardent*—W. Evans to *Volage*.

PAYMASTERS AND PURSERS.—J. Walter to *Powerful*—J. Biggs to *Enterprise*—J. Colwell to *Blenheim*—H. H. Conquer to *Champion*.

CLERKS.—H. W. V. Warrington to *Powerful*—E. Whitehead to *Enterprise*—W. T. Shanks to *Havannah*—C. W. Motherwell and J. L. Thorne to *Crocodile*—W. Remphry to *Ocean*.

ENGINEERS.—First Class Assistants—J. Bruce to *Banshee*—R. H. Albin to *Zeyhyr*—M. Johnson to *Lucifer*—G. Ross to *Torch*.—Second Class Assistants—J. Driver to *Ocean*—T. Davis to *Fisgard*—E. Richardson to *Powerful*—A. Duncan to *Caradoc*.—Third Class Assistants—W. Pitt to *Lucifer*—J, Stuart and H. Blunden to *Fisgard*.

BIRTHS, MARRIAGES, AND DEATHS.

BIRTHS.

Dec. 10, 1847, at George Town, Barbados, the wife of Com. Moss of H.M.S. *Reindeer*, of a daughter.

Jan. 27, at Tenby, the wife of Capt. Noble, R.N., of a son.

Jan. 30, at Falmouth, the wife of Com. J. G. Dick, R.N., of a son.

MARRIAGES.

Feb. 7, at Plymouth, Lieut. W. N. Lockyer, R.N., to Elizabeth Selina, youngest daughter of Lt.-Col. Bell, C.B.

Feb. 8, at Tonbridge Wells, Sir Gordon Bremer, K.C.B., Commodore Superintendent of Woolwich Dockyard, to Jemima Mary Harriet, eldest daughter of the late Commodore Sir James Brisbane, K.C.B.

Feb. 10, at Bath, Com. D. Robertson, R.N., to Caroline, youngest daughter of J. Beck, Esq.

DEATHS.

Jan. 21, at Gosport, J. Cunningham, Esq., R.N., Surgeon, aged 76.

Jan. 25, Dr. J. W. Reid, R.N.

Jan. 25, at Hasler, W. P. Brown, R.N., late Paymaster and Purser of *Canopus*.

Jan. 26, Com. D. Tandy, R.N., aged 75.

Jan. 29, Michael Bushel, an old seaman, well known in Poole, and believed to be the last survivor from the wreck of the *Royal George*, aged 87.

Jan. 29, Rear Admiral of the White Pringle Stoddart, Esq.

Jan. 29, at Bath, Capt. W. Rogers, R.N.

Feb. 8, Capt. Sir George Young, Bart., R.N.

Feb. 14, at Cranbrook, Rear Admiral the Hon. J. W. King.

At Rochester, Lt. M. B. Sparrow, R.N.

At Galway, Capt. S. Hellard.

Nov. 28, 1847, in the East Indies, A. J. Founes, Naval Cadet on board *Melampus*, aged 15.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory From the 21st of January, 1848, to the 20th of February 1848.

Month Day.	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade.				Wind. Quarter.		Strength		Weather.	
		9 A.M.	3 P.M.	9 A.M.	3 P.M.	Min	Max	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
		In Dec	In Dec										
21	F.	30·08	30·12	30	30	29	31	NE	NE	3	3	os 2	os 3
22	S.	30·04	30 00	31	31	30	32	NE	NE	1	1	o	od 4
23	Su.	30.15	30'17	29	31	28	31	N	N	1	1	o	os 3
24	M.	30·34	30·32	32	34	28	36	N E	NE	2	2	bc	qus 3
25	Tu.	30·36	30·27	30	31	29	32	NE	E	4	4	o	qod 4
26	W.	30 06	30 05	27	25	23	27	E	E	5	5	qos 2	o
27	Th.	30·01	29·97	24	29	22	30	E	E	5	5	qbc	qbc
28	F.	29·82	29·80	19	20	17	29	SE	E	1	1	bcs 2	bcs 3
29	S.	29·90	29·83	31	38	29	39	E	SE	1	1	o	bc
30	Su.	29·70	29·50	40	40	35	45	S	S	3	3	o	qor 3 4
31	M.	29·27	29·21	37	36	33	37	NE	NE	2	2	ohr 2	ors 3
1	Tu.	29·78	29·90	30	34	30	34	NW	NW	4	4	b	b
2	W.	30·15	30·22	35	42	31	43	W	W	3	3	bc	bc
3	Th.	30·37	30·31	38	42	33	43	SW	SW	5	5	qbc	qbc
4	F.	30 20	30·14	39	44	35	45	SW	SW	4	4	od 2	o
5	S.	30 14	30·12	50	50	45	51	SW	SW	5	5	qo	qor 3 4
6	Su.	30·10	30·12	50	53	48	54	SW	SW	2	1	o	od 4
7	M.	30·00	29·90	49	50	47	51	SW	SW	3	4	o	or 3 4
8	Tu.	29·88	29·78	43	48	41	49	SW	SW	2	3	o	bc
9	W.	29 07	28·98	47	48	44	50	SW	W	8	7	qbcp 1 2	qbc
10	Th.	28·96	28·86	39	45	37	47	W	SW	4	2	b	of 4
11	F.	28·99	29 23	37	42	37	43	NW	NW	4	4	bcm	bcm
12	S.	29·88	29·93	35	43	33	45	W	SW	1	4	bm	bc
13	Su.	30·05	30·02	46	48	41	49	SW	SW	5	6	qo	qo
14	M.	29 89	29.81	49	52	48	52	SW	S	4	4	o	od 3 4
15	Tu.	29·50	29·50	48	46	45	48	SW	W	4	2	od 2	op 3
16	W.	29·73	29·81	33	41	31	41	W	N	1	4	bcm	bc
17	Th.	30·25	30·32	34	41	32	42	N	N	4	6	bc	qbc
18	F.	30·42	30·30	35	38	32	38	N	NE	1	1	o	o
19	S.	29·74	29·68	37	43	30	44	SW	NW	1	2	osr 1 2	bc
20	Su.	29·36	29·44	41	43	38	44	W	N	2	2	or 2	bc

January, 1848.—Mean height of Barometer = 29·925 Inches; Mean Temperature = 34·4 degrees; depth of rain fallen = 1·43 inch.

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THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

APRIL 1848.

Remarks on the Western Coast of Africa,

By Commander P. H. Dyke, R.N.

Little Fish Bay.—Is a large and spacious bay, four or five miles broad at the entrance; the best anchorage (so I was informed by the officers of the Portuguese schooner-of-war *Conselho*) is in a small cove or bay close to the S.W. of the town, where I anchored in 4½ fathoms. There is a long dangerous spit running out to the westward, and when the rollers set in they are extremely heavy, and ought to be kept at a considerable distance. The watering-place, as well as the water, is but indifferent, at nearly 2½ miles distance; so, under any circumstances, I do not consider it a desirable place for a cruizer to go. I arrived there on the evening of the 20th of May, and on the following morning sent a boat sounding round the harbour. The water is very deep all across the entrance, close to both points, as well as from the town to Cape Guspa (north entrance of the bay) there being no bottom with the hand lead; but along the southern shore, "the head of the bay," the water is very shoal, and irregular soundings. It was my intention to have ascertained the correct longitude; but, in consequence of the governor of the place, on the morning after my arrival, having represented to me that a revolt had taken place against the constituted authorities, at the same time claiming my assistance, I, agreeably to his request, received on board all the persons concerned in the revolt, and proceeded to St. Paul's de Loanda with them immediately.

The longitude of Capes *St. Mary* and *St. Martha*, are both laid down a degree out, which, I suppose, is merely a mistake in the print;

neither of which places have I been able to take the correct longitude of, but by that given in the book of directions, it would place them 63 or 64 miles inland.

Elephant Bay.—"*Friars' Rocks,*" in lat. 13° 14′ S. and long. 12° 33′ E., is by far the best and finest bay all along the coast, with capital anchorage. I always anchored in 7 fathoms, about 3 cables' lengths from the high land, close up in the corner. The water is perfectly smooth, and the wind always blows off the high land; I took the opportunity of careening the vessel, and putting some sheets of copper on the bottom well under water. The only drawback to the place is the want of water, not a drop of which can be got even by the settlers for their own consumption, they are obliged to send to Camena Bay for it, a distance of six miles.

Fish of all sorts are in great abundance, I frequently caught with one haul of the seine more than sufficient for the whole of the crew. During the time I was there, I established a regular signal post on the hill, from which I could see at least 45 miles on a clear day; and should recommend others to adopt a similar plan, should they be going to remain any time there. In the neighbourhood of Elephant Bay the land is very mountainous, with flat table land; at the southern entrance of the bay there are four rocks, called the "Friars' Rocks," with deep water close to them. In coming from the northward, the land, about six or seven miles from the bay, appears quite white, like chalk, and may be seen for a considerable distance. There is not the slightest danger in approaching the land anywhere along the coast in that neighbourhood, as there is deep water close to the land all along.

There is a rise and fall all along the south coast, of about five feet. The westerly winds generally prevail. The current, from what I have observed, *never* sets to the southward, occasionally to the eastward, but principally to the N.N.W. I was set one evening, when between Capes St. Mary and Martha, at the rate of 1½ miles an hour to the eastward.

Camena Bay.—In lat. 13° 12′ S. and long. 12° 39′ E. is a large bay, about six miles to the north of Elephant Bay; but ships going to anchor there should be extremely cautious in not having too much way on the vessel, as you do not get soundings until close in, and then from 15 fathoms rapidly to 3 fathoms, at about half-a-mile distant from the beach.

The first time I went there I got far too close in, and was obliged to warp further out, so ever since then I have invariably sent a boat in and anchored her in 8 fathoms, so brought the vessel to anchor close to the boat; but on one occasion, even then, although I dropped my anchor close to the boat, and only veered to 20 fathoms, I had only 4 fathoms under the stern.

I found nearly in the centre of the bay, close down to the beach, merely the bed of a large river, but by digging holes in the gravel the water flowed in rapidly; I dug three each time, about six or seven feet long and three deep, and, although I kept filling casks and breakers during the whole day, the water did not appear to diminish in the least,

and I must say, I think the water was as good as any I ever tasted. The best time for watering is the morning before the sea breeze sets in, which is very irregular as to time; but after that there is often a nasty surf on the beach which hinders the watering.

In a couple of days I got on board this vessel thirty-two tons. The country all around abounds with lions, zebras, and deer, which came down and drank at the places we dug, after our departure in the evening.

The Rosella (scarlet dye) trade appears to be the only one, with the exception of that of slaves; and from what I could see, I strongly suspect there is a good deal of the latter carried on. I frequently saw small parties of ten or twelve brought into the place, guarded by a few men armed with muskets. The land to the northward is steep, and quite white, apparently chalky soil, and terminates in a high bluff which forms the northern entrance of the bay. The white cliff may be seen at a great distance, and after having once been seen, can never be mistaken.

Luash Bay.—In lat. 13° 0′ S. and 12° 46′ E., is a good anchorage, but in general there is a deal of surf on the beach. What I consider the best anchorage is in 7 fathoms, with the bridge bearing S.b.W. ½ W. half a mile. The anchorage further in, under the lee of the bridge, appears occasionally to be good, with beautiful smooth water; but when the rollers set in (which is, I am given to understand, at the full and change of the moon), I think, from what I have seen, that even this vessel would almost touch the bottom, therefore do not consider it a safe anchorage for men-of-war. There are plenty of good bullocks to be got, but no water; and slaving is carried on to a great extent.

Point Salinas.—In lat. 12° 53′ S. and long. 12° 43′ E., is a very low sandy point, running out about four miles from the high land; you ought to be very cautious in approaching it after dark, as you can never see it owing to the dark high land at the back. There is a palm tree standing on the extreme point, which much resembles a sail, and is frequently reported as such. The water to the northward of the point is very deep, even close to, but on the south side, just the contrary, and the soundings very irregular, so it ought invariably to be given a wide berth, when to the southward of it. I consider this the only dangerous place along the coast to the southward. To the northward of the point, at a distance of about five or six miles, there is a settlement formed, where a great quantity of salt is made and exported, principally to St. Paul de Loanda and Benguela.

Benguela.—Flag-staff at the Fort in lat. 12° 33′ 51″ S., and long. 13° 9′ E., is a good anchorage, and I dare say was once a fine place, but is now in a miserable condition, with bad water; and when on shore it puts me in mind of a deserted place, or as if the plague or some other violent disease had swept off two-thirds of the inhabitants.

I anchored in 8½ fathoms, with the Bonnet, bearing W.b.N. ½ N., and the cathedral S.E. The Bonnet is a most remarkable piece of land on the south entrance of the bay, and resembles a crown, with a vessel at the top; it can easily be seen at the distance of fifteen or sixteen miles. The soundings are very regular all over the bay, with about 5 fathoms

close in, so by keeping the lead going, there can be no danger. Water is not only scarce, but very bad; but any quantity of good bullocks can be procured at a moderate price; poultry, as well as sheep, are both scarce and dear; the former of which are sold at half a dollar a-piece.

Lobito.—In lat. 12° 20′ S., and long. 13° 20′ E., is a beautiful harbour about three miles long, and one broad, with 10 fathoms all the way up, close to the western shore.

In rounding Lobito Point, you may go within a few yards of it, as the beach is quite steep, with 10 fathoms water.

In working up to the anchorage, you ought not to stand over on the eastern shore into less than 8 fathoms, as it then begins to shoal very suddenly. It is a good place to cut wood, but you must first obtain permission of the governor of Benguela, who is a remarkably civil and obliging person.

Bullocks and poultry are likewise to be obtained, and very good, the latter five or six for a dollar. Oysters are in great abundance on both sides of the river, at the head of the harbour, from the shells of which an immense quantity of lime is made, and I believe is principally exported to Benguela and St. Paul de Loanda. No water is to be got in the neighbourhood, otherwise it would be a famous place to heave a vessel down, or clear her out. In coming from the southward you will see a rather large white building on the hill, which is the fort at Catumbela, and close to the northward of it there is a large niche in the land, which is very conspicuous, and is about seven miles to the southward of Lobito Point.

In coming from the northward or westward, you will see three white marks in the land joined together, which appear precisely like the arches of a bridge, they are close to the north side of the entrance of the harbour.

The Portuguese Government were anxious a few years since to form a settlement there, instead of Benguela, in consequence of its being so very unhealthy, but were obliged to abandon the idea, after building some few houses, owing to not being able to find any water, and in addition to which it is also very unhealthy.

There is about six feet rise and fall of tide, the head of the harbour at low water is perfectly dry, and the smell is by no means agreeable, particularly of an evening when the tide is out. There are an immense number of fish in the harbour, sharks amongst the rest, so one ought to be careful allowing any person to bathe. I have seen five or six at once near the ship, and have had several in the seine, which have always broken through.

Anha.—In lat. 12° 14′ S., and long. 13° 26′ 14″ E., is a large village to the northward of Lobito, and apparently from what I could see from the ship, far more luxuriantly situated than any other place along the coast. There is a large river running down through the village, which adds much to its appearance, but in consequence of the heavy surf which invariably sets on the beach, it is impossible for man-of-war boats to land and procure water, even under the most favourable circumstances.

Quicombo.—In lat. 11° 20′ S., and long. 13° 36′ E., is a capital place for watering, close over the beach near the village is a large sheet of water with a running stream, which comes from the mountains, where you fill your casks, and parbuckle them into the boat. I have been given to understand that, for about a couple of days after the full and change of the moon, the rollers set in so very heavy that it is impossible to communicate with the shore, much less procure water, therefore, you ought to be careful, and not anchor nearer to the beach than one and a-half miles, should you be going to stay over that time. I saw the French brig-of-war, *Messager*, go in to what is called the inner anchorage, but was obliged to shift her berth out again immediately, in consequence of her rolling so heavily. It is about eight miles to the southward of Nova Redonda; there is a reef that extends about one mile, (and which constantly breaks) running out from the southern point of the bay, which is very bluff, and quite red, it being the only place near here where the land is red, so it cannot be mistaken. Close at the back of the village there is a large zigzag road, communicating with the interior, which is the most conspicuous mark of all.

The bearings I took when anchored were:—Road on the back of the town S.S.E. ¼ E.; southern point, S.S.W.; north point, N.E. ¼ E.; in 6¾ fathoms, a good berth, but if anything, rather far out.

There are a great number of bullocks to be got at fifteen dollars a-piece, but as we had no necessary money on board, and the Portuguese not liking to take Government bills, we could not procure any.

Nova Redonda.—In lat. 11° 12′ S., and long. 13° 44′ 40″ E. Although I never anchored here, we got good sights for the chronometer; the water is shoal at a distance of about eight miles to the westward.

We got about 8 fathoms at the distance above mentioned.

Morro Point.—In lat. S. and long. 13° 33′ E. Close to the northward of this point there is a beautiful large bay, with 9 or 10 fathoms of water all over it. I did not anchor here, but run all along the bay, close inshore, and from its appearance, should say it afforded good anchorage.

Cape San Bras.—In lat. 10° 1′ 30″ S. and long. 13° 11′ E. I anchored, with the cape bearing S.E three-quarters of a mile. I found a very long rolling swell. I took the master sounding with me, and found 6½ and 7 fathoms water within a quarter of a mile of the cape, and 4½ fathoms within half a cables' length of it, with the same depth all round the bay near the beach. I discovered a spit of sand running out at the head of the bay, about a quarter of a mile in length, with deep water close to it on either side; inside the spit there is a beautiful snug little harbour, about a quarter of a mile long and three cables' length broad, with 2½ and 3 fathoms water nearly the whole way up. The harbour is full of fish; the only afternoon I was there, I hauled the seine, and caught a great quantity of Cape salmon, flat-fish, lardines, soles, nine sharks, and ten sword-fish. I did not see any Portuguese settlers there, but a few blacks from the country, who seemed inclined to be very friendly and anxious to trade.

Cape Ledo.—In lat. 9° 47′ S. and long. 13° 16′ 54″ E., is a high and rugged point of land, with a few trees on it, and is very remarkable; but did not anchor there.

Kabenda.—In lat. 5° 13′ S. and long. 12° 21′ E., was formerly one of the most notorious slaving places on the coast, but, in consequence of its having lately become the rendezvous of English as well as French men-of-war, the importation of slaves in the immediate vicinity of the place has ceased. Both wood and water can be procured here, but the latter by no means of the best quality, and not easily obtained. The remarks given by Capt. Matson, in his Book of Directions, are so good that any further comments would be unnecessary.

Point Padron.—In lat. 6° 8′ S. and long. 12° 3′ E. The westernmost point of the entrance into the River Congo, with good anchorage in 9 or 10 fathoms.

Shark's Point.—In lat. 6° 4′ S. and long. 12° 8′ E. The remarks in the Book of Directions, by Capt. Matson, are perfectly correct and cannot be improved upon, except that I should recommend vessels bound up the Congo for water, to run nearly a mile above Trade House, and and anchor in the centre of the stream in about 8 fathoms.

In running from Point Padron to Shark's Point you keep within a mile of the shore, in 6 or 7 fathoms water, gradually closing in with Shark's Point, which you may round in about two cables' length. In going up the river you steer about S.E.b.S., by compass, and from 4 to 6 fathoms water, until you open the Trade House, and then steer more in the centre of the stream.

St. Paul de Loanda.—In lat. 8° 46′ S. and long. 13° 9′ E., is a large and spacious harbour, with a long spit running out seaward, upwards of six miles in length; but the Government plans, supplied for the guidance of vessels going in or out of this harbour, are so very correct, that there is not the slightest danger or difficulty for a perfect stranger to enter therein. The harbour is filling up fast, and the upper part, at low water, is perfectly dry, with an abominable stench from the black mud, which naturally renders it very unhealthy and disagreeable. Water is very scarce, but the market is well supplied with meat and vegetables of all descriptions; the town is falling rapidly to decay.

OCEANIC CURRENTS.

First Part.

A very general idea prevails that, wind is a primary cause of currents; the tremendous effects produced by the force and pressure of aërial streams upon the surface of the land and sea, are so astonishing that, we cannot wonder at the opinion being held by many persons; yet, there are circumstances attending the action of wind, which, when

enquired into carefully, leave abundant reason, not only for distrusting, but also for disputing the popular opinion.

It cannot be denied that, our knowledge of the causes of perennial, or, indeed, of temporary currents is at *zero*. The phenomena of the ocean appear, hitherto, to have engaged little attention, and the space which they should occupy in our works of Natural Philosophy is *almost a blank;* we have no general view of the whole, and with the exception of the origin of trade winds, of the monsoons, and the operation of some of the local and particular winds, and recently of the hurricanes and typhoons, and the rollers of the South Atlantic, we know little about all the rest: it would undoubtedly be most gratifying to the lovers of science if these were studied by competent persons and satisfactorily explained. The *savans*, however, seem averse to the rough discipline of a long voyage, or the perils of a sea-life, and, consequently, we find few possessing the peculiar zeal, and contempt of ease, of a Halley. Intelligence happily does not belong exclusively to any particular class or station; and, although, the degrees may be various, that does not prevent the exercise of the faculty among all who possess it, in the elucidation of natural phenomena, when their knowledge of facts is so far sufficient as to enable them to reason, with confidence, if not with a perfect hope, of arriving at the truth ultimately; there is a peculiar "*bent*" or propension of individual mind to some particular or favorite subject, upon which, its intelligence and acquired knowledge are directed and exercised; the result of the labours of such a mind may be expected to carry a share of interest with it, because a reasoner thus provided is always in earnest, and if unsucessful in convincing, he may convey a spark of his zeal to others of a higher degree of intelligence and knowledge, and so indirectly attain the end, the exertion of his own capacity sought in vain to obtain.

As a single principle in nature, acting independently of all others, in one vein in a rectilinear course, where and when, it may be asked, has wind been proved to have created a stream in any part of the ocean uncircumscribed by land? There may be, probably, abundant expressions found in nautical journals which would lead to the belief that such a proof had been established, but conclusions drawn from abstract consideration are certainly not proofs; and we think it scarcely disputable that on many occasions, where seamen mention currents as arising from gales of wind, that they have dignified the mere action of the waves, and the slight degree of fluency imparted to the waters, by their doubling over, into a current or stream. Erroneous reckoning often too, no doubt, gives rise to imaginary currents; those who have witnessed the manner in which some vessels are steered, will readily admit this, independently of the liability to incorrectness, from allowances in dead-reckoning, and local attraction on the compass.

It is an incontrovertible fact that, the steadiest wind towards one quadrant of the earth's convexity, the tropical trade, produces a *drift* of very trifling amount, and which no well informed seamen would call, except through inadvertency, a *current*, without prefixing the above

technical monosyllable: yet, unaccountably, some will insist upon the N.E. trade wind being *the cause* of the Florida stream, and have gone even so far as to declare a belief that if that wind were to cease, there would be an end to that current altogether. My belief is, that so little has the N.E. trade to do with the Florida stream that, if in its place a west wind, or one from any other quarter, were to blow permanently, the current would remain uninfluenced but in a trifling degree. This *drift* of the superficial waters is auxiliary in effecting an interchange of waters, with less celerity indeed, than the true current, but on that very account in strict accordance with the infinite wisdom every where displayed on the vast field of Nature's action; and, where perennial winds blow, from the general operation of the *drift* over a great extent of ocean, in the aggregate, of no mean assistance in effecting, in a manner almost unseen, this essential design.

It is not, we conceive difficult to see clearly why this minor effect of wind upon the surface stratum of the ocean should be limited to a certain trifling amount; there is no one action in nature which may not be supposed to have some connection with another for the great purpose of combining harmony with utility, and yet, the popular opinion, with respect to the point we are reasoning upon, discards this consideration, or rather does not entertain it, perhaps, because, it is easier to decide abstractedly, than to enter into detail which would occupy time, sober reflection, and research.

In the temperate parts of the ocean where variable and stormy currents of air are prevalent, the irregularity that would follow, if there were any reality in the popular opinion, would amount to a complete perplexity to the mariner, for neither skill nor judgment would avail him under the bandying discipline he would have to contend with. If a *stream* were created by every strong wind that blew over the ocean to the extent of its occupied breadth, what a constant confused and dangerous state the waters would be in! What with the tremendous agitation of the waves, and the contention of the various currents, for, be it remembered, different gales, not remote, may be blowing at one and the same time, it would no longer be safe for sailing vessels to attempt the navigation of the seas. That such a state of confusion has no existence, seems sufficient to show the erroneousness of the popular opinion, because, if that were true, such a state must be consequent on the production of oceanic streams by single veins of wind, and manifestly apparent without a single effort of reasoning.

Considering, therefore, that a single vein of wind unaided is unequal to the production of a *stream* in the ocean, we will next consider how far it may be possible for two oblique currents of air converging to a centre, such as the N.E. and S.E. trades, to generate the phenomenon. We may first premise that, it seems to be understood that the great pressure of the body of water from above has no debarring influence on the free fluency of that beneath, to a certain depth, beyond which, of course we know nothing: to make our meaning clear, we may state that, whilst the upper stratum of water may be in a quiescent state, the

stratum immediately below, may be moving in a stream; and *vice versâ*; experiments are yet wanting to determine how deep surface currents extend.

It has been observed by navigators, that there are great portions of the surface waters of the Boreal and Austral regions, which have a tendency respectively, towards the equator, although these may not reach that line by direct routes. It is reasonable, in this case, to consider that within the Great Ocean, for instance, the *drift* of such vast expanses of water, when arrived at a certain distance of the tropics, and being bounded on the east by the Continent, would join or meet near the *line*, and be gradually turned to the west by the constant pressure, on either side, of the trade winds, and thus combining, acquire increased fluency in the general direction of the winds, and according to the fluctuations of their strength, would the stream be accelerated, or retarded? This consideration in the abstract seems reasonable enough, but, there are other points to be taken into account, before such a simple operation can be admitted; and, we apprehend these will be found difficult to be dealt with satisfactorily.

The first difficulty which presents itself is, that, on either side of the equatorial current of the Pacific, contrary currents are found, so that, unless it be admitted that these easterly streams, which have been experienced running at the rate of, from thirty to forty miles in the twenty-four hours, are, in the first place, the immediate consequence of the respective Boreal and Austral *drifts*, and are turned at their eastern extremes at a certain distance from the west coast of central America, to the right and left, and combine to form the middle stream, we cannot arrive at clear and reasonable conclusion. We may remark, by the way, that it would seem obvious a reciprocation takes place, that is to say: an amount equal to the deficiency in the Arctic Ocean, by the flowing of the waters southward, proceeds northward, and as Behring's Strait is the only directing passage, this must be effected by an under current, principally; some portion returning on the in-shore lines; of this operation, however, we have no cognizance, and we do not here insist upon it, as the vast amount of fresh water which falls from the heavens, congealed on the surface, and again seasonably melted, may be more than equivalent, for aught we know, to the maintainance of a uniform level, in which case, as there is a less necessity in such cold regions for an extended circulation; the interchange may be principally confined to the Polar basin, the superfluous waters streaming southerly.

We have next to consider, and to inquire, whether the N.E. and S.E. trade winds, combined with the Boreal and Austral *drifts* are equal to the production of such a current as the equatorial. The oblique directions of these winds converging to a central line, would probably induce a movement of the drift waters towards the west, but the volume and velocity of the stream seem to be too great to be effected by such weak force.

It is not unreasonable to believe that, if these winds, combined with

the drifts, were equal to the production of a perennial stream, the depth of the moving waters would be regulated by the pressure on the surface, and be little deeper than the undulations occasioned by the force of the wind; as far as facts allow us an opinion, the equatorial current has a known depth of 100 fathoms, as we shall show in the sequel.

In this argument we arrive at a probable cause of some of the temporary currents of the ocean. The effect of two gales of wind blowing obliquely, say from the S.W. and N.W., the respective *drifts* converging to a centre, may there acquire increased fluency, and whilst the pressure continues, and, perhaps, for a certain time after, the waters would move towards the last. If this could be determined affirmatively, we should become possessed of one of the secrets so puzzling to nautical men;—laying to in a gale, and finding the drift trifling; then making sail, and whilst progressing, meeting with a current of fifteen or twenty miles in the twenty-four hours.

But, although, this were settled satisfactorily, such would not negative our original assumption of a vein of wind being unequal to the productoin of a *stream*. Indeed, a seaman must have traversed the "world of waters" to little purpose, during his multiplied opportunities for observatoin, and has not remarked that winds of strength were often unattended by current. With this indisputable fact before us, how can we hesitate to pronounce that, the mere action of a portion of the atmosphere in motion alone, cannot possibly produce a stream in the ocean!

Again, it cannot be disputed, that the constancy of a given wind, although not tempestuous, if it were capable of producing a current, would insure a permanent flux, that ought to set the matter to rest. If facts, therefore, have weight, then the question is disposed of by the operation of the N.E. trade wind of the Atlantic: the effect on the surface waters proceeding from this cause* is a *drift* not a *stream*. The amount of this *drift* has been given from three to four and eighteen miles, in the twenty-four hours, a mean of nine miles, and little more than one-quarter of a mile in that time. From our voyages in several instances we never found it greater than nine miles in the twenty-four hours, and generally less. The fact seems to be that, in taking the mean from a series of ships' journals, error has arisen from the difference of size of the vessels.

Years ago our present conclusion was fixed; whilst we had opportunities, we never allowed them to pass unprofitably, and we have seen nothing yet to shake it. When a current is experienced during a calm or very light airs, can we rest satisfied that it has been induced by a distant gale of wind, without admitting at the same time that some other principle of nature is aiding in the production of such a phenomenon? Either that must be conceded, or it must be admitted that some unknown cause operates to prevent a streaming of the water, upon other occasions, when a furious gale is blowing.

* This has been disputed by Capt. Tuckey, who thought it doubtful whether the *wind* was not the *effect* of the *tendency* of the *waters* to the *westward*.

It has elsewhere been observed, that confusion is created and wrong impressions given, by seamen not using technicals in their proper acceptation. One of the consequences is that, a trifling *drift*-current, has been dignified into a stream-current—the separate application of the terms being warranted by the difference in the operations.

Second Part.

Of our particular subject, we shall now speak of the greatest permanent currents, emphatically and aptly termed "the Oceanic river," and which, by way of eminence, we shall designate by its central name, the "Equatorial."

Where shall we look for its source or commencement? That question, although some consider the wind as answerable, we think much more easily proposed than resolved.

Whether it comes from beyond the India Ocean,* we have no *real knowledge* of, at least, if so traced and recorded, such has never crossed our ken. In that ocean it flows to the *westward*, curving to the southward on either side of the great island of Madagascar, uniting again in about 28° S., and continuing its course until arriving at the extremity of South Africa; here it becomes sub-divided into branches; one of which acquiring an altered course, nearly parallel to the western coast, flows on until near abreast of the River Zair or Congo, whence it inclines to the north-westward as it approaches the equator; after which it pursues its way into the Caribbean Sea, progresses through the western part of the Yucatan Channel, and into the Atlantic by that of Florida, and so onward to the N.E., E., and S.E., near the Azores, where it becomes spread abroad and its continuity ill defined.

We may just notice here, *en passant*, that, seamen have become so familiar with the knowledge of the existence of this great revolution of flowing waters, that they no longer contemplate it with wonder; neither do they appear to entertain the possibility of how many of those erratic movements, which so often puzzle them in their trips across the Atlantic, may be traced to this ocean river, and the influence of the stormy breezes sweeping over its bosom; it seems enough that the general line of its course has been stumbled upon, without search having ever been diligently made to connect its details; or any pre-considered plan of operation put in force for elucidating all other phenomena which it may reasonably be regarded as giving rise to.

The effect of gales of wind in turning surface currents, especially when these impinge on coasts which lie at right angles with their general *set*, we can exemplify in a remarkable instance, which occurred to a ship-of-war on her passage from Portsmouth to Jamaica. We give an abstract of the account, from the observations of the late Master At-

* We purposely, and without affectation, use the word *India* instead of "Indian," not only as being, as we conceive, more correct, but more explicit and definite.

tendant of Port Royal, Francis Owen, who was well known in the service as an experienced seaman and navigator:—

The Latitude by Observation, Longitude by Chronometer—Mr. Owen's.

1813.					*Miles.*
26th Jan.	46° 6′ N.	11° 20′ W.	S.E.b.S., wind.	Current	14 E.
27th "	44 28	12 42	S.S.E. "	"	25 "
28th "	43 5	13 48	S.E. ½ E. "	"	23 "
29th "	41 46	15 00	S.E.b.S. "	"	7 W.
30th "	40 14	15 32	S.E., strong gale.	"	6 "
31st "	37 58	15 32	E.S.E. "	"	6 "
1st Feb.	35 38	15 49	E.S.E. "	"	49 "
2nd "	34 30	16 40	E.b.S. "	"	46 "
3rd "	32 52	17 20	E.b.S. "	"	5 E."

Here we have an example, in the winter months, of the easterly current, or "in-draught," as it is called, which sets towards the coasts of France, Spain, and Portugal, being *turned* to the westward by an easterly gale, and augmenting in velocity for two days *after* the ship had run out of it to the southward. The influence, therefore, of a gale of wind, under certain circumstances, on water already in a stream, is here manifest; and the distance to which an effect of the sort may be conveyed by such a mean, we have little doubt, especially in the Atlantic, has given rise to the belief on many occasions, that the wind itself had induced the current experienced; whereas, in reality, it was only auxiliary in giving a new direction to a portion of the flowing waters. To our perception nothing can be more clear than this example; and it will be readily admitted that one unquestionable fact, is worth a thousand conjectures or inferences drawn from abstract consideration.

The portion of the Equatorial stream, which is locally called the "Agulhas" current, has been attributed to the *drift* from the India Ocean. If the combined action of the two trade winds be considered equal to the production of the amount of the stream's velocity; how shall we account for its great depth and volume? Sub-marine chains of mountains no doubt exist in that ocean, the various islets, banks, shoals, and rocks scattered in it attest this; and these may form channel-deeps to direct and perpetuate a current deep-seated, but the effect imparted by those winds to the waters, if admitted, would be insufficient to account for the depth of this stream. The Mozambique Channel does serve, it is true, as a natural duct to lead the current southerly, and, as a consequence, to augment its velocity; but it does not follow, that this limited compression could give origin to, or maintain the extraordinary line of flowing water which wends its course from the latitude of 35° S. to that of 42° N.

The "Agulhas" sub-bank has a depth at its edge of 100 fathoms, and as the current conforms to the concavity of this bank, it has been considered, and no doubt correctly, that its depth is equal to that, and *how much more*, in the great depths of the open ocean, it is impossible to state; but there is nothing unreasonable in imagining that it sweeps

along the whole bed of the ocean throughout its course; a conjecture of this sort is perfectly legitimate; the vast scale of the moving aqueous mass, the incessant impulse which is implied in its motion, sometimes impetuous, and often resisting the utmost violence of opposing winds, the great depth of the body where such has been ascertained, cannot fail of impressing upon us a belief that some mighty design has been stamped upon its course; and that, to maintain this course, nearly encircling the globe, the body of the stream must be deep seated; for no superficial stratum of waters could retain its fluency in a stream to such a distance. The lateral extent or breadth of the "Agulhas" current is from 90 to 100 miles.

Is it not surprising that during so long a peace, no measures have been taken by the maritime nations of Europe to survey the whole extent of this ocean river; and to construct a chart of its entire course, its branches and off-sets, its breadth and seasonal variation thereof, and, if possible, its breadth beneath the surface? If each civilized nation pour forth its nautical surveyors, and each national ship take her section, in three or four years the object would be accomplished, and accomplished as it ought to be—scientifically. The cause or causes would be a subordinate consideration, but may be separately embraced by each party, by which means, if unanimity of conclusion did not prevail, the philosopher might find enough contained in the mass of information to decide on the question one way or other.

Navigation is so dependent on the currents of the ocean, that the neglect of any enlarged and organized system of investigation of their origin, connection, and permanency or otherwise, by the maritime powers, seems very extraordinary. In detail, the subject, we are aware, has always engaged the attention of the British Navy, by authority; but hitherto, very little additional knowledge seems to have been imparted by the individual observations of those who merely rove over the ocean to fulfil points of professional duty unconnected with science. Indeed, unless expressly employed on scientific research, nothing further than a few isolated facts can be expected of such voyagers; and, as it is impossible to take up, in all cases, the "thread" of the one, and of the other so as to unite them; no general estimation can be formed from their divided labours however valuable they may be: locally, however, these individual observations become profitable, and the compilers of works of reference laudably seize upon them for the benefit of the profession at large, as for those who may be especially interested.

We are strongly impressed with the belief, not vaguely entertained, but from diligent and earnest reflection, assisted by practical observations, that the greater portion of these apparently "disjointed" *sets*, so often experienced and recorded, of the Atlantic waters, originate from one main source, and that this powerful engine (if I may be allowed the expression) is far remote in its primary impulse. Secondary movers, no doubt proceed from the Boreal regions, a consequence, probably, of some process connected with evaporation and moisture, the general accession of low temperature, and the sudden seasonal dissolution of ices and snows.

The initial velocity of a current will be proportioned to the force, whatever that may be, which creates it; but it is clear from observation, that the velocity in a lengthened course will be subject to variation from existing auxiliary causes and counteracting circumstances; in the first place, from strong gales blowing in the direction of the current; from channels between banks narrowing the breadth of the stream; from channel-deeps beneath the surface producing a similar effect; and, probably, from changes in the atmosphere. In the second place—from calms of long continuance; from impetuous land freshes; from transverse breezes of strength; and opposing strong winds in the open ocean.

In the Pacific the general tendency of the central waters is to the westward, from a certain distance from the American coast; counter-currents often, indeed, very irregular, and hitherto unaccounted for by navigators, are experienced in the centre as well as on either side; and where groups of islands exist, the flowing waters are drawn through the channels, and are often found changed in direction; but whether this be a regular alternation has not, we believe, been fully ascertained. Some navigators have considered that, between the tropics, the moon has an effect on the currents; if so, the change observable in their direction may accord with the changes of that luminary—in fact, a sort of *curro-tidal* operation.

CHE-KIANG AND OTHER CITIES.

[Extract from the *Hongkong Register.*]

CHE-KIANG is one of the most fertile and commercial provinces of China; cotton, tea, indigo, wheat, and rice, are easily and abundantly raised in the vast plains, watered by more than a hundred streams. The temperature is very favourable for the culture of the mulberry, and rearing of silk-worms. Han-chow, the capital, is celebrated throughout China for its silk manufactures.

The population of the province, according to the statistical papers drawn up by direction of the Emperor Kien-long, amounts to twenty-six millions of souls—that of a kingdom.

At the entry of the river Ta-kia, which conducts to Ningpo, stands the small city of Chin-hai, where, in the last war, the Chinese wished to oppose some resistance to the English fleet. This circumstance was of too rare occurrence not to attract our attention. The combat was short, and Chin-hai, in spite of its walls and its two forts, was carried by assault. The English gave it up to pillage, and destroyed many pagodas, the ruins of which are still to be seen. In other respects, Chin-hai is a city of little trade, dull enough, the population moderate, especially for a Chinese city. The only remarkable object is a long embankment of hewn stone which protects it from the sea, and the fine work of which recalls the splendour of a former age. Europeans reach it easily, though

by the treaties it is not included in the number of ports open to commerce.

To reach Ningpo we must sail up the Ta-kia about fifteen miles. The river flows, with many windings, through an immense plain occupied by rice-grounds and cotton-trees. Occasionally thickets of bamboo announce a village, a farm, or merely a pagoda, which varies and enlivens the landscape. The fields are everywhere cultivated with perfect regularity, and with a care which the prodigious fertility of the soil amply compensates. Turn now your eyes towards the river; around you are junks of a thousand colours, fishing-boats, mandarin-boats, revenue-boats, smugglers, duck-boats, &c., &c., vessels of all kinds, and each of a different shape, which pass and cross each other in every manner, and from which proceed promiscuously, the cries of seamen, the sounding peal of the gong, the noise of crackers, and sometimes the firing of cannon. You sail amidst this perpetual commotion until you arrive at Ningpo, the steeple of which you have long seen, that is, an old tower, very high, which we shall visit presently.

Ningpo was taken by the English in 1841 and held for six months. The treaty of Nankin opened it to foreign commerce. Among the Chinese it is esteemed one of the most beautiful cities in the Celestial Empire. In the buildings, exterior appearance, cleanliness, and arrangement of the streets, it is not to be compared with one of our cities of the second rank. After a person has inspected one Chinese house, he knows all others. They have the same plan, the same interior arrangement. The buildings are generally of no great height, consisting of only one story. They are usually constructed of brick, or in the poorest quarters of wood only. Stone houses are very rare. The whole is rounded above, and rises at the ends by a curve more or less marked. The architects bestow all their care on the design and form of this elevation, elegant of itself and often original. There are dragons or other fantastic animals, or images of divinities, which terminate the roof by skilful delineation. The openings in the walls are enclosed by open brickwork, the forms of which are infinitely varied, and certainly form the particular object the most interesting to study, and the most copious in Chinese architecture. In the interior, there are a range of small rooms without other furniture than a bed, wooden seats, and tables arranged around the rooms for placing a cup of tea, or pipes for drawing the smoke through water. The stranger looking upon these structures, is at first struck by the air of singularity attached to a new object, in China particularly. But after the first moment of surprise, he sees only a monotonous assemblage of houses all similar and destitute of that character of grandeur which gives to our buildings their stateliness, the regularity, and strictness of the plan. If he next examine the streets, what can a European think of these narrow, foul, miry alleys, always impeded, where the sun scarcely penetrates? This arrangement cannot be understood in a country where, for nine months in the year, the heat is very moderate.

The wall which encloses Ningpo is about fifteen feet high, it is dila-

pidated at many points, and incapable of opposing the least resistance. It is six miles in circuit, but is far from including the whole of the city; vast suburbs surround it, and their extremities join the country villages, so that it is difficult to assign their limits. The river Ta-kia is divided into two branches, over one of which is a floating bridge formed of thirteen boats bound together by iron chains. This bridge unites the city to the suburb where most trade is carried on. In other respects, one might almost say that an immense bridge of boats covered the surface of the river, so many junks are there which occupy its whole width.

The streets of Ningpo, especially in the neighbourhood of the river, are lined with shops, and immense storehouses. Each quarter seems to have its own occupation and trade. Thus in one, the manufacture of silks prevails, in another that of cottons. Here are carpets and furs, there repositories of furniture. We cannot stop before each shop. However, it would be profitable to study these small details of the great city, to observe in their exercise the tastes and manners of the buyers and consumers, and to recognize, frequently, a resemblance between the Chinese and Europeans, which passes unnoticed. Thus I shall adduce as an example, the druggists' shops, where medicines, more numerous perhaps than those of Europe, are ranged with the same care and in an order equally perfect; the libraries, where the poorest Chinese buys, at a very moderate price, the works of Confucius, as well as the sacred paper which he is about to burn at the neighbouring pagoda in honour of the great philosopher; the manufacture of gods, where each comes to buy the image which he shall adore on his domestic altar; the magazines of curiosities, where the rich man displays his capricious fancy on a crowd of old porcelain, antique bronzes, and medallions effaced by time; the studies of painters, whose designs selected with taste, are destined to ornament the interior of every Chinese house; brokers' shops, frequented by the poor; magazines of shoes, of lanterns, and of tobacco; the exchanges of money and pawnbrokeries, where they lend upon pledges. Luxury has everywhere the same demands and misery the same wants. There are, besides, a great number of eating-houses and of tea-shops, for the most part in the neighbourhood of the gates and in the suburbs. Is it not the same in our cities?

We might also make in Ningpo a tour almost picturesque. The city is very ancient. It encloses some old monuments, the appearance of which attests the power of past ages. First, the tower of Ningpo, as celebrated in China as the famous one of Nakin, is hexagonal, it is of six stories, and is ascended by 150 steps, which gives a height of about forty-five metres. It is built of brick, and has on each side and on each story a window of moderate size. It is now a mere ruin, the bricks are loosened, and the grass, that leprosy of time, makes inroads upon the walls. An old bonze in rags keeps the monument and opens the gate. We see at once that the English have been here. The walls are covered with names and dates. Each soldier of the victorious army has thought it a duty to enter his name in this aged book, the last page of which has been stained by the hand of barbarians.

A European can walk in the streets of Ningpo without being followed, as at Canton, by a dense crowd which constrains his movements, watches his steps, and sometimes becomes hostile. Curiosity is here artless and almost discreet. Everywhere one is welcomed into the shops, invited to sit down, to take tea, to smoke. He can believe himself in a friendly country. Still no city in China suffered the evils of war more than Ningpo. They show the long and narrow streets where the English cut down by grape-shot, the people in the moment of revolt. The recollection of that period of disasters cannot yet be effaced, and fear, no doubt, has a large share in the benevolent disposition of the people. But at Ningpo sooner than elsewhere the time will come for a more sincere friendship and a freer sympathy.

Ningpo has not yet succeeded in attracting foreign commerce to its port. Its situation on the banks of a river which receives a great number of tributaries; its proximity to the silk manufactures, and the districts producing the green tea; the easy manners of the inhabitants—all seem at first sight calculated to ensure it a large share in the profits, which the ports recently opened ought to derive from the direct trade with Europe. Hitherto, these anticipations have not been realised. The proximity of Shanghai has injured Ningpo. Situated at a small distance to the north, and on the extreme limit of the trade allowed between China and Europe, Shanghai can extend her exclusive influence over a larger space, and Ningpo finds herself circumscribed by the vast circle of the operations of her ancient rival. Besides the most important and the principal objects of industry of the country, the cotton and cloth sold as Nankin stuffs, have now to contend against the combined effects of Bengal cotton and English cloths. It is beyond a doubt that the products of Europe will finally carry the day over the antiquated manufactures of the Celestial Empire.

Finally,—the last injury received by Ningpo was this:—When the power of trading was reserved to Canton alone, all merchandize, European or other, which passed up or down the coast of China, stopped at each of the seaports. Navigation, in consequence of ancient custom and the construction of the junks, was wholly confined to coasting. Each port supplied, through its rivers and the numerous canals of the interior, the circle which its situation assigned to it, and received in some measure a right of passage from the merchandize destined to go farther. But now that direct communication is allowed, that European vessels tend more and more to supplant the junks, and engross the transport, each of the ports formerly touched at must experience a sensible diminution in the importance of its navigation; and Ningpo finds itself in this respect in the worst condition, since it occupies on the coast one of the intermediate points between Canton and Shanghai.

The English have from the first established a consulate at Ningpo, but the establishment has been reduced. In 1845 there was but a single merchant and some American missionaries. This was the whole European population. In other respects one cannot yet form a decided opinion upon the future trade of Ningpo. The evacuation of Chusan

will, perhaps, give an activity to that port which it has hitherto wanted.

The archipelago of Chusan is situated within sight and at a small distance from the coast of Che-kiang of which it is a dependency. It is composed of a group of islands very numerous. Chusan, the largest of these islands, has given its name to the whole of the archipelago.

When the English made Hongkong be conceded to them, they knew not the value of Chusan. They had only found it an insalubrious land, where they had lost many lives by fever and cholera, and where they supposed it was impossible to establish a durable settlement. In their haste to take possession, they chose Hongkong, because of its fine harbour. They would now willingly exchange their barren rock for the position they have just abandoned. Chusan is fifty miles in circumference, and twenty-one in its greatest length. The island is covered with mountains, in the midst of which extend fertile valleys. Rice, cotton, tea, the tallow-tree, some varieties of pulse and fruits are its principal productions. The climate cannot be called salubrious, but by the sanatory precautions that have been taken since its occupation, the mortality in the English garrison has considerably diminished.

Tinghai is the capital of the island. The barracks, the hospital, and the different English establishments, are situated on the space between the walls and the shore. As all these buildings, according to the terms of the treaty, are to be delivered to the Chinese, in the same state they are at the time of evacuation, they are only sheds. Some Chinese shops are established around the camp.

Tinghai owes a peculiarity in its appearance to the presence of the English. It is a city in some sort anomalous. It has not become English, but it is no longer Chinese. A part of the ancient inhabitants have withdrawn to Ningpo. One is quite astonished to see the houses and the streets peopled by red dresses and by policemen; the pagodas transformed into guard-houses, and the idols dressed with sword-belts, the sabres, and muskets of our soldiers. Nevertheless, the English administration ought to benefit the Chinese population of Chusan, no exactions, no imposts; besides a garrison of 800 men, a station of ships-of-war, a continual movement of trading-vessels which come to victual, the residence of several European merchants, and consequently, a considerable expenditure of money, a good part of which remains in the hands of the Chinese.

Finally, there are sold in Tinghai, European merchandize, and large cargoes of opium, which the native boats land secretly along the whole coast.

This focus for smuggling would be of the highest importance to the English. Established on an island, far from the superintendence of the Chinese mandarins, within reach of the Yang-tsze-keang, and of the Yellow River, which by their different branches, and a multitude of canals, communicate with the most remote regions of the Empire, it might concentrate, under a firm administration, the operations of foreign commerce, and inundate the Celestial Empire with the contents of its magazines.

Let any difficulty arise; let China studying the treaties, attempt some day to shackle the European commerce, and to reconquer her solitude; two steamers leaving the port of Tinghai, would be sufficient to blockade the two rivers and to convert her home into a prison. In every relation, commercial, political, and military, there exists not in the whole Empire a position which presents the advantages of Chusan.

Towards the end of 1845, the garrison of this island was preparing for the evacuation which ought to have taken place in February, 1846. The last mail from China informs us, that the English troops had withdrawn on the 25th of August, and that the forts had been restored to the Chinese. The Chinese debt having been paid off in full, restitution of the pledge became due. The English may have hesitated to relinquish Chusan, but they felt it necessary to honour the signature of their sovereign.

Remarks on the Tenasserim Provinces.

By Commander J. E. Bingham.

The Tenasserim Provinces extend from about 17° 40′ to 12½° N., they possess a healthy climate, agreeing well with the European constitution, as shewn by the returns of deaths in the Royal regiments formerly stationed on the coast.

The thermometer ranges in the shade, during the hot months, from 75° to 98° in December, January, and part of February; however, it will, at dawn be down to 54°, rising to 75° and upwards by 2 P.M., but never exceeding 85°, while in the south-west monsoon it will average 76°.

For days, at this season, the sun remains obscured and the rains are very heavy, commencing with moderate showers in May, and terminating in the early part of October with heavy squalls of thunder and lightning during these months inclusive.

At Maulmain the maximum fall of rain has been $224\frac{7}{100}$ inches, the minimum $113\frac{15}{100}$ inches, the average of six years gives 180 inches per year.

At Tavoy, the fall in the same months reach the maximum of $240\frac{6}{100}$ inches, and the minimum $175\frac{3}{100}$ inches, the six yearly average being 216 inches. With such an immense fall of water, it is not surprising that the climate of these provinces, more especially during this season, possess an extreme humidity; a fact of which we soon became aware, from the destruction by damp and mildew of clothes, books, &c., indeed every thing that was perishable, and that was not either soldered down or constantly aired by fires.

These provinces, if fully developed, contain vast resources. A very small population with but little capital, are the principal sources of this want of development.

The present Commissioner, J. R. Colvin, Esq., is turning his attention to draw out some of these vast riches, and, as a primary step has proposed to the Bengal Government, to allow the permanent purchase of land, instead of the present loose tenure under which it is at present held by its occupiers; by these means he hopes to induce capitalists to settle here, as they now do at Penang and Province Wellesley.

These provinces are intersected by rivers and streams in every direction, which with the construction of a few roads, would give an easy means of transporting the produce to the coast.

The Amherst province produces the teak, vast forests of which abound in certain localities; but the teak is not indigenous to the southward of 16° N., and this tree also shuns the immediate neighbourhood of the coast. At Maulmain the timber trade has swallowed up all others, and the indiscriminate cutting in the forest, has caused much wanton destruction, but which, by the regulations now introduced, is partially stopped.

The teak brought to the Maulmain market is probably equal to any for ship-building in India, like the teak of other parts it is subject to holes and flaws, which cannot be discerned until the logs are cut into. Its good qualities are many, its specific gravity being as 43 to 45, and its flexibility as 900 to 850, as compared with Malabar teak, while the small quantity of perilignous acid it contains, renders it valuable for iron fastnings.

There are but two species of teak brought to the market in any quantity, though there are several other kinds occasionally brought down, and many which the Burmese name, pretending to be able to distinguish them and the forest in which they grow; but, which they totally failed in doing upon trial, these two kinds are the Kyoon Paroom and Kyoon Kyouk, Rock Teak; the first is a light coloured wood, open in its grain and rather spongy, abounds in all the forests, and floats very shortly after being cut down, it attains a great height and girth, and comes to maturity in about eighty years.

The second, on the contrary, is hard, close grained, and floated with difficulty, after having been killed three years. It is of slow growth and seldom attains the height and girth of the "Paroom," which may be accounted for by its being found in a cold, poor, clayey soil; this, with some other description, grows to the age of 150 and 200 years.

The other kinds may be enumerated, as the Kyoon Nway, Noo, Proo, Boh, and Black Teak.

The first is scarce; the second, from its knotty appearance and wavy grain, is designated Noo (Leprous), it is used for furniture; the third, from its bark, leaf, and wood being white, takes the cognomen of Proo (White); while the fourth, only used in house-building, rejoices in that of Boo (Bastard).

The Black Teak I should much doubt being a separate kind, it is rarely found; I have seen but one log of it during the four months I was at Maulmain; the peculiarity of colour is probably produced by the tree growing where iron ore strongly predominates in the soil

At Maulmain the teak is distinguished by the name of the forest it

comes from, the rivers on the banks of which it grows, or the foreign states from which it is imported, viz., the Attaran Shaingbooe, Houndro, Thougyean, while the imported are the Shan, Mywonghee, and Karanee; but as timber, they may all be classed under the previous names, as the different kinds will be found in all the forest.

The system followed of seasoning the teak, must tend to the deterioration of the wood; the tree is ringed about six feet from the ground and thus left to die, being felled at the expiration of the third year. The reason given for this is, that the wood will not float when green, and if felled and left in the forest to season, would be destroyed by the periodical fires, or buried by the rank vegetation of the jungle; this might be easily remedied by conveying the fallen trees to one spot for the purpose of seasoning.

Another great evil that exists in regard of these forests, is allowing them to be worked indiscriminately, that is, by any one that applies for permission, without knowing if he has the means of doing it properly, whereby a great quantity of splendid timber is destroyed.

The forester, probably not possessing more than one elephant, is obliged to cut his large timber into "Logars," lengths of and under twenty feet, to be able to draw them to the river. Trees of eighty and ninety feet in length, and ten feet and upwards in girth, are thus sacrificed.

From the Thougyean forest the timber is guided down to the rapids, and then left to find its way to a boom or rope across the river, where the owners congregate to select their logs, when they are formed into rafts of 120 each, and brought down the Sallween.

In the Shan country the foresters make a present to the Chief Shan of the district, and receive permission to fell timber, paying three rupees for all trees taken away.

Capt. Charles Rowlandson, of the Madras Army, Commissary Officer at Maulmain, and agent for the purchase of Government timber, is an officer of high talent, and well acquainted with all questions regarding the Teak trade; to him I am indebted for many of these remarks. In 1847, he had twelve thousand tons of timber in store for the Crown, which was under conversion, and turning out about twenty per cent. better than the merchant houses concerned in the timber trade consider teak timber generally did.

Large forests of pine are found to the eastward of the Thougyean river. It is a heavy red wood, having much the appearance of Riga pine; it is highly saturated with resinous matter, I should think, from the specimens I have seen, that quantities of tar might be extracted from it. The natives make a kind of pitch, which, I apprehend, it becomes by the clumsy method used amongst them of allowing the volatile parts to fly off; to me it appeared of two great a specific gravity to be applicable to spars.

Specimens have been tried at Calcutta against Riga pine, when it evinced great strength, bearing one-third more weight before they broke, than Riga pine of the same dimensions did.

The Commissioner of these provinces has promised to procure some spars from the forest, should he do so, I shall try them in the *Acorn*.

Large pine forests also exist in the Shan country, but without water-carriage; terms, however, could be made with the Shans, to admit of the felling and making tar of the trees.

Among the vast variety of trees that abound in these forests and jungles, the most useful are the following, viz.:—

Bastard Elm.—Free, of great tenacity, and of large and straight growth.

Pee-mah.—(Possessing pliability, strength, and durability)—is used by the natives, and through Ava, for paddles and oars.

Blackwood.—Is heavy, but almost imperishable, admirably adapted for mechanical purposes where weight is not considered.

Bastard Rosewood.—Possesses all the above good qualities, with less specific gravity, when full grown and well seasoned, it is impervious to the sun, wind, and rain, well calculated to resist friction, and is, therefore, most useful in machinery. Capt. Marshall, of B. N. I., observes, "The posts of the old Palace of Pegu, built by one of the Talien race of kings, are of this timber. On examination, in 1826, I found them to be perfectly sound, a certain proof of durability."

Iron ore exists in many parts of these provinces, some specimens that were submitted to Dr. Ure, from Tavoy, were pronounced by him compact iron ore, yielding per oxide of iron 86, equivalent to 60 metal. Dr. Morton, late Civil Surgeon of Tavoy, in his report of these provinces, observes, "I have, however, in my possession, a specimen of a still more valuable ore, situated at the southern extremity of the province, which is a pure per oxide of the species denominated specular oxide of iron. Iron pyrites, red and yellow ochre, also occur in several parts of the province. The other mineral productions are manganese tin, and a little gold, found chiefly in the head water of the rivers."

At Mergui vast fields of good coal are found, though at present but little worked, it is well adapted to the use of steamers, giving a clear copious flame. It is true that it has been objected to as subject to spontaneous combustion, but is this borne out by facts? I think not. At Mergui stacks of it are exposed to the weather, but I am not aware of it having ever ignited, though the English coal stored at Maulmain for the steamers did so in 1847 from a want of protection from the rain.

It is bad for cokeing, from the great quantity of volatile matter it contains making it unprofitable; but, I apprehend, the same cause will make it available for gas, of which it contains a large quantity. It is thus spoken of by Doctor Helfer, "Its quality is one of the best known, following the division of Dr. Jameson belongs to the species 'Black coal,' subspecies of 'canal coal,' massive, resinous lustre, fracture conchoidal, brittle, specific gravity from 1.24, to 1.28, it burns freely with a reddish flame, it evolves a great quantity of gas, and is completely clear from sulphur and iron pyrites, it can be reckoned equal to the best English

coal." Of its quality there is little doubt, but as I have not yet visited Mergui, I will not observe further on the subject, as I hope to be able to ascertain all facts on the spot ere long.

There are few vegetable productions that cannot be cultivated in these provinces. Rice, of which there are many varieties, may be grown in any quantity, and from the time of sowing to reaping is about five months; its average yield is about 40 per cent on the seed, though in many instances this may be doubled.

The sugar cane attains a luxuriousness of growth; I have seldom seen exceeded; it "ratoons" thrice; after which the cultivator abandons the spot, clears and plants a new piece of jungle: where land is so abundant, this is only attended with the inconvenience of removing the cane fields further from the mill, which is fully exemplified at Mr. O'Riellies estate at Amherst, where most excellent sugar is made. But the cane patches are now nearly a mile from the boiling houses.

Camphor of good quality is also found in parts of these provinces.

As very strong tides prevail about the entrance of Maulmain River, and Gulf of Satang, vessels bound for the former place should make the land to the southward of Amherst about Double Island, or even in the south-west monsoon as far south as the Island of Calagouk, 29 miles south of Amherst Point, having done which they may shape a course to pass about two miles to the westward of Double Island, when abreast of which the Pagoda on Amherst point will be seen. Should the reef buoy be made, and the commander of the vessel not wish to run in without a pilot, she should anchor about 1¼ mile to the westward of Green Island where she will find good anchorage, though heavy riding if in the south-west monsoon, until the pilot arrives.

The buoys are, first the patch No. 1, black with a basket on the top; second, the reef bouy No. 2, also black. I have recommended it to be painted black and white as the basket may wash off the patch buoy, and in thick weather when they cannot both be seen, it is impossible to say which buoy is made; third No 3, red buoy, and then the fourth No. 4, black, on a rocky patch. Should a vessel decide on running in without waiting for the pilot, she should pass close to the westward of No. 1, then steer to pass close to No. 2, leaving it on the starboard hand, then steer in, and leaving it on the port hand pass within about 60 yards off No. 3, keeping a direct course for No. 4, and when half-way between them anchor for the pilot.

To give other directions for running up the river is impossible, for the banks vary so much that only those in the daily practice of navigating the river can be aware of the changes. I consider the pilots at Maulmain good, but the best of them are subject to getting a vessel on the banks when dropping down with the strong ebb tides that prevail.

The commissioner J. R. Colvin Esq., consulted me on the defence of the river, so as to protect Maulmain with a few troops from sudden aggression by a small European force, I have strongly recommended the erection of a Martello tower at Amherst, one at Natmoo, another on the

opposite bank of the river, and a fourth at Mapoon; each tower to mount three guns, and to be supplied with two months provisions and water. With these towers and the natural defence of an uncertain navigation, I conceive Maulmain would be perfectly safe from anything but an overwhelming force.

Great facilities exist here for forming building and repairing establishments. At spring tides vessels of any size may be moved in the river by steamers; the rise and fall being 21 feet full and change.

At Mapoon point the soil is "Saterite," admirably adapted to the formation of docks and slips, by saving all piling. Streams abound in all parts, that might be formed into back waters to keep the docks and gates clear of the mud, that the river deposits everywhere.

Timber I have already shewn of the best quality abounds in the Tenasserim forests, and those of the neighbouring states; artificers can be procured, and the mere want of them would soon double and treble their numbers. The Burmese are good workmen in framing and planking. The Chinese though slow are first-rate for all the joiners department. Iron would soon be supplied by the Tavoy provinces; coal by Mergui; and the copper might be sent from England. Then the climate is decidedly healthy for Europeans. How different from Bombay, where cholera sweeps off its yearly victims, where the Teak forests of Malabar are failing, and where the original cost of the wood is more than than that of Maulmain.

Again, take its position, situated as it is, in the N.E. corner of the Bay of Bengal, a sure and safe refuge in the S.W. monsoon to a ship either disabled by storm or battle, here she can always come; but can she get to Bombay? to Trincomalee?—No! Calcutta she might possibly fetch, but a crippled ship ill likes the sand heads. In 1805 a plan existed of establishing a Naval Depôt at Penang, it was ultimately abandoned by the recommendation of Admiral Drury, who considering it a port not adapted to the intended object; he never would have thought so of this point had he been here, It is odd that, all the last war, these splendid harbours on this and the Arracan coast were known and used by the French privateers, but hardly known to us.

Under the Island of Calagouk is a remarkable fine anchorage, with 6 fathoms mud, perfectly sheltered, with a safe and easy passage at the south end. On proceeding to Maulmain in June, finding I could not get off Amherst, before dark, I ran in to this anchorage for the night, quitting it on the last of the ebb next morning, and picking up the flood outside, which, with nearly a calm, drifted us up to Green Island, by about noon.

The Laccadives Islands.

P. & O. S. N. Co.'s Ship Precursor,
off Madras, October 1st, 1847.

Mr. Editor,—Amongst those beneficent acts which do honour to the character and conduct of the British Government, no one, in my opinion, bears the stamp of humanity and benevolence with more distinguished credit, than the relief which has been recently afforded to the wretched and suffering inhabitants of the Laccadive Islands, who have encountered all the misery of hunger and destitution, ever since they were so awfully visited by the terrible effects of the hurricane of April last.

2. The following brief statement of that disastrous event, and the succour afforded by the H. Co.'s steam-frigate *Auckland*, cannot fail to be interesting to the public. The *Auckland* left Bombay on the 28th of August and proceeded direct to the Laccadives, and when near the Island Kalpeni, a canoe came of, and when pulling up under her stern, the crew fished up some potatoe peelings which they ate with the greatest avidity; and when they got on board, Capt. Young gave them a bag of biscuit, which they devoured with intense eagerness and every shew of gratitude.

3. From all the information Capt. Young could obtain, it appears that the Islands Kalpeni and Underoot suffered the most by the hurricane: the sea made a fair breach over them, and swept away about 250 of the inhabitants; the trees were in many instances torn up by the roots, and a number were cut asunder by the violence of the storm. Considering the strength and tenacity of the cocoanut-tree, these circumstances afford a remarkable proof of the force and severity of that tremendous hurricane, and Capt. Young himself saw that such were the results; the trees which escaped were denuded of their foliage, and it will be a length of time 'ere they can recover, whilst the inundation of the sea is attended with another sad calamity, viz. the destruction of every tank and well, and the absence of all means of procuring fresh water.

4. When the unfortunate islanders had witnessed the terrible effects of the storm, and the melancholy fate of their brethren, numbers of them rushed to the boats to the leeward, in a vain endeavour to escape, and many must have perished on that occasion; 162 persons died from starvation on the Isle Underoot, and the number who perished from hunger, and in their attempt to escape from Kalpeni, is estimated at 513. Capt. Young ascertained that 758 persons embarked from Underoot; how many reached the Malabar Coast may be known, but there is reason to fear that 1,800 men, women, and children have perished. From April to the time of the *Auckland's* welcome arrival, the people lived chiefly on the roots of the young cocoanut-trees, and they caught and saved water during the rains.

5. Capt. Young left 350 robins* of rice at Kalpeni, and 164 bags and 134 robins of rice at Underoot, on his first visit; the *Auckland* then proceeded to Calicut for a fresh supply, and on her second visit to the Laccadives, Capt. Young delivered for the poor islanders of Underoot 400 robins of rice, with a quantity of stores such as curry stuffs, betel-nut, cocoa-nuts, &c., which were left in charge of Mr. Robinson, M.C.S. A further supply of food and comforts has been sent from Calicut, by native boats to Kalpeni, and there is no doubt the benevolent wishes of Government will be well and liberally carried through during the N.E. and fair weather monsoon. Cocoanut plants are needful, and every endeavour should be made to drain the wells from the effect of the sea-water and have them replenished.

6. Except on a small bank off Minicoy, there is no anchorage amongst the Laccadives. Capt. Young had a most anxious duty to perform on his approach to the islands, which was done by steaming close to them and then backing off. On one occasion the *Auckland's* boat was nearly swamped in the surf, and could not be got through it when she attempted to return: however, the natives carried the boat across the island, to where it was smooth water, and all the operations in performance of a duty grateful to every British seaman, were well and ably performed by Capt. Young and all under his command. The poor famished people so opportunely relieved, evinced every feeling of thankful gratitude for their deliverence; they will, in all probability, take up their chief abode in the neighbouring islands, as not only are trees and vegetation utterly destroyed, but their huts and dwellings were all swept away, and they were sheltered under such temporary abodes as the ruins afforded them the means of erecting.

The following islands of the Laccadive group belong to the East India Company, viz.:—

Kaltair, with a population of . . .	950 souls.
Cheltac	500 "
Kardmaut	40 "
Ameni	2,000 "
Total.....	3,490 souls.

And the undermentioned islands are the property of Her Highness the Beebee of Cannanore, viz.:—

Ashalter, with a population of . . .	1,000 souls.
Conrittee	3,500 "
Minicoy	3,000 "
Kalpeni, formerly 1,563, at present .	1,050 "
Underoot " 2,200, " . .	1,430 "
Total.....	9,980 souls.

* A robin weighs 80lbs.

The hurricane raged with the greatest fury from the S.E., and ravaged the two unfortunate islands in that direction, but the rest of the group escaped with but little loss, and at Minicoy, the southernmost islet which Capt. Young visited, the islanders reported that the gale was not very severe. The natives of these islands are of mild and inoffensive race, and assuredly every friend to humanity must rejoice at that noble display of true generosity, which has with such marked and disinterested zeal, supplied their pressing wants, and pointed out where they may find protection under the heaviest affliction. Under these circumstances, I hope and trust Mr. Editor, that this interesting event will tend to exalt the fame of our common country, throughout British India, and convince the natives of every caste, that justice and humanity are the predominant features of our character.

CHRIS. BIDEN.

EXAMINATION OF MASTERS AND MATES IN THE MERCHANT SERVICE.

WE now lay before our readers a List of the Masters and Mates who have been examined, and received certificates of qualification, between the 21st of December, 1847, and the 29th of Feb. last. It is somewhat gratifying to observe, that although the voluntary system works slowly, yet that there is a progressive increase in the number of persons who have come forward for examination, and a fair hope, with the encouragement now given by the Government (in hiring vessels) in favour of those commanded by qualified officers, that it will, 'ere long, be more fully carried into effect.

Since we last adverted to this subject, Mr. Hume has succeeded in obtaining a Select Committee of the House of Commons to consider whether, in all cases of shipwreck and collision of merchant vessels, attended with loss of life, a court of inquiry, as speedily as possible after the accident, and as near as possible to the place, should be appointed to examine the attendant circumstances and causes of the shipwreck; and for the Committee to report to the House in what manner that inquiry should be conducted. The Committee, which is tolerably fairly composed, consists of the following members:—Mr. Hume, Capt. Berkeley, Mr. Milner Gibson, Admiral Bowles, Sir Thomas Birch, Viscount Ingestree, Mr McGregor, Mr. Roundell Palmer, Mr. Foster, Mr. Fitzroy, Mr. Flaherty, Mr. W. Fagan, Mr. Duncan, Mr. G. R. Robinson, and Mr. Wawn.

It is scarcely possible to conceive a more important duty than that which these gentlemen have undertaken. Former committees have been appointed with nearly a similar object in view, but, as their inquiries have ended without any legislative measure having been founded upon their reports (which, in some instances, have been confined to the mere evidence), it is not unreasonable to suppose that this committee, taking advantage of the information already collected by preceding committees,

together with the evidence they will obtain, will recommend a Court of Inquiry in cases of Shipwreck; such as all parties connected with the mercantile marine must feel an interest in seeing established.

The wide field now open to our merchant shipping, and the increased and increasing amount of emigration, render it almost imperative, for the sake of humanity, that those persons who are put in command of ships, in which the lives of thousands are risked, should be men of education, and thoroughly qualified in every respect, to the efficient discharge of the duty imposed upon them. For this reason, the examination of mates, which has hitherto been very limited, should be more strictly enforced; so that as they rise in their profession, they may find no difficulty when the time arrives, in proving their qualifications for a command. We cannot too strongly recommend this point to the serious consideration of shipowners. There can be no excuse for a young man's not desiring to avail himself of the existing voluntary system; and in times like these, when education has made, and is still making, such strides, there ought to be no difficulty in finding youths who should feel it their interest, as well as their duty, to make themselves competent to undergo the examination required.

To the masters, also, it is due that every encouragement should be given. In our number for February last, we inserted a letter from a Correspondent at Bristol, in which he spoke of the inconvenience and expense to which the candidates belonging to that port would be exposed, from the necessity of their coming to London or going to Gloucester to be examined, owing to the Board of Trade not having established a Board of Examiners at Bristol. We now publish another letter * which we have received from him on the subject. He suggests, that the "Society of Merchants," at Bristol, should be entrusted with the examination of Masters and Mates. We cannot, of course, give any opinion upon the propriety, or otherwise, of the proposed measure, not having any knowledge whatever of the ability or fitness of the society alluded to, to determine the qualifications of officers who are to navigate ships all over the world; but we think it right to give publicity to our correspondent's suggestion, in hope that it may attract the notice of the Board of Trade, and lead to the establishment of a court for the examination of Masters and Mates at Bristol, an important port, which certainly ought not to be left without one.

We have noticed, with much pleasure, that the Committee for Managing the Affairs of "Lloyd's Register Book," have, in furtherance of the object which they have so laudably promoted, advertised, that upon the production of the certificate of qualification by masters in command, they will cause the Class, for which they may have qualified, to be inserted against their names in the "Register," as shewn against the ships they command. This will, no doubt, prove an incalculable benefit both to shipowners and underwriters, as well as to the masters themselves.

* See page 201.

Name of Party who has received the Certificate	Class of Certificate	Age	Present or last previous Service	Register Ticket	Where Exam.	When.
S. Wharton	1st	32	Adelaide, 639 tons	.....	Newcastle	Dec. 31st 1848.
P. B. Dahl	1st	21	Ganges, 780 tons ... (*as mate*)	34814	Leith	Jan. 3rd
H. Kelly	3rd	26	Sophia, 376 tons ... (*as mate*)	12175	London	— 3rd
J. S. Savery	1st	31	Calypso, 369 tons...	.....	Liverpool	— 4th
Henry Peachey	2nd	27	Arabian, 391 tons... (*as mate*)	32012	London	— 5th
E. M. Robertson	2nd	23	Stebonheath, 1013 tons (*as mate*)	4655	London	— 5th
J. Robertson	2nd	36	Arabian, 391 tons...	.....	London	— 5th
C. G. Rofe	1st	27	Rapid, 156 tons..... (*as mate*)	37557	Yarmouth	— 6th
T. Thomson	2nd	36	Rustomjee Cowasjee 850 tons (*as mate*)	.....	London	— 7th
Rob. Daniell	2nd	34	Blundell, 573 tons...	.....	London	— 7th
C. Grant	3rd	39	Humayoon, 530 tons (*as mate*)	329169	London	— 7th
John Sheill	2nd	25	Jane Greene, 498 tns (*as mate*)	239586	Newcastle	— 11th
John Wicks	2nd	29	Margery, 318 tons... (*as mate*)	65799	S. Shields	— 12th
George Temple	3rd	28	Robert & Ellen, 219 tons (*as mate*)	12427	S. Shields	— 12th
William Dale	2nd	36	Phœbe, 578 tons.....	.....	London	— 12th
Henry Tillman	2nd	28	Elphinstone, 425 tons	5250	London	— 12th
R. W. Welsh	2nd	35	Chanticleer, 288 tons (*as mate*)	329064	London	— 13th
W. D. Stoddard	2nd	34	Dee, Royal Mail Pkt. 1450 (*as chief officer*)	166878	Portsmouth	— 14th
J. B. Godfrey	1st extr	30	Devonshire, 302 tons	.....	Plymouth	— 14th
W. J. S. Clark	2nd	49	Elizabeth & Henry, 536 tons	.....	London	— 14th
T. Pattison	2nd	38	Tyrian, 226 tons...	.....	London	— 14th
D. J. Cousens	2nd	31	Houghton le Spring 353 tons	.....	London	— 14th
George Read	2nd	33	Albion, 495 tons..... (*as mate*)	31079	London	— 14th
Wm. Lillico	3rd	27	Aimwell, 192 tons... (*as mate*)	.....	S. Shields	— 15th
John Stamp	2nd	33	Trusty, 366 tons ... (*as mate*)	33203	London	— 15th
G. H. Harrington	1st	28	Oriental Queen, 645 tons (*as mate*)	23956	London	— 17th
C. J. Breary	2nd	30	Royal Sovereign, 446 tons	.....	London	— 17th
Geo. Case	2nd	30	John Laird, 276 tons	31341	London	— 17th
W. L. Mullens	2nd	44	Unicorn, 375 tons ...	.....	London	— 17th
J. Tweedie	1st	40	Bangalore, 878 tons	.....	Liverpool	— 18th
R. G. Gilmore	1st	25	Levenside, 273 tons	.....	London	— 19th
M. Brooks	2nd	36	Chamois, 201 tons...	.....	London	— 19th

W. H. Thompson	2nd	37	Leonard Dobbin, 611 tons	19516	London	Jan. 19th
M. J. Howlett	2nd	31	Madras, 346 tons ... (*as mate*)	391153	London	— 20th
F. Gray	3rd	26	Diamond, 567 tons (*as mate*)	29586	London	— 20th
John Scott	2nd	25	John Barry, 236 tons	.....	S. Shields	— 20th
Wm. Pollard	3rd	30	Perseverance, 177 tns (*as mate*)	52356	S. Shields	— 20th
D. W. Stephens	2nd	30	Palmira, 602 tons ...	.....	London	— 20th
John Manning	2nd	30	Elizabeth and Henry 534 tons (*as mate*)	343827	London	— 20th
W. B. Wells	1st	29	Belle, 247 tons	.....	Liverpool	— 21st
C. Howes	2nd	26	Arabia, 363 tons ... (*as mate*)	30964	London	— 22nd
Wm. Orchard	2nd	27	Enterprise, 94 tons	24291	London	— 22nd
William Vagg	2nd	33	Sussex, 210 tons..... (*as mate*)	1335	London	— 22nd
R. Sclater	2nd	32	Chatham, 354 tons	120026	London	— 24th
William Carr	2nd	37	Branken Moor, 402 tons	.....	London	— 25th
J. Barclay	2nd	31	Morayshire, 319 tns.	.....	London	— 25th
J. Gray	2nd	42	Coromandel, 765tons	.....	London	— 25th
J. Y. Johnson	2nd	31	Maria, 188 tons.....	.....	S. Shields	— 25th
J. Killgour	3rd	44	John Dunn, 201 tons (*as mate*)	163951	S. Shields	— 25th
T. Downward	1st	31	Berhampore, 653tons (*as mate*)	49395	Liverpool	— 28th
N. F. Harvey	2nd	26	European, 119 tons	45329	Newcastle	— 28th
Dan. England	2nd	33	James Duncan, 242 tons	.....	London	— 28th
E. M. Smith	2nd	41	Anna Maria, 480 tns	.....	London	— 28th
David Soutar	1st	28	Palermo, 314 tons...	.....	Leith	— 29th
W. J. King	2nd	33	Maria Somes	.....	London	— 28th
R. Downe	2nd	30	Teneriffe, 132 tons (*as mate*)	19903	London	— 27th
J. Butterworth	2nd	40	Dream, 172 tons ...	15267	London	— 31st
J. Santry	2nd	36	Larkins, 701 tons ...	.....	London	Feb. 2nd
G. E. Rowlands	2nd	27	Severn, 1800 tons ...	262439	London	— 2nd
H. H. Greaves	2nd	33	Emily, 580 tons.....	.....	London	— 2nd
J. C. Younghusband	3rd	30	Mary Sophia, 307 tons	.....	London	— 3rd
T. Young	3rd	30	Amphitrite, 273 tons (*as mate*)	14257	S. Shields	— 3rd
F. Michie	2nd	42	Westminster, 610 tns	.....	London	— 3rd
J. Dale	2nd	30	Princess Victoria, 272 tons (*as mate*)	9680	London	— 3rd
T. Hawkins	1st extr	51	Penang, 362 tons ...	.....	Liverpool	— 4th
H. D. Barman	2nd	30	Delhi, 342 tons ..... (*as mate*)	15893	London	— 5th
J. B. Leith	2nd	31	Bolivar, 212 tons ...	22778	London	— 5th

G. Hyde	2nd	24	Cornwall, 1075 tons (*as mate*)	388041	London	Feb. 7th
W. E. Maurice	2nd	31	China, 434 tons.....	344314	London	— 7th
J. T. Barclay	2nd	32	Duke of Bronte, 425 tons		London	— 7th
L. Sinclair	2nd	29	Jane A. Milvain, 274 tons		S. Shields	— 8th
T. T. Brown	2nd	25	Strathisla, 387 tons (*as mate*)	387376	London	— 8th
A. Alexander	2nd	48	Sophia, 373 tons ...	.....	London	— 8th
P. J. Dixon	2nd	34	Velocity, 151 tons...	.....	London	— 8th
T. Platt	2nd	33	Glenlyon, 908 tons (*as mate*)	211425	London	— 8th
F. F. Gibbs	3rd	29	Hero, 400 tons ..... (*as mate*)	336582	London	— 8th
G. Lodwick	3rd	46	Mary, 193 tons	163041	Newcastle	— 9th
G. B. Lee	2nd	36	Marchioness Douro, 338 tons (*as mate*)	16550	London	— 9th
Edward Job	3rd	26	Grace Darling, 196 tons (*as mate*)	10089	London	— 10th
W. Lazenby	2nd	28	Nautilus, 204 tons (*as mate*)	181723	S. Shields	— 10th
John Kay	2nd	25	Thalia, 286 tons ... (*as mate*)	240333	S. Shields	— 10th
J. W. Welton	3rd	27	George Anson, 158 tons (*as mate*)	37546	Yarmouth	— 11th
F. Wheate	2nd	38	Triune, 227 tons.....	.....	London	— 11th
W. Renney	2nd	34	Coaxer, 316 tons ...	.....	London	— 11th
F. W. Fuller	2nd	29	Sarah, 381 tons..... (*as mate*)	261889	London	— 12th
Edward Jarvis	3rd	32	Greenlaw. 500 tons (*as mate*)	28259	London	— 14th
C. Lawson	2nd	26	Thomas Jones, 294 tons (*as mate*)	30345	London	— 14th
A. W. Owen	2nd	33	Greenlaw, 500 tons	.....	London	— 14th
Helier Touzel	2nd	22	Unicorn, 136 tons...	.....	Plymouth	— 14th
P. Richardson	2nd	38	Whitby, 437 tons ...	15887	London	— 14th
N. J. Layton	2nd	27	Stebon Heath, 1013 tons (*as mate*)	14034	London	— 15th
W. Minter	2nd	30	Kinnear, 368 tons ... (*as mate*)	26609	London	— 15th
G. Boggis	2nd	29	Dublin, 429 tons ... (*as mate*)	27142	London	— 15th
T. Rapson	2nd	35	Tuscan, 181 tons ...	.....	London	— 16th
J. Smith	2nd	41	Robarts, 900 tons ...	.....	London	— 16th
W. G. Martin	2nd	28	Kirkman Finlay, ... 439 tons	348581	London	— 17th
G. Temple	2nd	28	James & Frances, 245 tons	12427	S. Shields	— 17th
H. T. Cox	1st	28	Cambria, 1400 tons (*as second officer*)	162745	Liverpool	— 18th
J. Anderson	2nd	23	Richard & William, 163 tons (*as mate*)	28730	Dundee	— 18th
C. F. Maundrell	2nd	26	Eliza Scott, 135 tons	325523	London	— 18th

O. C. Field	2nd	30	Dee R. M. Packet 1400tn(*as 2nd officer*)	161680	Portsmouth	— 22nd
W. H. Ray	2nd	24	Amy, 440 tons ..... (*as mate*)	376682	London	— 23rd
Wm. Connell	1st	25	Isabella, 281 tons ...	324949	Liverpool	— 25th
A. Easterby	1st	30	Aram, 350 tons	.....	Liverpool	— 25th
T. Hall	2nd	33	Ariadne, 335 tons ... (*as mate*)	183996	Newcastle	— 25th
H. W. Dare	2nd	29	Harry, 199 tons.....	345742	London	— 25th
Sam. Downe	2nd	40	Teneriffe, 139 tons	.....	London	— 25th
S. R. Doke	2nd	29	George Fyfe, 475 tns (*as mate*)	7453	London	— 25th
J. Strutt	3rd	27	Black River Packet, 264 tons (*as mate*)	376673	London	— 25th
H. R. B. Page	3rd	24	Lady M'Donald, 678 tons (*as mate*)	391330	London	— 25th
James Roche	3rd	29	Hindostan, 1825 tns (*as mate*)	75397	London	— 25th
W.W. Matheson	1st	32	Lloyds, 403 tons ...	.....	London	— 28th
J. R. Smith	2nd	31	Crest, 345 tons	.....	London	— 28th
Ralph Garritt	2nd	28	Welcome, 228 tons (*as mate*)	185033	S. Shields	— 28th
Wm. Cleet	3rd	25	Ellen, 240 tons ..... (*as mate*)	181639	S. Shields	— 28th
Rob. M'Lachlan	2nd	46	William Mitchell, 400 tons	.....	London	— 28th
William Mills	2nd	35	Severn, 1800 tons ... (*as mate*)	252741	London	— 28th
Richard Walshe	2nd	27	Lady Kennaway, 583 tons (*as mate*)	390112	London	— 28th
B. J. Avery	2nd	29	Lady Kennaway, 583 tons	.....	London	— 28th
James Smith	2nd	40	Armide, 705 tons ... (*as mate*)	83141	Newcastle	— 29th
John Cottew	2nd	25	Mary Ann Cook 254 tons (*as mate*)	232388	Newcastle	— 29th

MATES.

J. M'Pherson	1st	27	Caledonia, 1400 tons (*as second officer*)	135901	Liverpool	Jan, 18th
R. Roberts	2nd	30	Arrow, 175 tons.....	123050	London	— 19th
F. Franklin	2nd	23	Bohemia, 280 tons... (*as able seaman*)	390237	London	— 24th
Benj. Gurney	2nd	20	Wave, 111 tons ..... (*as seaman*)	138691	London	— 28th
Geo. Steele	2nd	22	Marchioness Abercorn, 875 tons ...	390972	London	— 24th
T. Clark	3rd	26	Princess Royal, 543 tons	8823	London	Feb. 3rd

D. Rowland, jr.	1st	26	Britannia, 1400 tons (*as third mate*)	255082	Liverpool	Feb. 4th
Wm. Cranston	3rd	21	Louisa, 1033 tons...	116013	London	— 4th
F. J. Burton	2nd	20	Severn, 1800 tons ... (*as midshipman*)	342122	London	— 9th
John Law	2nd	21	Xanthus, 217 tons...	22485	London	— 16th
Wm. Burgess	3rd	24	Duke of Bronte, 420 tons	24020	London	— 18th
J. M'Farlane	2nd	20	Universe, 719 tons (*as seaman*)	17961	Dundee	— 21st
James Milne	2nd	21	Willm. Gibson, 592 tons (*as seaman*)	35941	Dundee	— 25th

Bristol, February 23rd, 1848.

SIR.—There are neither "Corporation of Trinity House," nor "Branch," consisting of Sub-Commissioners of Pilotage.

The Pilot's license for the Bristol Channel is held under the Corporation of Bristol, and the Pilots are examined by the "Society of Merchants." Perhaps, the same society may, with propriety, be entrusted with the examination of "Masters and Mates" out of the Port of Bristol?

Your obedient Servant,

To the Editor N.M. A. H.

THE AVENGER.

Hydrographic Office, Admiralty March 7th, 1848.

SIR —On perusing the remarks in the *Nautical Standard*, of the 4th instant, on the loss of H.M.S., the *Avenger*, I noticed a complaint of the difficulty experienced by officers in general on board Her Majesty's ships, in obtaining a sight of the Admiralty Charts; but, I do not hesitate to state, from my own experience of twenty years' service, that I never knew or witnessed a solitary instance when, an officer was refused by his captain or commander a sight of the charts supplied by the Admiralty; and I would further add that, the charts, so supplied, are not in charge of the master *now*, nor have they *ever been*, but, in that of the captain or commander; but it is not an uncommon occurrence, that the captain deputes the master to draw the charts for the station to which he is destined, in his name, from the dockyard, and the master then signs the receipt, but the captain has the custody of them, and is *alone* responsible for their being returned into store, on the ship or vessel being paid off; or in the event of being superseded, to obtain a receipt from his successor.

To the Editor N.M. A MASTER, R.N.

Nautical Notices.

Hartlepool, March 1st, 1848.

Sir.—In the nautical notices of your March number, I observed a letter from Mr. Hoskyn, Master of the Royal Navy, respecting a communication made by me to Mr. Bate, of the omission of a spit on the chart of the entrance of the Dardenelles.

I am sorry that my communication should have hurt Mr Hoskyn, as I can assure that gentleman that, I never imagined that the error was attributable to the surveyor, but rather to a typographical error. I fully appreciate the remarks which Mr. Hoskyn has made, respecting the locality, and consequent difficulty of *estimating* distances. I did sound the part at the time, but should be glad of an opportunity to make stricter examinations, as I am willing to give full weight to Mr. Hoskyn's remarks, with respect to its extent upon the other place of the Dardanelles.

I have observed in one of your numbers, a letter respecting the loss of a vessel in the Sea of Marmora, by an error in Laurie's General Chart. I cannot say for the accuracy of Mr. Laurie's chart, in that particular part, but, I have found them generally very correct; yet, I do not think it prudent to go by a general chart, in those critical passages, and more particularly in the anchorages, which are, in those parts, extremely *narrow, and too close to the land to be approached* under such *difficult circumstances* as that unfortunate vessel did, (unless in case of emergency,) for those reasons I have Admiralty plans for all those parts, and whenever I can get them to assist the general charts. From the great assistance which I have found by the use of those excellent charts, I would recommend them being more generally used. I am, Sir, &c.,

R. Leighton,

To the Editor N.M. *Barque "Royal Auclaide."*

Note.—I have observed on my late voyage to Odessa, (in the *John Hutchinson,*) that vessels frequently grounded upon the shoals opposite Bukedere Bay, (in the Bosphorus), and have heard it asserted by old traders to those parts that, they have increased very much in size, since they were surveyed, and require great care to avoid them.—R. L.

Trinity-House, London, February 23rd, 1848.

Wreck in Aldbro' Bay.—Notice is hereby given that, a Green Buoy, marked with the word "Wreck," has been placed in the Stream, about 15 fathoms to the eastward of a vessel sunk in Aldbro' Bay. The buoy lies in 5 fathoms at low water spring tides, with the following marks and compass bearings, viz.:—

Aldbro' Church	N. ¾ W.
A remarkable grove of trees up the country, midway between the two westernmost houses at Slaughden	W.N.W.
Dunwich Church, just shutting in with Thorpness Cliff	N.E b.N. ¼ N.
Orford High Light	S.W. Westerly.

By order,

J. Herbert, *Secretary.*

Want of a Light off Guernsey.

Sir.—Another proof is shown of the great necessity there is for a light to be placed upon the south-west end of the Island of Guernsey. It appears by a paragraph in the Jersey and Guernsey papers of last week, that the

barque *Emmanuel Burns*, from Quebec, bound to Hull, timber-laden, struck about midnight, upon a ledge of rocks, called the "Gran Grimes," lying between three and four miles on the north-west part on the Island of Guernsey, where I have no doubt many an unfortunate ship has struck before, and no one left to tell the tale, and which would, in all probability, have been the case of those men, if their cargo had consisted of anything but timber, for, in ten minutes after she struck, she was full of water. As it was, the crew were nearly exhausted before they got the ship into Jersey, not being able to get below for sustenance.

This is another occurrence to prove that which I have so often, through the medium of your valuable journal, called the attention of the shipping interest to, and to endeavour to impress upon the minds of those whose duty it is to protect the lives of those who, by Providence, are required to seek their bread afloat.

That the Channel Islands are as great an obstruction to the navigation of the British Channel as the Scilly Isles, in as much as they cover ten times the space, and are surrounded by sunken rocks in every direction, is a point, I think, no nautical man will dispute; and why those islands, in the present days of reform, should be kept in total darkness, to the destruction of life and property, is a mystery that, I believe, but few can solve.

I am, Sir, yours, &c.,

W. SADLER.

Trinity-House, London, March 1st, 1848.

DARTMOUTH HARBOUR LIGHT.—The Town Council of the borough of Dartmouth having communicated to this corporation their intention to discontinue the light, which has been exhibited under their direction and management at the entrance of the harbour at that place; notice thereof is hereby given, and that it has been determined by the said Town Council, that the said Harbour-Light shall cease to burn in three months, from the 23rd of February last.

By order, J. HERBERT, *Secretary*.

Trinity-House, London, March 1st, 1848.

WRECK OFF THE NORTH FORELAND.—Notice is hereby given, that a Green Buoy, marked with the word "Wreck," has been placed about 20 fathoms to the eastward of a vessel sunk off the North Foreland.

The buoy lies in 10 fathoms at low water spring tides, with the following marks and compass bearings, viz.:—

St. Peter's Church, its length open to the southward of Prospect House	. . . . .	W.½S.
North Foreland Lighthouse	. . . .	West.
Goodwin Light Vessel,	(distant about 6 miles)	S.W.b S.

By order,

J. HERBERT, *Secretary*.

Trinity-House, London, March 16th, 1848.

WOLF ROCK BEACON.—Information has been received that, the mast and ball of the Wolf Rock Beacon have been broken away.

By Order, J. HERBERT, *Secretary*.

KEY WEST, *Collector's Office, Feb.* 7, 1848.—The new light just completed at Key West will be shown on the 10th inst. It is a first class light, and will probably be visible from a ship's deck at the distance of twenty-two miles in clear weather. It is situated 800 yards N.E. of the site of the Old Light. The bearings and courses heretofore followed for entering this port may still be observed; but vessels approaching the Ship Channel Bar, in the day-time, will find 5 fathoms water by bringing the buoy in range with the light-house, and running for it.

To Oliver O'Hara, Esq. (Signed) S. R. MALLONY, *Collector.*

The French plan of the Riviere San Pedro, by Mons. A. Fleuriot, in 1844, is the Highland River, by Capt. Vidal, in his survey of the coast of Africa, in 1836 and 1838. The San Pedro River of Capt. Vidal, R.N., is three miles and a half to the westward of the French plan, as they have evidently mistaken the name, being precisely the same as Capt. Vidal's survey of the Highland River.

Information has been received from the Governor of New South Wales, that, an improved light is to be substituted for the present light, on Short-land Bluff, at the entrance of the Harbour of Port Phillip.

COURT MARTIAL.—On the 6th and 7th of March, a court-martial assembled on board H.M.S. *Victory*, to try Com. T. B. Brown, the officers and crew of Her Majesty's late sloop *Snake*, for the loss of that ship, on the 29th of August last, in the Mozambique Channel, when, after the evidence adduced, the Court were of opinion, "That the charge of want of care had been proved against the Commander and Mr. P. Chown, the master, both of which officers were sentenced to lose one year of their respective ranks."

SHEERNESS, February 22nd.—The following Order has been issued by the Commander:—

"Many ordinary seamen, paid off from H.M. ships with good certificates, having been rejected at the naval rendezvous, as well as by individual officers raising men for their respective ships; the Lords Commissioners of the Admiralty have directed it to be publicly made known that, any ordinary seaman, or others, on presenting themselves at the office of the Commander-in-chief, who have good certificates, and are fit for the service, will be received, and permitted to enter for any of H.M. ships and vessels, where there are vacancies, until further orders."

EXAMINATION OF THE COAST OF THE MALAY PENINSULA, FROM PULO MUTIARA TO PULO PANJANG, IN SEARCH OF COAL DEPOSITS, IN NOVEMBER, 1847.—*By Capt. Congalton, Commander of the H.E.I.C. Steamer, "Hooghly."*

ON the 29th of October, Colonel Low, having embarked, I steamed from Pinang Harbour to the northward, passing within the Lánkáwí group of islands, and at 3 P.M. on the 30th, came to an anchor in 2 fathoms water, on the east side of Pulo Mutiárá, in lat. 7° 21 N., for the purpose of sounding across a spit of sand that runs out from the main land, and forms a low point on the east side of the island. On the 31st, we examined Pulo Mutiárá, with the boats at low water, but nothing that indicated coal was to be seen. On the afternoon of the 1st of November, finding there was just

water enough for the *Hooghly* to cross the spit of sand, I steamed to the northward for seven miles, until we deepened our water to 4 fathoms, close to very high limestone rocks. We anchored here for the night. Early on the morning of the 2nd, I manned two boats, Colonel Low proceeding in one, and myself in the other, and pulled in different directions for the main land, when several miles of coast were examined. The water, along the coast here is very shallow, with a clear sandy bottom. The land, for some distance in, is sandy, and the jungle is not very thick, the trees being mostly what the Malays call Káyu Glám. The trees grow at a good distance from each other, with little or no underwood. Here, I am sorry to say, no indications of coal were to be seen. On the afternoon both boats met, when we returned to the steamer, weighed, and steamed to the northward, passing Sungei Káyu Kumuníng, which on a former occasion, I had visited with Colonel Low, in the boats of the *Hooghly*.

At 4 P.M. we came to in 2 fathoms water, about a quarter of a mile off a point of land called Tajong Patong. This point is rocky, of a moderate height, and has the appearance of an island, but it is joined to the low swampy land on the coast. It was here that the gun-boat got a sample of coal. This point lies in lat. 7° 37′ 12″ N., and is distant from the fort point at Pinang, 155 miles, in about a N.N.W. direction. On landing on Tajong Patong, we found several Siamese, who stated, they had been sent from Tráng, by orders from the Rajah Lígor, to collect all the coal they could get, and send it across the country from Tráng to Lígor, as the Rajah required the whole for his own use. They then inquired if we had come to take the coal, adding that they had orders to guard it. When I demanded to see the Rajah's written orders, they said they had none. I then told the head-man that I would not give him, or any body else, one dollar for all the coal I saw in their boats, or on the point, but that, as I was now here, I intended to dig a hole and see if there was any coal underneath, what they were picking up being nothing but black stones which would not burn. They said, if that was the case, they would not remain any longer, but return to Tráng. After clearing away a space of variegated flag-stones, I ordered the crew to commence digging a large square pit, a little below high water-mark, through a stiff blue clay, which gradually became harder, until it changed into a hard gray sandstone, with, here and there, thin black streaks, like blades of buffalo grass. During the digging of this pit, the water constantly kept oozing in all round, so that the crew were obliged to knock off every ten minutes to bail it out. After digging to the depth of seven feet, this clay got so hard that the pickaxes and jumpers made but little impression on it, as it then seemed to form into a kind of gray sandstone. Having carefully examined this point all round, I found that it is composed, on the east side, of iron stone, sand-stone, and two small sandy bays. At the north end it is composed entirely of layers of gray sandstone, lying nearly in every direction of the compass. About 200 yards to the southward of the north point, and on the west side, there is a small sandy bay, or rather bay of sand, and broken shells. This bay extends about 300 yards north and south, and at its southern end, a ridge of sandstone commences in the face of a small hill, about fifteen feet high, which is washed by the sea at high water. Immediately abreast of this sandstone, to the westward, and extending about 200 yards in a north and south direction, is a layer of the party coloured flag-stones before mentioned, underneath which lies the coal imbedded in a strong blue clay. After breaking the upper layer of flag-stones, which is easily done, from its being mostly hollow underneath, but more so in some places than others, the coal is seen, lying in an east and west direction, and exactly resembling trees at different distances from each

other. On applying pick axes or crow bars, it easily gives way, breaking off in lengths of from one foot to nearly twenty inches. But it is only on the upper part of these apparently fallen trees, that coal is to be found, varying in thickness from one to three inches. The heart of the tree is a mixture of hard stone. But in most of these trees nothing is to be seen in the shape of coal, in the lower part, which is nothing but a mixture of blue clay, the same as that which lies under the reddish flag. These trees do not extend down to the outer extremity of the rocks, at low water, but were only met with when the tide was at half-ebb. It was only on this small space of 200 yards that they were to be seen, and I can with safety state, that now, no more remains on this spot.

On asking the head-man of the Siamese in Malay, if he could point out any other places where coal was to be found inland, he said he could not, and that he had never heard of any one else having seen any. I then asked him if he knew if there was any to be found on any of the larger islands outside, telling him, at the same time, that I did not care whether he informed me or not, as I was going to the whole of them to examine them myself, and to look after pirates at the same time. After giving him a small present of Java tobacco, and two bottles of brandy, he acknowledged that there was some on the next point, to the northward, Tanjong Bombong, distant about six or seven miles.

On the morning of the 3rd, I manned two boats, and went to Tánjong Bombong, with Colonel Low. It being nearly high water when we arrived, we landed on the north part, where there is a beach of coarse sand and shells, with a small plain behind, covered with buffalo grass. We found this point to be of a circular form, with a few trees only on its side, which connect it with the low swampy main land. On returning to the south-west part, we found the tide had fallen greatly, which exposed a reef, extending to the S.W. On the top of this reef, which is mostly formed of sandstone, there appeared to be a bed of coal, lying in a N.W. and S.E. direction, in extent, 100 yards. This is also to be found at half-tide. In using crow bars, the stone gave way, but not so readily as that on Tanjong Patong. Unfortunately we found nothing but sandstone underneath, with a thin layer of what resembled coal on the top, one-eighth of an inch thick. At only two places, that resembled trees, like those on Tanjong Patong, were to be met with, but without the red flag-stones overlying. After having broken the black crust, it appeared as if the rock had been paid over with hot pitch. Here we picked up what samples of coal we could, and returned to the steamer.

On the morning of the 4th, finding that nothing more in the shape of coal was to be found in this vicinity, we steamed out towards the south-end of Pulo Lontar. On reaching it, I manned all the boats, and despatched them to examine Lontar, and several other small islands on its east side. In the evening the boats returned without having found anything like coal. Lontar is composed of red rotten rock on its south and west sides, and a large track of low swampy land, running north and south, in the middle, and high lime-stone rocks on its N.E. end.

On the morning of the 5th, we steamed round the south end of Lontar, and stood to the north towards Táma, Colonel Low having been informed by natives that coal was to be found close to the westward of the place from which I had formerly brought some black specimens. In the afternoon we arrived at Támá.

Early on the 6th, I manned the boats, and went on shore, Colonel Low going towards Támá, and I round Tanjong Putrí, In the afternoon both boats returned, having found no traces of coal. Tanjong Putri is entirely formed of very high limestone rocks, and numerous high rocky islands stretch from

it in a northerly direction, towards Pungáh, where there is a Siamese Rajah, who exports tin to Pinang in large quantities.

On the morning of the 7th, we started from Támá, and steamed towards Pulo Panjang. We came to on its east side, towards the south end, and despatched all the boats. In the evening they returned, having found no coal. This island is high and rocky, down to the water's edge, with, here and there, a small beach, sandy, but with a rim of coral at low water.

On the 8th, we left Pulo Panjang, and steamed to the S.E., towards Pulo Bouton, to examine that island. On the 9th, early in the morning, bad weather set in from the westward, with a perfect deluge of rain, which prevented my approaching the island so early as I could have wished. It cleared up a little in the afternoon, which enabled me to run in under the N.E. end, and anchor in 24 fathoms. Here is the only landing place I could see on a small sandy beach, the three larger islands having steep rocks down to the water's edge, on which the sea was breaking heavily. Colonel Low landed here, and, on his return at 7 P.M., told me he was perfectly satisfied that no coal could be found in Bouton.

On the morning of the 9th, we weighed, and stood to the eastward, between Lánkáwí, and Pulo Trotto, and came to anchor in 2 fathoms, close to three small islands, where one of Colonel Low's men said he got the last specimen of coal.

On the morning of the 10th, we went in the boats to the easternmost of a group of small rocky islands on the mud bank, to the northward of the Purlis. It being then low water spring tides, and Colonel Low's man being with us, I made him point out the place where he picked up the coal. I sent my men into the water (it being only two feet at the time) with empty gunnie bags to pick up all the coal they could get before the tide rose. They succeeded in picking up four gunnie bags full, but the tide rising, we returned to the steamer, and on emptying the bags on deck, I found the coal was covered on all sides with mud and barnacles. After having it well scrubbed and washed, I found it to be of the same kind as that which we had picked up at Tanjong Patong. This leads me strongly to believe that, it must first have been picked up at Tanjong Patong by some prahu on his way to Pinang, and the prahu having either got on shore on an extensive sandbank, on the east side of the island, or on a reef of rocks on the west side, must, at high water, have got into the small cove, and thrown it overboard. I am the more led to believe this to have been the case, because, 1st, this coal had barnacles on all sides, which was not the case with what we picked up at Tanjong Patong; 2nd, having gone on shore again in the evening, at low water, taking a dredge with me, which I had made at Pinang for such purposes, nothing in the shape of coal was to be dredged up, on either side of the sandbank, nor even over the spot where the coal was found in the morning; and, 3rdly, on the following morning, all the other small islands which are close to, and of the same formation as the one I have marked Low's Island in his sketch, were carefully examined by Colonel Low, with all hands from the steamer, and no coal could be found at low water.

I know nothing about geology, and I have no doubt that Colonel Low will be able to give a more satisfactory explanation regarding this coal than I can. At the same time I beg to state as my candid opinion that, there is not two bushels of coal more to be found on any of the islands that we have visited; and nearly the whole of the other numerous islands that have not been visited (with the exception of Junk-ceylon) are either low and swampy, or else high limestone rocks, so that little or nothing can be expected from them.

LIST OF WRECKS UPON THE ISLANDS OF NORTH RONALDSHA AND SANDAY, FROM THE YEAR 1806 TO 1845.

Year.	Rig.	Name of the Vessel.	Commander	Cargo.	Whence from.	Where bound.	Place where wrecked.	Island.	Fate of Crew.	Tonnage.	Value of Ship and Cargo in £ s. d.	No of men drowned.
1806	Brig	Queen of Naples	Forest	Wood	Norway	Ireland	Bresewede bay..	Sanday	Saved.	250	2,000	
1807	D. Frigate..	Utrecht	Commodore	"	Holland	Curaso	Holm of Eyre ..	"	"	"	50,000	100
1809	Sloop	Isabella	"	Oatmeal.....	Leith	"	Bridesness.....	N. R.	No person saved.	40	700	4
"	Brig	Irene	Loventzen ..	Ballast	Hull	Liverpool	Lopness	Sanday	Saved.	250	2,000	
"	Brig	Pomona.....	"	Salt.....	Liverpool	Gottenburgh..	West Craigs	"	Lost.	200	2,000	9
1810	Brig	Belll	Nicols.....	Ballast	Heligoland .	Liverpool	Lopness	"	Lost.	108	700	16
"	Galliot	Jonge Fedde	Bakher	Wood and rye ..	Riga	Ireland	Linklett's bay ..	N. R.	Saved.	200	2,000	
"	Ship	Rinaldo	Ritzrae	Flax and hemp..	"	Liverpool	Toftsness	Sanday	"	400	50,000	
1811	Brig	Ammant	Lunberg ..	Salt.....	Liverpool	Gottenburgh..	Whitemill	"	"	200	2,000	
"	Galliot	Friendevener ..	Learson	Wood	Norway	Ireland	Toftsness	"	One man lost.	150	2,000	1
"	Brig	Concordia.....	Cook	Ballast	London	Gottenburgh.	Holm of Rive ..	"	Saved.	200	1,000	
"	Ship	Eugenia.....	Myres.....	Linseed & mats	Archangel....	London	Elseness.....	"	"	450	1,000	
"	Brig	Welfare	Hatman	Steel, tar & iron	Gottenburgh..	Ireland	"	"	One man lost.	250	10,000	1
"	Brig	Gute Cumarty..	Gorap.....	Wood	Memel	"	"	"	Saved.	250	7,000	
"	Galliot	Orion	Begenson ..	Salt	Liverpool	Gottenburgh..	Holm of Eyre ..	"	Capt. & 3 men lost.	150	3,000	4
"	Brig	"	"	Timber	Norway	"	W. Craigs	"	Lost.	200	1,000	
1812	Brig	Ann	Muirhead ..	"	Pictou	Chester	Start point	"	Saved.	250	2,000	
"	Ship	Hercule	Chase.....	Iron and steel ..	Gottenburgh..	Baltimore	Linklett's bay ..	N. R.	"	400	2,000	
1813	Sloop	Glasgow.....	Wilson	Oatmeal.....	Leith	Findhorn	Lopness	Sanday	"	50	10,000	
"	Galliot	Agatha	Mortenson..	Wood	Norway	Ireland	Stromness point	N. R.	"	150	1,500	
1815	Ship	Society	"	Hemp, iron, steel	Gottenburgh..	New York	Linklett's bay ..	"	"	350	1,000	
1817	Brig	Aegea.....	Hanson	Wood and flax ..	Petersburgh ..	Malaga	Beaness	Sanday	"	250	8,000	
1818	Ship	Dorva	Harmmson	Wood	Christiansand	Norway	Linklett's bay ..	N. R.	"	250	3,000	
"	Brig	Kate	Marham ..	Tallow and wood	Petersburgh..	Bristol	Bridesness	"	One man lost.	250	2,500	1
1819	Brig	Earl Dalhousie..	Larie	Wood	N. America ..	Aberdeen	Tresness	Sanday	Saved.	250	10,000	
"	Brig	Pilgrim	Smith.....	"	"	Dundee	Otterswick	"	"	300	1,500	
7825	Galliot	Henrietta	Mallock ...	Wheat	Anklean	Liverpool	Brey-grena	"	"	200	1,500	
1826	Barque	Ida	Thuro	Wood	Dantzic	"	Dunnetness	N. R.	"	350	3,500	
"	Brig	Henrietta Willa.	"	"	"	"	"	"	"	300	5,000	
"	Galliot	Neptunes	Bredenhall	"	"	"	"	"	"	250	4,500	
1827		St. Latonia	"	Fish	Iceland	Flanders	Stromness point	"	"	70	700	
1828	Ship	Wosta.....	Hamerling..	Wood	Wolsta	Cadiz	Dunnetness	"	"	600	7,000	
1831	Ship	London	Brown	Iron.....	Gottenburgh..	Boston	Linklett's bay ..	"	"	600	10,000	
"	Brig	Agenoria	McAdam ..	Flax	Archangel....	Aberdeen	Green Skerry ..	"	"	200	4,000	
1835	Schooner ..	Express	Gun	Herrings	Zetland	Ireland	Handgreenie ..	"	"	150	1,400	
1836	Brig	Harriet	Fisher	Provisions	Copenhagen ..	St. John's,N.B.	Linklett's bay ..	"	"	250	3,000	
"	.....	Ann	Willson	Flax	Memel	Liverpool	Newark	Sanday	"	250	2,000	
1838	.....	Union	Waller	Wheat	Stelime	"	"	"	"	300	4,125	
"	Brig	Dahlia	Walker	Coals and glass	Shields	Rio Janeiro ..	N. Wall	"	One boy lost.	350	4,500	1
"	Schooner ..	Belona	"	General	Liverpool	Statine	Burness	"	"	200	3,000	
1843	Sloop	Belonging to....	Zetland	Wrecked		Selk Skerry ..		N. R.	Saved.		500	
"	Barque	Atlantic.....	"	Coals	Hull	St. John	Burness	Sanday	"	785	2,000	
"	Ship	Hanaw	Martin	Cotton and rice	Savanah.....	Petersburgh..	Alters of Linnay	N. R.	"	300		
1844	Barque	Christian	Bennen	Logs	Dantzic	Liverpool	Newark	Sanday	"	380	4,000	
"	Brig	Prince	Trattles....	Tar and flax....	Stockton	Stockton	N.E. side	N. R.	Four lost.	250		4
1845	Ship	Eva	Tiscomin ..	Coals and paint	Genoa.....	Genoa.....	Thorness	"	Saved.	400		
"	Sloop	Jane	McPherson	Ballast	Zetland	Zetland	"	"	"	60		

Proposed North-American Passenger's Bill.

A Bill to make further Provision for the Carriage of Passengers by Sea to North-America.—(Proposed and brought in by Mr. Labouchere and the Chancellor of the Exchequer.)

[Note.—The words printed in *Italics* are proposed to be inserted in Committee.]

Whereas it is expedient to make further provision respecting the carriage of passengers by sea to certain parts of North America and the islands adjacent thereto, and for that purpose to alter certain provisions of an act passed in the session of parliament held in the fifth and sixth years of the reign of her present Majesty, intituled, An Act for Regulating the carriage of Passengers in Merchant Vessels, and of an act passed in the session of parliament held in the tenth and eleventh years of the reign of her present Majesty, intituled, An Act to Amend the Passengers' Act, and to make further Provision for the Carriage of Passengers by sea:—

1. *Number of Passengers according to space and tonnage.*

Be it therefore enacted, by the Queen's most excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present parliament assembled, and by the authority of the same that no ship carrying passengers on any voyage from any port or place in the United Kingdom, or in the islands of Guernsey, Jersey, Alderney, Sark, or Man, to any port or place on the eastern coast of North America, or in the islands adjacent thereto, or in the Gulf of Mexico, shall proceed on such voyage with, or shall carry more passengers on board than in the following proportion to the space occupied by them and appropriated to their use, and unoccupied by stores not being the personal luggage of the passengers—that is to say, on the between decks. One passenger for every fourteen clear superficial feet, and that if any ship carrying passengers upon any such voyage as aforesaid shall carry any person or passenger beyond such proportions, or any of them, the master of the ship shall, for and in respect of every person or passenger constituting such excess, be liable to the payment of a penalty not exceeding *five pounds* sterling, cabin passengers in poop excepted.

2. *How children are to be computed.*

Provided always, and be it enacted, that for the purposes of this act, two children, each being under the age of five years, shall be computed as one person or passenger, anything in the hereinbefore recited acts to the contrary notwithstanding.

3. *Rules to be observed on board.*

And be it enacted, that it shall be lawful for her Majesty by any order or orders to be by her made, with the advice of her Privy Council, to prescribe any such rules and regulations as to her Majesty may seem fit for preserving order, and for securing cleanliness and ventilation on board of such ships.

4. *Provisions and water.*

And be it enacted, that on board every ship there shall be issued to the passengers, daily, throughout the whole voyage, including the time of detention, if any, at any port or place before the end of such voyage, a supply of water, at the rate of at least *three quarts* for each passenger per day, and that there shall also be issued, daily at convenient times a supply of provisions after the following rate per day; that is to say—Daily, half

pound biscuit, half pound meal or flour, quarter pint pease, quarter ounce tea, one ounce sugar; and, further, that no ship proceeding on any such voyage as aforesaid shall be cleared out until there shall be laden on board, at the expense of the owner or charterer thereof, such quantity of pure water, and of good and wholesome provisions of the requisite kind, as shall be sufficient to allow of the issues aforesaid during the period of eight weeks.

5. Relating to Food and Water.

And be it enacted, that all the penal and other provisions of the said recited acts which relate to the issuing of food or water to the passengers, or to the lading and having on board such food and water, or to the inspection and approval of the same by the officers therein mentioned, shall apply to the food and water hereinbefore required to be laden on board and issued to the passengers.

6. *A Surgeon to be taken.—Notice to be given of Sailing.*

And be it enacted, that every ship carrying as many as one hundred passengers on such voyage as aforesaid, shall have on board a surgeon of emigrants, approved by writing under the hands of two of her Majesty's Colonial Land and Emigration Commissioners acting under the authority of one of her Majesty's principal Secretaries of State; and that the owner or charterer of every such ship shall give to the said Commissioners or their officer at least eight clear days' previous notice, or if the ship shall be about to proceed from any port or place in Ireland at least *fourteen* clear days previous notice of her intended departure.

And be it enacted, that no such ship shall be allowed to clear out or proceed on such voyage unless there shall be on board a duly appointed surgeon of emigrants.

8. *Remuneration of Surgeon.*

And be it enacted, that while such surgeon of emigrants shall remain on board the ship to which he shall be appointed as aforesaid, he shall receive, at the expense of the owner or charterer thereof, such accommodation and messing as shall be approved by the emigration officer at the port of clearance, or his assistant, or when there is no such officer, or in his absence, by the officer of customs for whom a clearance shall be demanded, and the said surgeon, on producing such certificate of the performance of his duties as may be required by such order in council as aforesaid, shall also receive from the master of the ship the sum of *one shilling* for every passenger landed alive therefrom.

And be it enacted, that it shall be lawful for the said surgeon to punish any passenger who shall fail to obey any rules or regulations made by or under authority of any such order in council as aforesaid, by depriving him of any part not exceeding *one half* of the daily rations to which he may be entitled; and it shall be lawful for the master of the ship, if he shall think fit, on the requisition of the said surgeon, to confine any such passenger in irons for any period not exceeding hours for any one offence, and the said master shall otherwise aid and assist the said surgeon, in the enforcement of all such rules or regulations as aforesaid; and in case he shall neglect or refuse so to do he shall be liable to a penalty not exceeding *two pounds* sterling for each offence.

10. *Penalties.*

And be it enacted, that any person on board of such ship who shall neglect or refuse to obey any rule or regulation made by or under authority of such order in council, as aforesaid, or any direction issued or given by the

said surgeon, within the limits of his lawful authority, shall be liable to the payment of a penalty not exceeding *two pounds* sterling; and any such person who shall obstruct or resist the said surgeon in the execution of his lawful authority shall be liable to the payment of a penalty not exceeding *five pounds* sterling; and if the master of such ship shall deprive the said surgeon wholly or in part of the benefit of such accommodation and messing as aforesaid, he shall be liable to the payment of a penalty not exceeding *twenty pounds* sterling; and the convicting justices shall apply the whole or such part of the last mentioned penalty as to them shall seem fit, to compensate the said surgeon for any such deprivation: Provided always, that it shall be lawful for the justices of the peace in any part of her Majesty's dominions, before whom any person shall be convicted of obstructing or resisting such surgeon as aforesaid in the execution of his duty, to order such person, in addition to the penalty hereinbefore mentioned, to be confined to the common gaol for any period not exceeding *three* calender months.

11. *Abstract of acts to be posted up in each ship.*

And be it enacted, that the said Colonial Land and Emigration Commissioners shall from time to time prepare such abstract as they may think proper of the whole or part of this and of the said recited acts, and of any order in council to be made as aforesaid; and that six copies of the said abstract, together with two copies of this and of the said recited acts, shall, on demand, be delivered by the collector or comptroller of the customs of the port of clearance to the master of every ship carrying passengers on such voyage aforesaid; and that such master shall, so long as any passenger be entitled to remain in the ship, keep posted in at least two conspicuous places between the decks of the said ship, copies of such abstract, and shall be liable to a penalty not exceeding *forty shillings* sterling for every day during any part of which by his act or default such abstract shall fail to be so posted; and that any person displacing or defacing such abstract so posted shall be liable to a penalty not exceeding *forty shillings* sterling.

12. *How Penalties to be recovered.*

And be it enacted, that all penalties imposed by this act shall be sued for and recovered by such persons only, and in such manner, as in the said first recited act is provided in the case of the penalties thereby imposed.

14. *Bond.*

And be it enacted, that the bond required by the said hereinbefore firstly-recited act to be given in certain cases to her Majesty in respect of ships carrying more than fifty passengers shall include and be a security not only for the matters and payments in the said act mentioned, but also for the faithful observance of the provisions as well of the said hereinbefore secondly-recited act as of this act, and of any rules and regulations to be prescribed by any such order in council as aforesaid, and further for the due payment by the master of any such vessel of all penalties which he may be adjudged to pay under or by virtue of the said hereinbefore secondly-recited act or of this act.

14. *Interpretation of Act.*

And be it enacted, that in the interpretation of this act, the term passenger shall be held not to include the class of passengers commonly known by the name of Cabin Passengers, and the term Ship shall include every description of sea-going vessel, whether British or foreign, and the term Master shall include any person being in command of such vessel for the time being; and that unless there be something in the subject-matter or context, repug-

nant to such construction, every word importing the singular number or the masculine gender only shall be construed to include several persons, matters, or things, as well as one person, matter, or thing, and females as well as males respectively.

15. *Exemption of Ships carrying fewer than one passenger to twenty-five tons.*

Provided always, and be it enacted, that nothing in this act contained shall apply to any ship in which the number of passengers shall not bear a greater proportion than that of one passenger to every thirty feet; provided also, that if in any action, prosecution, or other legal proceeding under this act, any question shall arise whether any ship carrying passengers on any such voyage as aforesaid, did or did not carry a greater number of passengers than aforesaid in proportion to the space required, the burden of proving that the number of passegers so carried in proportion, shall lie upon the person against whom any such action, prosecution, or other legal proceeding may be brought, and failing such proof it shall, for any such purpose as aforesaid, be taken and adjudged that the number of passengers so carried did exceed that proportion.

And be it enacted, that in all proceedings it shall be sufficient to cite this act by the title of the North American Passengers' Act.

And be it enacted, that this act may be amended or repealed by any act to be passed during the present session of parliament.

GREAT EARTHQUAKE IN JAVA.

In the *Courant* of the 27th of October, it was mentioned that a shower of ashes had fallen at *Buitenzorg*, on the night of the 17th, which it was supposed had proceeded from the crater of the Gede. It now appears that it was not the Gede, but the Guntur mountain, in the Regency of Limbangan, residency of Preangar, which was working. On Sunday the 17th of October, at 11 P.M., three earthquake shocks, following each other in quick succession, were felt at Tijundjur, the first of which was very strong, and lasted for fully ten seconds. The shower of ashes began to fall the same night, and on the following morning had already clothed the earth, grass, trees, and buildings with a brown covering. The fall of ashes and sand lasted the whole day, and made it very inconvenient to be in the open air. Persons who were travelling experienced from it a very disagreeable attack in their eyes.

The earthquakes had not wholly stopped at Tijundjur on the 29th of October. The mountain had, however, fortunately begun to be at rest, and no damage had been caused by the eruption. The shower of ashes had reached as far as the frontiers of the residency of Bantam, a distance of more than eighty miles to the westward of the place of the eruption.

On the 3rd of November, a guard-house at Samarang was struck by lightning by which three natives in it were killed, and other two severely hurt.

Great Earthquake of the 16th of November.

On the forenoon of the 16th of November, two very heavy shocks of earthquake took place at Batavia, the one about 10h. 15m. and the other about 10h. 30m. It is stated that, with the exception of that of October, 1834, this is the heaviest earthquake that has been felt at Batavia during the last thirty years. But notwithstanding, no great damage has been caused by it;

in some government buildings, the old cracks caused in 1834, have re-appeared, while the walls of different private buildings have also been split.

The spire on the council house at Batavia appears to have suffered from the shock, as it now inclines to one side, while the figure placed on the iron cross of the side building is totally bent down, and the cross itself inclines to the left. Some think that they observed three shocks, but one of them must have been very slight, as generally only two shocks were felt.

We can only give the following, amongst the reports received, which has been communicated to us by the Rear Admiral Van den Bosch :—

"During the earthquake which took place on the forenoon of the 16th, the Rear Admiral was just standing at the time ball, where the following observations were taken on the astronomical clocks.

"The first shock took place at 10h. 18m., being a shivering, up and down which lasted about eight seconds, and in consequence of which the clock of *Hahvie*, No. 12, which stood on a pedestal, fixed in the ground, sprung forward twenty-five seconds, while the clock of *Knebel*, No. 60, having gradually decreased in its motion, stopped in three minutes afterwards.

"At 10h. 25m. the second shock took place, in the direction of east towards the west, heavier than the first. It had no influence on the clock of *Hahvie*, which stands east and west, while the clock of *Knebel*, which had previously been again set going, did not stop.

"Nothing remarkable was observed, in the state or movements of the river.

"On the Island Onrust, the two shocks were observed at 10h. 16m., and at 10h. 22m. continuing for about four seconds. The second was also considerably heavier there. Their direction was about E.S.E., and W.N.W. The barometer shewed 761.4 lines, the thermometer 26.5 degrees Celsius. It blew a gentle breeze from the S.W. It is remarkable, that although the second shock took place at the same moment at Onrust and at the time ball, the first shock was felt two minutes earlier at Onrust.

"Private reports from Buitenzorg mention that the earthquake took place there about 10h. 30m., and that three heavy shocks were felt following each other at intervals of three minutes and ten minutes, without causing any other camage than that some pillars were cracked.

"At Legok Njenang, on the south side of Gunong Gede, the earthquake was very heavy; in the morning three severe shocks were felt there, and during the whole day lighter shocks, principally in the evening about 6 o'clock."

In the Preanger Regencies, and principally in the residency of Cheribon, the shocks of earthquake were very severe, and lasted for a long time, and much damage was done.

In the most eastern part of the Preanger Regencies, and principally in the residency of Cheribon, the shocks were very heavy. In the latter residency they occasioned great damage. They were also felt in the residencies of Banjumas, Kadu, Samarang and Rembang. In the residency of Tagal also some, though not severe, damage was done.

In Cheribon the earthquake was first felt about fifteen minutes to 11 o'clock; the first shock was very heavy, and was speedily followed by a lighter one. At five minutes after 11 o'clock there was so heavy a shock, that very few buildings were able to withstand its force. From this until midnight other thirteen shocks were experienced, three of which were very heavy; the first lasted about thirty seconds, and the third exactly sixty-one seconds. The plain before the residency office was filled, in the twinkling of an eye, with all the inhabitants of the neighbouring houses, and soon experienced

such a severe undulation, that many could scarcely keep their feet; the direction of the waves was invariably from the south-east, to north-west; sea shocks were not felt.

From midnight to 6 A.M. of the 17th, nothing was felt, save a light trembling, but on the 17th, at 6 o'clock, the shocks began again with renewed force, and between that hour and 10 in the forenoon, nine shocks had taken place, of which one lasted thirty-one seconds.

Some details of the loss follow:—At the capital of Cheribon, all the Government buildings, (with the exception of the store houses) and more than 200 private stone dwellings were severely damaged, and mostly rendered uninhabitable, in consequence of which no one durst remain within doors during the night, and all passed the night on the plains in the town, or in the gardens. A Chinese dwelling in the city fell down. One person was killed and six others hurt.

At *Palimanang* the Commandant's house and other stone buildings in the fort were severely damaged, and some personal injuries inflicted; the wooden dwellings suffering no injury of any consequence.

At two neighbouring sugar factories great havoc was done, the buildings of all sorts being thrown down, and several lives lost.

At *Dana Radja*, *Radja Galu*, and *Pamankiran*, many buildings were destroyed.

Almost all the post stations are severely damaged; many stone watch-houses along the roads were thrown down; and even the milestones along the great road fell over.

At Indramayu the first shocks caused severe damage to the Assistant-Resident's house, the Commandant's dwelling and the fort, and the stone houses of the European inhabitants, rendering them uninhabitable. Forty stone houses belonging to Chinese, were partly or wholly overturned. At different places the ground was torn open from one to two feet in width, and from the openings large quantities of sand and muddy water boiled up; by the falling of one of the houses a woman was killed, and her two children wounded.

The Government store-houses, both at Cheribon and Indramayu, which were of wood, did not suffer.

At *Kuningang*, the regency house only suffered a little. The western part of the regency Madja Lengka appears to have suffered very little.

In the regency of *Galu*, and in the eastern part of the regency of Cheribon no damage of consequence was done.

Although the earthquake was felt throughout the whole residency of Cheribon, its devastation was confined to the northern and western parts of the regency of Chiberon, the eastern and northern parts of the regency of Madja Lengka, and the division of Indramayu.

Light shocks continued to be felt until the 20th of November, which however, occasioned no damage. It has been ascertained, on investigation, that the shocks made themselves most heavily felt on the north-east and north-west slope of the mountain Tjermaê. There the ground was split in more than forty places, and rents are found of more than fifty roods long, and three to four feet broad. In some places the roads to the coffee gardens are rent, so that the approach to the same for the present is impossible. The coffee gardens themselves, however, have not suffered; nor even the dessas lying on the mountains, with the exception of the small dessa Tjibluu, where the ground is torn. The inhabitants of this dessa, consisting of twenty-nine families, had time to take flight.

A private letter states further particulars of the earthquake in the residency of Cheribon:—

The first shocks were felt between half past 10 and 11 o'clock, the exact time can be ascertained with difficulty, because the clocks and watches in the interior differ. The first shock lasted fully thirty seconds; the direction in the first alarm was not observed; however, it was not a proper undulation, but more a thrilling with short shocks. Some seconds thereafter, the second shock began, which lasted about twenty or thirty seconds, and was still heavier. From the very short intermission between the first and second shocks, the two might be taken for one. Ten to twelve minutes later, the third shock came, as heavy as the two previous. It then appeared that the direction was from S.W. to N.E. All these shocks were accompanied by a dull vibratory noise, exactly like that which the iron cable makes at the bow of a ship, when the anchor is falling. The undulation of the buildings was plainly seen.

The writer journeying the same day on a tour of inspection to Ardjowinangon, sixteen miles from Cheribon, found all in ruins, and was obliged to pass the night in a bamboo hut. On the following morning, proceeding further on horseback, the shocks began anew, with such violence, that the horse would not proceed further.

On the 18th, he proceeded on horseback to *Buntamatti*, on the river *Tijmanok*, lying sixteen miles southward from *Indramaiju*. Here the shocks must also have been heavy, for all that could fall lay on the ground. In the house of an overseer, three different rents were made in the ground by the first shock, through which water, mingled with fine azure-coloured sand, spouted up to the height of three feet. Judging by the direction of fallen objects, the shocks were felt from south-west to north-east.

The atmosphere was unusually clear, so that from this place the mountains in the Preanger Regencies could be seen; from one of these, probably Gunong Guntor, a column of smoke ascended.

The following day at *Dana Radja*, where all the stone buildings had been overturned, the ground was found to be rent in more than fifty places. From most of the fissures, water spouted up, mingled with fine blueish sand, like the sea sand on the beach at Chiberon. The overseer declared that the water was warm, and that it had a disagreeable smell. The direction of the shocks must here have been from south-west to north-east, as appears from the direction in which some stones, which stood on their sides to dry, had fallen.

In a small dessa named *Genting*, five miles to the northward of Dana Radja, and in another dessa, named *Persona*, eight miles to the northward, the quantity of water and sand spouted from the ground was so great that, according to the natives, it occasioned an actual inundation. On the same day also, the mountain in the Preanger Regencies above spoken of, was seen to smoke strongly.

The mountain *Tjermae* in Cheribon, was, during all the time in question, uncommonly clear and cloudless, and nothing peculiar could be observed on it.

According to the view of the writer, the shocks which were felt in the above-named place came from the direction of the Preanger Regencies, and the undulation of the ground was checked, by the trachite pillar, of which the Palimangang mountains consist. It then went northwards, and, after having passed *Ardjowinangon*, proceeded again in the direction of west to east; whence also it can be explained why the shocks were felt much heavier in the immediate neighbourhood of the Palimanang mountain than elsewhere. On all places which lie in the volcanic district of the Tjermae, the shocks were felt little or not at all, but heavily in the alluvial and tertiary district, between Cheribon and the river Tijmanok.

Account of Naval Receipt and Expenditure.

For the Year ended 31st March, 1847.

The excess of £185,280. 6s. 9d., shown on the Account of Naval Receipt and Expenditure for the Financial Year ended the 31st March, 1846, has been voted by Parliament, as per printed Paper, 24th February, 1847, No. 103, agreeably with the Authority of the Lords of the Treasury, as signified by Mr. Trevelyan's Letter of 26th February, 1847.

Votes.	——	Expenditure. 1846–47.	Grants, including appropriations in Aid and supplementary Estimate	——
No.	Navy Effective Services:	£ s. d.	£	
1	By Wages to Seamen and Marines	1,424,092 16 8	1,328,053	See following note
2	" Victuals for ditto	727,642 9 3	690,525	—
3	" Admiralty Office	143,441 2 9	129,714	—
4	" General Register and Record Office of Seamen	8,714 1 4	9,506	
5	" Scientific Branch	47,510 5 0	43,764	—
6	" Her Majesty's Establishments at Home	134,527 9 11	131,837	—
7	" Her Majesty's Establishments Abroad	25,769 11 1	23,902	—
8	" Wages to Artificers, &c. employed in Her Majesty's Establishments at Home	775,488 14 6	752,427	—
9	" Wages to Artificers, &c. employed in Her Majesty's Establishments Abroad	52,504 10 1	43,720	—
10	" Naval Stores, &c. for the building and repair of Ships, Docks, &c.	1,730,525 5 2	1,694,152	—
11	" New Works, Improvements, & Repairs in the Yards, &c.	511,057 8 11	526,810	
12	" Medicines and Medical Stores	30,134 13 5	23,500	—
13	" Miscellaneous Services	105,005 11 3	74,597	—
	Navy Non-Effective Services:			
14	By Half-Pay to Officers of the Navy and Royal Marines	698,262 19 3	712,948	
15	" Military Pensions and Allowances	482,267 4 11	491,322	
16	" Civil Pensions and Allowances	149,538 7 3	158,865	
	Service of other Departments			
17	By Army and Ordnance Departments (Conveyance of Troops)	263,797 18 3	191,590	—
18	" Home Department (Convict Service)	58,117 1 4	102,095	
19	" Post Office Department (Contract Packet Service,	551,927 5 3	545,587	—
		£7,924,324 19 7	7,674,914	

John T. Briggs,

Accountant-General of the Navy.

Notes Referred to in the preceding Account.

Vote No. 1.—This excess arises chiefly on the Vote for Sea Pay, owing to a larger number of men having been borne throughout the year than were provided for; also on account of the supplies of slop clothing for stock on hand exceeding the value of the quantities taken up by the men; the value of which, when issued, is abated from their pay.

Vote No. 2.—This excess arises from increased prices of provisions, and from the extensive supplies which have been provided for Her Majesty's Fleets employed at home and abroad.

Vote No. 3.—The excess under this head arises from the transfer to the Admiralty of the clerical duties connected with the Greenwich Out-pension business; from more having been paid for postage, owing to the increased correspondence arising out of the extension of the Fleet; from the alterations of offices, rendered necessary on account of the enlargement of the department of the Director of Works, and the transfer of the Steam Department to Somerset House; for attendance of clerks at night in preparing Parliamentary Accounts, and on other duties, owing to the inadequacy of the establishment to meet the increase of business; and for law charges connected with the purchase of land for the extension of Portsmouth Yard.

Vote No. 5.—This excess has been caused by an unusual demand for charts, maps, chronometers, compasses, marine barometers, and magnetic and other instruments; by the expenses of the surveys of the River St. Lawrence and the Bay of Fundy, and hire of vessels, having been much under estimated; by lodging-money, on shore, of officers taken from surveying vessels, while such vessels were employed on the Irish Relief Service; by increased surveying pay to officers promoted; and continuance of surveying pay to officers returned from China and the Falkland Islands, while completing the drawings.

Vote No. 6.—This excess arises from the establishment of the Steam Factory at Portsmouth Yard, and of the Supervisor of Metals for the several dockyards, for which no provision had been made; and from increased expenditure on account of the travelling charges and subsistence of shipwright officers detached from their respective yards to superintend the building of vessels under contract.

Vote No. 7.—This excess is caused by the increased superintendence required in connexion with the extensive repairs of steam-vessels at Malta; by arrear accounts of expenditure at Hong Kong of the preceding year being charged to this year; by the appointment of a shipwright officer to superintend the building of vessels in Canada; and by the extension of the Medical Establishment at Bermuda to secure greater efficiency in that establishment, for which no provision had been made.

Vote No. 8.—The excess under this head arises from its having been found necessary to employ an increased number of workmen in the Dockyards, to proceed with dispatch in the building and repairs of ships and steamers, and in the outfit of the Fleet.

Vote No. 9.—This excess arises from an increased expenditure at Malta for the repairs of steamers; from greater progress having been made in the works at Bermuda than was contemplated; and from the Votes for Labour at Canada, the Cape of Good Hope, and Trincomalee; and for extra pay to artificers, &c., of the Fleet, being less than the exigencies of the service required.

Vote No. 10,—The excess under this head has arisen from the purchase of two vessels, the "*Undine*" and "*Kestrul*," for which there was no provision in the Estimates; and from the payments for the repairs and fittings of the

Steam Guard Ships performed in Merchant Yards, having been larger than were contemplated when the Estimate was prepared.

Vote No. 12.—This excess has been incurred in consequence of the extra cost of provisions, owing to the considerable advance of prices during the year; by an enlarged expenditure to meet the increased wants arising out of the extension of the Fleet; and also from the purchase of supplies for the service of other departments being larger than were actually required.

Vote No. 13.—The excess under this head is caused by more having been paid than voted on account of distressed seamen; passages of naval officers; purchase of land for the extension of Portsmouth Yard; purchase of books, raising men for the Fleet; by an award to the owners of a French vessel; which had been run down by Her Majesty's ship *Polyphemus*; and a payment to Mr. Brewer, for the use of his patent for making blocks; also, from the defalcations of the late Mr. J. D. Thompson, as Naval Storekeeper and Agent Victualler at the Cape, after receiving from his sureties the amount of their bonds.

Vote No. 17.—This increase of expenditure has arisen from Freight Ships having been engaged and employed for the conveyance of troops, instead of Ships of War; for increased supply of stores (bedding, &c.); and from the sum of £34,568 6s. 1d. having been authorised by the Treasury to be paid to the East India Company for troops conveyed to India, not provided for in this Estimate.

Vote No. 19.—This excess has been chiefly incurred for the conveyance of Mails between Callao and Valparaiso, in consequence of the contract for that service having commenced sooner than was contemplated when the Estimates were framed.

Institution of Civil Engineers.

Joshua Field, Esq., President, in the Chair.

A paper was read by Mr. A. Mitchell, of Belfast Assoc. Inst. C.E., "On Submarine Foundations; particularly the Screw Pile and Moorings." Considering that the entire subject of the various sorts of piling, of solid stone foundations, of cofferdams, of masses of concrete, and the numerous modes adopted by ingenious men for overcoming local difficulties, would occupy too much time, and scarcely possess novelty, the author restricted himself almost entirely to the description of the works executed by him with the screw pile, as that had been chiefly employed for supporting structures on loose sand or mudbanks, wholly or partially covered by the sea, where it had been previously considered very hazardous, if not impracticable, to erect any permanent edifice; and in his narrative he scrupulously avoided all comparison with other modes of proceeding, even when they had the same object.

The origin of the screw pile was the screw mooring, which was designed for the purpose of obtaining for an especial purpose a greater holding power than was possessed by either the ordinary pile or any of the usual mooring anchors or blocks, of however large dimensions. It was proved by experiment, that if a screw, with a broad spiral flange, were fixed upon a spindle, and forcibly propelled by rotary motion to a certain depth into the ground, an enormous force would be required to extract it by direct tension, and that the power employed must be sufficient to drag up a mass of earth of the form of the frustrum of a cone reversed, the base being at the surface of the ground, and the section of the apex being equal to the diameter of the

screw. The extent of the resisting mass, must of course, depend upon the natural tenacity of the soil. Even in this reasoning it must be evident that a vertical force was calculated upon; but as, practically, that seldom, if ever occurred, the angle of tension and the curve of the buoy cable again gave the moorings greater power. This was found to be correct in practice, and the application of the moorings became very extensive. An arrangement was made with the port of Newcastle-on-Tyne, by which, for the sum of £2500, the right of fixing these moorings in the Tyne was given; and Mr. Brook, the engineer, showed that, last year, whilst in the neighbouring port damage was done to the shipping to the extent of nearly £30,000, no injury was sustained in the Tyne, entirely owing to the sound holding of Mitchel's screw-pile moorings.

Mr. W. A. Brooks gave an account of the method of laying down the moorings at Newcastle-on-Tyne, under his directions. A heavy chain, formed of 3¼-inch round iron, in links of three feet long each, was stretched along the bed of the river, in the direction of the current. To this chain, beneath each tier, was attached a 2½-inch studded mooring chain, fixed to the head of a screw mooring, another screw being also placed beneath each tier, and driven down between ten and twenty feet into the clay, and sometimes full a foot deep into the shale rock. The screws were four feet in diameter, and were placed in depths varying from fifteen to twenty-four feet at low water spring tides. They were screwed down to the depth of fifteen feet in one hour and a-half, and sometimes twenty-one feet in two hours.

Each mooring screw was intended to have borne the strain of four heavy ships; but during the last winter, the port was so crowded, that more than double the proper number of vessels was moored upon each, and yet there were no signs of weakness, and whilst nearly £30,000 of damage was done at Sunderland, during a heavy storm, no casualties occurred at Newcastle, which Mr. Brooks stated was entirely owing to the sound holding of the screw moorings. He argued, therefore, that the small sum of £2.500 paid by the harbour commissioners of Newcastle, for the right to put down these moorings, was a very wise expenditure.

Mr. T. Smith, pilot-master of the port of Shields, corroborated Mr. Brooks's statement.

Capt. Washington, R.N., had in the course of his surveying duties, seen the screw moorings in almost every position, and had heard them universally eulogized as being the best and safest moorings hitherto known. He strongly recommended their employment.

It naturally occurred to Mr. Mitchell, that the same means of resistance to downward pressure might be used, and he proposed to apply it for the foundations of lighthouses, beacons, and other structures, which for maritime purposes, it might be desirable to place upon sand and mud banks, where hitherto it had been considered impracticable to place any permanent edifice. In the year 1838, a plan for a structure of this nature for a lighthouse, on the Maplin Sand, at the mouth of the Thames, was laid before the corporation of the Trinity House, supported by the opinion of James Walker, Esq., their engineer. The nine iron piles, five inches in diameter, with screws four feet in diameter, were accordingly driven twenty-two feet deep into the mud, and with proper precaution they were allowed to stand two years before any edifice was placed upon them.

The lighthouse was subsequently constructed, and, as was testified by Mr. Walker, had stood perfectly until the present time. Pending this probation, it was determined to erect a lighthouse to point out the entrance to the harbour of Fleetwood-on-Wyre, and under the advice of Capt. Denham, R.N., the screw piles were adopted. The spot fixed on was the point of a bank of

loose sand, about two miles from the shore; seven iron piles, with screws of three feet diameter, were forced about sixteen feet into the bank and upon them timber supports, forty-eight feet in vertical height were fixed to carry the house and lantern. This structure was completed in six months, and was perfectly successful. never having required any repairs to the present time. A similar lighthouse was erected near Belfast, and since then several others, with a great number of beacons, have been fixed in situations heretofore deemed impracticable.

Capt. Washington also examined carefully the screw pile lighthouses, and had every reason to be satisfied with them, as affording a means of placing lighthouses and beacons where they were before impracticable, and enabling floating lights to be generally superseded by fixed lights, which latter he proved, from documentary evidence, to be one-third less annual cost than the former, and certainly more useful to sailors. For in spite of all the care, attention, and even lavish expenditure of the Trinity Board to moor the light-ships securely, they did go adrift just at the time they were most required. He, therefore, advocated fixed lights in every situation where a foundation could be obtained; and he believed that, with the screw pile, there were scarcely any situations where this could not be accomplished.

APPEALS TO THE HOUSE OF LORDS.—*Thursday, March 9th.*

THE Lord Chancellor heard appeal cases to day. The peers assisting were the Earl of Stradbroke and Lord Campbell. The case heard was, the Mayor, Commonalty, and Citizens of London, appellants—the Attorney-General respondent.

Civic Property in the Thames, its Banks and Soil.

This case arose out of an information filed by Sir Frederick Pollock, when attorney-general, showing that by Royal Prerogative the ground and soil of the coasts and shores of the sea round this kingdom, or of every port, haven, arm of the sea, creek, pool, and navigable river thereof, into which the sea ebbs and flows, and the shore lying between high and low water-mark, belong of right to her Majesty; that the Thames is such an arm of the sea. and a King's highway; that the Mayor and Corporation of London, by prescription, or some Royal grant, hold the office of bailiff or conservator of the Thames from Staines Bridge to Yantlett Creek or Yenland; and their duty is to prevent all obstructions of the navigation of the river or nuisances therein, but they do not thereby acquire any estate or interest in the ground or soil of the river's bed or shores between high and low water-mark; that they have, notwithstanding, claimed to be seized of the freehold of the bed and soil of the river, in right of their conservancy and exercised ownership of it, by granting licenses to W. Cubitt, builder, Sir T. Turton, and to C. Park, to embank the strand and soil of the river at the Isle of Dogs, Rotherhithe, and at Battersea, for a consideration in money, whereby nuisance would be created, impeding the free current and navigation of the river, where in times past it has been wont to flow, against right and to the injury of the lieges and the prejudice of the Crown's title and prerogative; that remonstrances have been made on the subject in vain by the officers of the Crown denying any grant by the Crown of the property in the soil or the banks of the river; that the corporation ought to discover their title, if any exist; that the charter of Henry VI. to the City of London, nor any other charter, grants no such right, nor if the former did so grant, is it any longer in force, having been

revoked and annulled; that they have no title by immemorial usage, nor have they exercised sufficient acts of ownership to assert and sustain that title; that all these embankments will prove nuisances to the subjects of her Majesty; and that the corporation by its town clerk ought to produce certain deeds, charters, maps, and documents, relating to this asserted right of the corporation for the purpose of discovery. The information then requires answers, on oath, to twenty set interrogatories. Then followed the prayer that the Court of Chancery would declare thereupon the rights of the Crown, and of the corporation in this respect; order issues at common law, if necessary, to deliver in the question at issue; in the meantime that the contractors be restrained, by injunction, from carrying on the embankments and works alluded to; that all things be restored so as that the tidal water may again flow as it did before; and further, that the corporation furnish an account of all the profits, fines, rents and issues received, to her Majesty's Exchequer; that the right may be declared to this property in the Crown, so as to avoid multiplicity of suits; and that relief may be given in the suit consistently with equity and good conscience.

The corporation demurred because the Attorney-General had not made out such a case as entitled him to relief in a court of equity against the corporation, or to any discovery touching any matters referred to in the said information as far as it is demurred to; and for answers to such parts as are not thus demurred to, they allege that they created no nuisances, nor do they intend, at the places mentioned, Rotherhithe and Battersea, nor do they allege they have power to grant licenses to erect or create a nuisance on the river.

Upon argument the Master of the Rolls overruled the demurrer. From that decision the corporation appealed.

Mr. Bethell and Mr. Serjeant Channell to-day argued that the order of the Master of the Rolls should be reversed, because the issue raised by so much of the information as is demurred to, is simply a question of common law; because the Court of Chancery has no jurisdiction to determine matters and things depending upon the legal title to lands and tenements, when such legal title is contested until after the title has been established in a court of law: because the Crown does not possess any prerogative to transfer to the jurisdiction of the Court of Chancery matters which, as between subject and subject, would be exclusively cognisable in a court of law: because so much of the information as is demurred to, relates entirely to matters and things which form a fit subject for an information of intrusion at common law, or of some other legal proceeding where the appellants would obtain the benefit of the statute of the 21st of James I., c. 14, of the benefit of which statute the appellants will be deprived, if the Attorney-General shall succeed in compelling them to answer and defend themselves in the Court of Chancery in respect of the matters and things inquired after and put in issue by that part of the information which is demurred to; because the present information, if it can be supported at all, ought to have been filed in the Court of Exchequer, as a court of revenue, that court having both legal and equitable jurisdiction, and such equitable jurisdiction not having been transferred to the Court of Chancery by the statute of the 5th of Victoria, c. 5.

The case is of extreme importance to the corporation, as should it be unsuccessful in this instance, it may, hereafter, be called upon to discover its title to various portions of property, estates, tolls, and privileges, where the title is prescriptive, or lies hidden in remote antiquity.—*Nautical Standard.*

CURRENTS OF THE OCEAN.

British Consulate, Brest, March 15th, 1848.

SIR.—I have the honour to enclose a copy, with a translation of a paper sent to me, by the Director of Customs of this port.

The original of this paper which was in a bottle, was picked up on the coast of Plozenet, about fifteen miles south-west of this, on the 4th or 5th of this month; and handed to the Marine Agent. I am, &c.,

(Signed) ANTONIO PERRIER.

To H. G. Ward, Esq., Admiralty.

Copy of the paper sent to the Director of Customs, being a French translation of the paper found in the bottle:—

"On board the ship (name illegible), of 72 guns, bearing the flag of Rear-Admiral Sir T. Cochrane; W. J. Hope Johnston, Captain, at one o'clock in the afternoon of the 10th of August, 1847; lat. observed, 47° 16′ N., long. by chronometer, 21° 42′ W., thrown into the sea at the same moment. We request the persons into whose hands this may fall, to send it, without delay to the Secretary of the Admiralty, in London.

(Signed) "EDWARD WALLER, *Secretary.*'

CARRICKFERGUS.—A Carrickfergus correspondent writes to say that while a poor woman was gathering sea-weed, opposite the castle, she picked up a bottle, containing a piece of paper, on which the following was written:—"The *Chance*, Capt. Herdman, is now off Islandmagee, in a sinking state." The *Chance* was a schooner, she sailed from Glasgow for Belfast, on the 22nd of October, 1846, and was never heard of since. This discovery decides the fate of the unfortunate crew.—*Northern Whig.*

BRAUNTON, *near Barnstaple.*—March 10: A bottle was found 5th inst., on Saunton Sands, about seven miles from the ports of Bideford and Barnstaple, and five leagues S.E.b.E. from Lundy Island entrance to the Bristol Channel, containing a slip of paper, on which was written the following:—"Emigrant ship *Graham*, for Quebec, June 13, 1847, lat. 51° 4′ N. long. 45° 28′ W., per chronometer. From Plymouth twenty-two days. Prevailing winds since leaving, westerly. Number of souls on board, 258, all well. This bottle is thrown overboard to determine the set of the current; the finder is requested to forward this to the editor of the *Shipping and Mercantile Gazette*, London.

"T. C. BEACH, *Commander*,
"RALPH STEVENSON, *Chief Officer*,
"J. H. VIVIAN, *Surgeon.*"

NEW CHARTS.

(*Published by the Admiralty, and sold by R. B. Bate, 21, Poultry.*)

MAULMAIN RIVER, *Lieut. William Fell*, 1842. Price 1s. 6d.
LABOUAN ISLAND, *Sir Edward Belcher*, 1847. Price 1s. 6d.
JAFFA ANCHORAGE (*Syria*), *Mr. Bodie*, R. N, 1847. Price 3d.
WEST INDIES, *Sheet I., Capts. Owen and Barnet*, 1838. Price 2s.
AMBONA BAY, *Sir Edward Belcher*, 1844. Price 1s. 6d.
CURRENTS ON THE COAST OF GUINEA, *Capt Vidal*, 1840. Price 1s.
ENGLISH HARBOUR, (*Antigua Island*), *West Indies, Capt. Barnett*, 1847. Price 1s. 6d.
MALAGA HARBOUR, *Mr. Rundle*, R. N., 1843. Price 6d.
SIMON BAY (*Africa*), *Capts. Sir Edward Belcher and Stanley*, 1847. Price 1s. 6d.

CORRECTED:

PULO CONDORE, (*Corrected to* 1847.) Price 1s.

Promotions and Appointments.

Promotions

Commanders.—C. S. Forbes—F. M. Frazer—J. P. Baker—T. Saumarez.

Lieutenants.—J. G. C. B. Payne—C. F. Curme—T. Goss—J. E Elliott.

Pursers.—J. Barrett—W. F. Henna.

Assistant-Surgeon.—T. Kincaird.

Appointments.

Flag-Officer.—Rear-Admiral Harvey to succeed Rear-Adm. Sir Lucius Curtis, as Superintendent of Malta Dockyard.

Captains —D. Price, to *Wellington* —J. E. Erskine (1838) to *Havannah* —H. Smith, C.B., to *Ganges*—E. J. Bird, to *Investigator*.

Commanders —J. Gordon, to *Wellington*—A. N. Fairman, to be Inspecting Commander of Coast Guard—R. Harris, to *Ganges*.

Lieutenants —W. G. Hensworth, J. F. Arnold, C. B. Stockdale, and T. Tribe, to *Wellington*—S. C. Dickens, and H. Johnson, to *Star*—M. Lowther, to *Champion*—O. J. Jones, G. T. S. Wenthorp, and C. Dunbar, to *Ganges* —M. G. H. W. Ross, and F. R Robinson, to *Investigator*—E. E. Turnour, to command *Shearwater*—R. McKinlay Richardson, to command *Pluto*—F. Rooke, to *Blenheim*—C. B. Payne, to *Havannah*—H. T. Vernon, to *Penelope* —H. T. Harvey, (flag) to *Ceylon*—A. G. E. Murray, to *Stromboli, vice* Harvey.

Masters.—J. Taylor, to *Wellington* —S. Libby, to *Linnet*—C. Gahan, to *Ganges*—G. Filmer, to command the *Dee*.

Mates.—C. J. Forbes, to *Enterprise* —E. Nares, to *Prince Regent*—G. Taylor, to *Champion*—W. B. Mason, to *Hibernia*—J. B. Lethbridge, T. D. Atkinson, and A. Graves, to *Excellent*—W. H. Anderson, to *St. Vincent*—S. Wolrige, to *Wellesley*.

Second Masters.—C. Austey (act.) to *Wellesley*—F. Taylor, to *Ganges*—J. Crosby, to *Shearwater*—J. E. Fittock, to *Blenheim*—C. Forbes, to *Prince Regent*—E. Swain, to *Dee*—W. Greet, to *Agincourt*—R. Williams (act.) to *Royal Sovereign*.

Midshipmen.—R. Moore, A. D. Mercer, F. M. Noel, and E. H. Pace, to *Champion*—H. C. Farrington, and C. J. Grant, to *Ganges*—J. H. E. Wemyss, and J. Jenkins, to *Powerful*—W. E. Von Donelyen, to *Fisgard*—W. E. Kirkanan, C. W. Buckley, and A. Fox, to *Prince Regent*—H. W. Goddard, and C. J. Wrey, to *Victory*.

Naval Cadets.—E. F. U. S. de Rutzen, and J. E. Wilson, to *Wellesley* —A. C. Curtis, and F. M. Norman, to *Havannah*—J. Grant, to *Champion*—H. L. C. Robinson, to *Victory*—E. M. Collyer, to *Ganges*—W. H. Grubbie, and C. W. Evans, to *President*.

Masters'-Assistants,—W. G. Southey, and J. R. Richards, to *Linnet*—G. P. Chapman, to *Wellesley*—F. Fox. to *Ganges*—A. Berton, to *Star*—H. Howell, to *San Josef*.

Surgeons.—B. Bynoe, to *Wellington* —W. Houghton, to *Ganges*—R. Anderson, to *Investigator*—P. Leonard, to *Poictiers*.

Assistant Surgeons.—T. Hunter, and R. Galvin, to *Wellington*—J. G. Ballantine, to *Linnet*—T. Hunter, and W. Edwards (b.) to *Ganges*—A. Brown, M.D., to *San Josef*—R. D. Pritchard, to *Blenheim*—J M. Murphy, and R. C. Scott, to *Vernon*—H Matthews, to *Investigator*—W. Dunbar, to *Andromache* —W. Richardson (act.) to *Victory*—W. C. Torrence, to Jamaica Hospital.

Paymasters and Pursers.—J. Huggins, to *Wellington*—T. Kerigan, to *Ganges*.

Clerks.—A. Wood, and E. W. Gordon, to *Wellington*—H. T. J. Kelly, and J. Lewis, to *Blenheim*—G. H. Shephard, to *Ganges*—H. M. Moore. to *Victory*—J. N. Jefferson, (in charge) to *Shearwater*.

Chaplains.—R. B. Howe, to *Ganges* —J. Blackburn, to *Powerful*.

Naval Instructor.—K. M. Knapp, to *Havannah*.

Engineers.—S. Parry (Chief), to *Pluto*.—W. Rowley (first class assist.), and C. Mackay (third class assist.) to *Fisgard*.

Births.

Feb. 12, at St. Hellier's, Jersey, the lady of Capt. Williams, R.N., of a son.

Feb. 19, at Donnington, Berks, the lady of Capt. Hayes, R.N., of a son.

March 6, the lady of Capt. E. C. Fanshawe, R.N., of a daughter.

Marriages.

Feb. 16, at Alva House, N.B., Capt. Lord Frederick C. P. Beauclerk, R.N., to Jemima Eleonora, daughter of the late James Johnstone, Esq.. of Alva.

March 13, at Brighton, Capt. Fitzgerald, R.N., Governor of Western Australia, to Eleanor Caroline, daughter of C. Elwes, Esq., of Kemp Town, Brighton.

Dec. 21, at Buenos Ayres, Lieut. J. P. Thurburn, commanding H.M.S. *Griffon*, to Margaret, daughter of J. White, Esq., of that city.

Deaths.

Jan. 15, at Barrie, Upper Canada, Capt. J. Moberly, R.N.

Feb. 1, Capt. T. Lyne, R.N.

Feb. 10, at the Caledonia Hotel, Inverness, Mr. C. Grant, late Midshipman of H.M.S. *Modeste*.

Feb. 15, at Penzance, retired Com. T. Ratsey, R.N.

Feb 23, at Woolwich, Lieut. F. A. L. Bullock, son of Capt. F. Bullock, R.N.

Feb. 23, near Wexford, Com. A. Kellett, R.N.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory From the 21st of February to the 20th of March, 1848.

Month Day.	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade.				Wind. Quarter.		Strength		Weather.	
		9 A.M	3 P. M.	9AM	3PM.	Min	Max	A.M.	P.M	A.M.	P.M.	A.M.	P.M.
		In Dec	In Dec										
21	M.	29·78	29·71	34	45	31	45	SW	SW	2	2	bc	or 4
22	Tu.	29·43	29 17	43	49	38	50	SW	SW	2	6	or 2	qbcp 3
23	W.	29 02	29·16	42	49	40	50	W	W	6	6	qbc	qbc
24	Th.	29·29	29·25	45	52	42	53	SW	SW	6	5	qor 2	qod 4
25	F.	29·05	29·03	47	50	45	51	SW	S	6	5	qbcp 1 2	qbcp 3 4
26	S.	28·44	28·78	46	47	44	48	SW	W	6	6	qor 1 2	qor 3
27	Su.	28 88	28·87	48	50	42	51	SW	SW	5	6	qorh 1 2	qbcprh 3
28	M.	29 28	29·31	46	51	44	52	SW	SW	6	6	qbc	qbcprh 3 4
29	Tu.	29·46	29·30	39	44	36	48	SW	S	4	6	b	qop 3 4
1	W.	28·64	28·78	43	41	37	43	SW	W	6	3	qor 1 2	bcp 3
2	Th.	29·16	29·28	40	42	37	43	NW	N	4	4	bc	bcp 3 4
3	F.	29·90	29·98	39	43	37	44	NE	NE	3	3	bcr 1 2	bcph 3
4	S.	30·12	30·10	32	42	29	43	NE	SE	1	1	bcf	bcm
5	Su.	29·78	29·72	40	41	36	42	S	W	2	2	or 1 2	or 3 4
6	M.	29·85	29 82	39	42	37	43	NW	NW	2	2	o	o
7	Tu.	29 80	29·92	36	44	32	46	NE	E	1	3	bc	o
8	W.	30·25	30·20	35	44	28	45	S	SW	1	3	bc	od 4
9	Th.	29·95	29·85	49	51	41	52	W	SW	2	4	o	o
10	F.	29·38	29·38	43	44	38	46	SW	SW	6	5	qop 2	qbc
11	S.	28·88	28.84	43	42	37	45	SW	W	7	6	qbcphr 1 2	qbcprs 3
12	Su.	28·57	29·81	37	40	35	41	NW	NW	5	5	qor 2	bcp 3 4
13	M.	29·21	29·29	37	40	35	41	NW	NW	5	5	qo	qop 3 4
14	Tu.	29·76	29·84	40	45	36	46	N	N	4	2	bc	bcm
15	W.	29·74	29 64	42	49	32	50	SW	W	3	2	or 2	op 3
16	Th.	29·46	29·45	38	42	37	43	N	NE	2	3	gor 1 2	gor 3 4
17	F.	26·31	29·31	36	43	35	43	S	SE	1	1	gors 1 2	or 3
18	S.	29 40	29·36	42	49	28	50	E	E	1	1	bc	bc
19	Su.	29.18	29·08	35	48	31	49	S	SW	1	2	bcf	bcp 3 4
20	M.	28·95	28.93	39	44	34	46	SW	S	2	2	bcr 2	bcphr 3 4

January, 1848.—Mean height of Barometer = 29 621 Inches; Mean Temperature = 42·8 degrees; depth of rain fallen = 3·13 inch.

To Correspondents.—We cannot exactly see in what manner we can carry out the object of "B. C.," if he will state more clearly what his views are, we shall be happy to give them consideration.

Hunt, Printer, 3, New Church Street, Edgware-road

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

MAY 1848.

Straits of San Juan de Fuca.—*By Mr. G. I. Gibbon, Master, R.N., of H. M. sloop "Modeste."*

Cape Flattery and Cape St. Juan form the western entrance of the supposed Straits of San Juan de Fuca, the former, or Southern Cape, is situated in lat. 48° 23′ N. and long. 124° 26′ W.; it is moderately high, and on an E.b.S. bearing, distant 12 miles, appears like an island, high in the centre, with a gradual rounding slope from N.W. to S.E., and is thickly wooded with pine and cedar trees of gigantic size. At a little distance S.W. from the foot of the cape, and just within the confines of the beach, is a rock in the shape of a pillar about 400 feet high and 60 feet in circumference, the upper part of it has a slight inclination or bend to seaward. About 1¼ mile W. ½ S. from the Cape is a flat island called "Classet," covered with grass; it is nearly a mile long and half a mile wide, with several large rocks between it and the main; and about 1⅓ of a mile N. from the centre of this island, and 2¾ miles N.W.b.W. ¾ W. from the Cape, is a dark rugged rock called "Duncan," from 8 to 10 feet above water, at low spring tides, and generally at three-quarters flood it is wholly covered. From the whirling and broken water extending from it, in a N.W. direction, a full half mile, I am led to suspect the existence of a dangerous reef of rocks, and as the tide here trends to the southward of west, and runs at the rate of three to five miles an hour, influenced by the state of the weather, the force and direction of the wind, I should recommend all strangers bound into, or out of the straits, to keep to the northward of the stream of it, until at least four or five miles east or west of its meridian; nor do I

consider it advisable ever to pass between it and Classet Island unless bound into or out of Neah Bay, and then only with a good commanding breeze.

The latter, or northern cape, is situated in lat. 48° 33′ N, and long. 124° 12′ W.; it is one of the south-western projections of land of the Island of Vancouver, and also forms the east point of the entrance of Port St. Juan. There is nothing to encourage a descriptive account of it, more than being a plain low bluff, and like the whole south-western face of the island, is thickly wooded with pine, cedar, and oak trees; many from their stupendous size must be the growth of ages. I think its position is admirably adapted for the erection of a light-house.

I should recommend all strangers when bound into the straits after they have made both capes, to get into a mid-channel course, steering about E. ½ S. until the centre of Classet Island bears anything to the westward of S.S.W., then an E. ½ N. course will take you up off Rocky Point, (which is the most south-eastward projection of the Island of Vancouver, off which are many rocks above water. The largest of them is about the size of the hull of a ship of about 200 tons, and is the southernmost of the whole group,) and sufficiently to the northward to clear the shelving ground off False and New Dungeness. Should you be bound for Port Victoria, and from the direction of the wind have to borrow on the north shore, be sure to give those rocks a berth of at least half a mile, for the tide here runs very strong and irregular. From the outer or southern rock, the mouth of Victoria bears N.N.E. ¼ E., about 11½ miles distant. It has a dangerous rock lying off it, covered with only 11 feet of water, and bears from the south-eastern point of the harbour about south 500 fathoms. I know of no good anchorage without the harbour, the land being steep to and bottom rocky. Her Majesty's sloop *Modeste*, in September, 1844, anchored in 35 fathoms water, about one mile S. ½ E. from the mouth of the harbour, and N.N.E. ½ E. from Rocky Point.

Being abreast of Rocky Point, and bound for New Dungeness, steer S.E. ½ E. to S.E.b.E., depending on the direction of wind and set of the tide, and having reached within sight of the Ness, being the eastern end of a remarkable belt of pine trees, which extends the whole length of the southern side of Dungeness Bay, bear a little to the southward of S.S.E., which will clear you of a long shelving spit of sand, extending about ¾ of a mile north, from the extreme point of Dungeness Spit, over which the tide runs very strong, and produces a dangerous race for boats. Run on that bearing until within the bay, and when you have brought the extreme point of Dungeness Spit to bear, from N.b.W. to N. ½ W,, you may then haul up for the head of the bay, and anchor in any depth, from 7 to 4 fathoms, good tough holding ground.

The best position for a small vessel to anchor in, is about a quarter of a mile from the north side of the bay, with the extreme point of the sandy spit bearing from N.N.E. to N.E. in from 5 to 4 fathoms water.

There is excellent water to be had from a small river in the S.W. part of the bay, where you can enter your boats at half tide and fill the

casks in the boat. Potatoes, salmon, and a great variety of fish, are brought by Indians to barter for clothes. Whale and salmon oils are also offered in small quantities.

The Indians here are not unlike those at Cape Flattery, the men have a wild and savage aspect, are of middle stature, and somewhat robust, their complexion tawny, their only covering a small plaited grass fringed apron, round their loins. The women present a soft and mild appearance, and not of an uninteresting complexion; they have a pleasing tone of articulating words of their language, and were it not for the deformity of the upper part of their heads, which are flattened when infants, they would be symmetrically formed. They are blessed with a bewitching risibility of expression, which is seldom displayed with more becoming modesty by an enlightened race. Their dress is simply a fringed belt, made from the fibres of the inner part of bark of the white cedar, worn round the loins.

The climate, I think, is in no way insalubrious at any season of the year, the distant country is exceedingly mountainous, many of the highest peaks (particularly Mount Baker) are capped with perpetual snow; whilst there are many extensive plains, clothed with exuberant pasture, where numerous herds of elk and deer are found. The dense forests of pine, cedar, oak, yew, maple, poplar, ash, willow, alder, elder, and hazel, are the abiding places of the bear, panther, wolf, fox, racoon, lynx, and squirrel; whilst the lakes and rivulets abound with wild-fowl, (swans, geese, ducks, and seal, &c.), and in season the swamps and marshes afford cover for snipe and plover.

It is in the lakes of the high land where the sagacious beaver builds its huge dam with such adroitness and skill, so, as its instinct would seem, to surpass the genius of man himself.

During my short stay here, of seven days, the weather was particularly fine, for although rain fell incessantly the whole of one day, still the atmosphere did not feel humid, the temperature was mild, the thermometer ranging from 52° to 53° and the barometer kept at 30·30. I had no opportunity of ascertaining the time of high water, or its vertical rise and fall, at the full and change of the moon, and having no artificial horizon, was unable to ascertain, with the accuracy I could wish, the exact geographical position of the extreme point of Dungeness Spit on which a beacon would be invaluable to a mariner visiting this bay. However by using the sea horizon in the morning, and taking a back observation at noon, and applying to the chronometers their errors on Greenwich mean time, with their daily rates obtained last at Honolulu, "Sandwich Islands," makes the long. 123° 8′ 02″ N., and the lat. 48° 12′ 20″ W., which, I think, will be found near the truth.

Experiments made to Determine the Length, Height, and Speed of the Sea, near the Cape of Good Hope.

The height of the sea was determined by the method recommended by M. Arago, viz.:—observing the height, that the eye must be raised above the water line, in order to see the crest of the coming wave on with the sea horizon, when the ship is in the trough of the sea. This method, which may seem difficult at first, we found after a little practice, to be capable of giving very fair results, where the means of a number of observations were taken:—

The length of the sea was measured, by noting the length of line required to veer a spar astern of the ship, when going dead before it; so that, the spar might be on the crest of one wave, when the ship was on the crest of the preceding one. At times, when the sea was regular, I have reason to believe, we obtained a very close approximation to the truth.

The speed of the sea was obtained, by noting the time the crest of the wave took to pass from the spar to the ship's stern; adding, of course, the speed the ship was going to that observed:—

Date.	No. of observations.	Force of wind.	Speed of ship.	Height of wave.	Length of wave.	Time of passing from spar to ship.	Speed of sea per hour.	Remarks.
April.			Knots.	Feet.	Fath.	Seconds.	Knots.	
21			7·2	22	55	10·0	27·0	Ship before the
23	8		6·0	20	43	8·0	24·5	wind, a heavy
24	6		6·0	20	50	10·0	24·0	following sea.
25	9		5·0		35·40	7·8	22·1	"
26			6·0		33	7·4	22·1	"
May.								Sea irregular,
2	6		7·0	22	57	10·4	26·2	wind and sea on
3	7		7·8	17	35	8·9	22·0	port quarter.

Description of Shanghai and other Ports.

Shanghai is situated in the province of Kiang-su. According to the statistical tables of the Emperor Kien-long, Kiang-su contains 40,000 square miles, and has a population of nearly 38,000,000 souls. If these figures are correct, they give an average of 946 inhabitants to the square mile, and show this province to be the most populous in the world, in proportion to its extent.

Kiang-su is esteemed the richest province in China. It consists of plains perfectly watered, being traversed in its whole length by the

Yang-tsze-kiang, one of the finest rivers of Asia. Its productions are nearly the same as those of Che-kiang. Rice, cotton, especially the yellow cotton, green teas, and the mulberry tree, are the principal. Its silk manufactures are very flourishing. To show that this province possesses the elements of great prosperity, agricultural, manufacturing and commercial, it is only necessary to mention the names of some of the cities:—Nankin, the ancient capital of the Empire, Suchau, surnamed the paradise of China, and Shanghai, one of the most celebrated seats of commerce of any age.

Of the four ports recently opened, Shanghai is the one which has acquired, and will maintain the most importance in regard to European commerce.

The Yang-tsze-kiang falls into the China sea, by a very large mouth, divided into two parts by the large Island of Tsung-ming, gradually formed by the deposit of mud from the river. These accumulated deposits daily form new banks, which render the navigation very difficult. This river receives a great number of tributaries. The first from the mouth is the Woosung River, upon which Shanghai is situated. There is a small village at the confluence, to which the English have given the name of Woosung, where may still be seen the mounds of earth, and the palisades behind which the Chinese raised their vast, but useless batteries. It appears a miserable village.

Woosung is the spot selected by the English and Americans, for the station to supply opium for Shanghai. We have already seen that Tinghai (in the island of Chusan) forwards opium to Ningpo. Each of the ports opened to trade thus possesses a sort of branch for smuggling. The Chinese Government has launched edict after edict against opium; it has prohibited the use of it, under the most severe penalties; and even after the defeat of its armies, has constantly refused to legalize the introduction of it. But it wants power. The mandarins commissioned to watch over the execution of the edicts are the first to violate them; and the smuggling vessels anchored at Woosung pursue their trade in perfect security. Brigs or clippers arrive every day, which fill the stationary vessels with chests of opium. From the latter, the Chinese merchants are supplied with smaller quantities. The war junks which pass to Shanghai or Nankin, assist in this barefaced violation of the Chinese laws, without even attempting to put any obstacle in the way of it. The opium vessels are armed with guns, and have numerous crews, which in case of attack, could set at defiance all the fleets of the Celestial Empire. It would certainly be better to remove the prohibition than maintain such a state of affairs. The Government incurs a moral disgrace by the confession of its weakness, and China sees every year the departure of vast sums, which abstracted from its trade and agriculture go to promote in India the extension of the manufacture of opium. The station of Woosung is one of the most important. On an average 800 chests per month, are sold there for a sum of about 3,000,000 francs (600,000 dollars). The sale of opium annually in China is estimated at 40,000 chests, worth 135,000,000 francs, (27,000,000 dollars).

Woosung is twenty-five miles from Shanghai. The banks of the river are very low, and require to be defended by dykes. At certain points the dykes are double;—one is of stone, the other at the distance of some metres, consists of a mound of earth beaten down, as a second barrier against inundation. It is a work of immense labour.

Before reaching Shanghai, one can judge of its commerce, by the large and magnificent route which conducts to it. As we go up the river, we are struck by the prodigious number of vessels which traverse it in all directions. These are not merely fleets of fishing boats carrying a miserable family and their nets, but also large junks loaded with rich produce of the province, the various forms of which indicating those from Shangtung, Fokien, Kwantong or Siam, point out sufficiently the diversity and distance of its commercial relations. From the midst of this fleet of Chinese, still larger than that seen on the approach to Ningpo, we discover at intervals the white sails of the European ships, newly admitted to a share in the navigation of this magnificent river. In proportion as we advance, the banks contract, the scene becomes limited, the vessels are crowded, until at last the passage is entirely barricaded by a forest of masts, which points out Shanghai upon the left bank of the river. Ships of great size can at all times go up; when the wind fails, the tide carries them up. Thus upon a tributary of about forty-three miles from the mouth of the Yang-tsze-kiang, Shanghai enjoys all the advantages of a sea-port. The city, that is the space surrounded by walls, is separated from the river by a vast suburb very commercial, very populous, with narrow streets, lined with immense warehouses, and incessantly blockaded with merchandize, which is carried on the backs of men to the landing places. This suburb enclosed between the walls and the river is the only one which belongs to Shanghai. On other sides extend a cultivated plain, covered with rice fields and villages.

Shanghai has five gates; the walls are high and thick, built of stone and brick. They are about four or five miles in circuit, but the space which they enclose is not entirely inhabited. When we go from the quarters adjoining the suburb, the number of warehouses diminishes, activity disappears, large gardens surround the houses; one might believe himself without the walls. The number of inhabitants is estimated at 300,000.

There is no remarkable monument in the city, There is only a garden, known among Europeans by the name of the "Tea Garden," a public promenade, which does not exist in the other Chinese cities which we are at present permitted to visit.

The Tea Garden occupies a square of a regular form, about as extensive as the garden of the Palais-Royal, at Paris, planted with trees at different places, and studded with kiosques in rock work, the singular structure and varied designs of which form one of the most picturesque points of view. The Chinese excel in the arrangement of these kiosques, which are found in the gardens of wealthy mandarins. They know how to dispose of a block of rocks, a tuft of trees, an irregularity in the ground,

with an art, which by imitating nature accommodates itself marvellously to their love of the fantastic, and conveys that particular stamp which we find among them in the most common objects. Towards the centre of the place is a pond, in the middle of which rises a pavilion of several stories, with roofs rising above each other, and of an elegant form; we reach it by a small stone bridge which winds through the water. In every kind of structure, the Chinese have an aversion to straight lines. The sides of the garden are lined with splendid shops, either eating-houses or tea shops, filled with people. It is here, that one for a short while observes the Chinese almost in his private life, far from the noise and commerce of the suburb. The garden is the resort of the idle, the curious, the walkers, children let loose from school, and of that class, always numerous in a large city of people, who have nothing else to do than to pass the day. When having left the suburb and after traversing the city, we enter the garden, it seems as if we were all at once transported from a market-place to the midst of a fête. We no longer see immense stores filled with bales of silk or cotton. Here are the shops of luxuries, and in them we admire the fine porcelain, the fans and embroidered screens, the paintings of the most eminent artists, bamboos elegantly carved,—in a word, those thousand fancy articles for the use of the rich man, who has time to look at and select them.

As to the tea-shops, they have all precisely the same appearance. The mandarin and the rich merchant are seated at the same table beside one of the common people, and the half-naked coolie who comes to rest an instant from the labour of the day. In a society where the grades are so minutely classified, where the duties of inferiors towards their superiors are so rigorously prescribed, we are justly astonished to see the ranks thus confounded, the classes mixed, and to observe so intimate familiarity there, where in our European societies, wealth and education raise barriers almost insurmountable.

In the interior of the garden the crowd is attracted by magic lanterns which, it must be confessed, for the most part, give indecent representations, by small moveable theatres, by jugglers who excel in tricks, by balls and cups, by fortune-tellers, who are each moment consulted, by the dealers in clever birds; in short, by all who practise upon curiosity, and the purses of the public, who have, at least, as much success, and make as many dupes in China as elsewhere.

In other respects Shanghai presents to the stranger many of those places of public meeting which denote in the population a degree of wealth and habits of indolence and lounging. The inhabitants are gentle and benevolent toward strangers. Prejudices disappear before interest and the Chinese merchants, who all have in their shops an altar consecrated to the god of fortune, have consequently appreciated the advantages of a direct trade with distant countries. No city is better situated than Shanghai for profiting immediately by the new conditions of the treaty of Nankin. This is the most northerly port that the treaty opened to trade. It is the connecting point between Europe and a large part of China, and consequently, the necessary entrepôt of all the goods which are imported or

exported. Whilst each of the other ports is limited in its operations by competition on the north and south, and confined within a certain tract, Shanghai can extend its trade freely to the east, to the north, and to the north-east, over a space which has not been disputed with it, and at the same time, it attracts to itself, and concentrates according to the laws of commerce, and by a sort of inevitable usurpation, the capital and the trade which was formerly distributed among the neighbouring cities.

The European merchants on their side, have understood the importance of this new market. While they neglected others they have resorted in great numbers to Shanghai, to which also the salubrity of the climate and a great degree of liberty invited them. All the large houses in China are represented there by agents or partners. Towards the close of 1845, the foreign population was estimated at 200, of whom the English constituted three-fourths.

Europeans dwell indiscriminately in the city and suburb; but the English have bought from Government, on the banks of the river, on the site of an ancient cemetery a large space, where they are already raising houses and stores almost sumptuous. The buildings advance rapidly and no one doubts that in the space of some years, there will be a European city. What would the Chinese of a former age say at the sight of such a profanation.

The English consulate at Shanghai consists of a consul, a vice-consul, an interpreter, and several assistants. Their intercourse with the Chinese authorities is frequent and regular, and to the present period, no serious difference has occurred between them.

Shanghai, as we have already seen, is the only port recently opened which has come up to the hopes of the foreign merchants. The amount of dealings with England in 1845, exceed thirty-eight millions (of francs), more than double what it was in 1844. England has always occupied the first rank in the trade with China. After it comes the United States, whose trade increases rapidly; then Holland, Germany, Sweden, Denmark, and lastly France.

The tide which has already carried the English vessels to the walls of the imperial city of Nankin, may again flow, and by a second inundation surmount the barrier, and spread amid the fertile plains and opulent cities. What physical force has commenced, commerce will complete. It is in the manufactories of the United States and of England, perhaps, also in those of France, that are now forged the arms destined to triumph over the exclusiveness of the Chinese. Europe has not yet spoke her last word to China, she is at the gates of the Celestial Empire. From her factories in the four ports, she has her eyes constantly fixed on that population of 300 millions whom she wishes to make dependant on her products. The prey is, enough to allow each to have a share.

Method for determining a Ship's position on the Chart.

Her Majesty's Steam Sloop "Bulldog," Naples, March 4th, 1848.

The numerous accidents and loss of life, I think, may, in many instances be attributed to the want of more than usual precautions in time of difficulty and doubt, in marking a ship's position off on the chart, the simple operation of cross bearings is all very well in taking a departure from a bold coast, but, most certainly, should not be depended on, or brought into practice, when in the vicinity of a known and hidden danger; the place of a ship should then be laid down to the greatest possible nicety, this can be done by taking angles right and left of a point of land, which protract on a piece of tracing or thin paper, drawing the lines as long as may be thought convenient; this done, lay the tracing paper on the chart, with the centre line on the point from which the angles were taken, move the tracing paper about until the lines are on their respective points, the place of the ship will then be where the three lines meet.

This method might be made available in rating a chronometer, in ascertaining the height of land, laying down soundings, and in many other cases will be found exceedingly useful.

Again, we will suppose a ship sent to take soundings round a shoal, or near one, that had been previously sounded, how frequently does it happen, she returns to port not having succeeded in carrying out her orders, by merely adhering to the usual and erroneous method of taking magnetic bearings?

The plan I should recommend to be adopted, would be, in the first place, to draw three lines from the shoal, to any points or remarkable objects in the chart, (the greater the angles the better,) then with the chord of sixty, and with one point of the compasses on the spot, sweep and measure the angles, this done, proceed towards the danger with caution, frequently pricking the ship off, as already recommended, and when within a safe and reasonable distance, send boats away to accomplish the rest, (by getting the angles on), which must, if the shoal is correctly laid down, place them exactly on the top of it. In a similar manner, should a danger be discovered, (within sight of land,) endeavour to get astronomical bearings of some objects, or angles between them, which are the only and correct method of laying it down.

Having frequently been deceived with respect to the distance of high land, as for instance:—the Island of Monte Christo, Maritimo, and many other places, (the height of which is given, or could be easily found,) the bearing, where angles cannot be obtained corrected with care, for variation and local deviation, and the altitude of the object, making it a simple question of trigonometry, should always be depended on, in preference to guess-work. This method of placing a ship on the chart will, in most cases, be found exceedingly correct, and may, with certainty, be depended on, within a very short distance of the truth.

I beg most respectfully to state, I have been induced to offer these few remarks more from a wish to call the attention of the service generally, to this important subject, than to arrogate to myself professional knowledge of a superior kind, trusting they may be found worthy of attention.

I beg to remain, &c.,

JOHN J. BALL, *Master*.

To the Editor N.M.

OCEANIC CURRENTS.

Third Part.

SHALL we be going too far in connecting the great westerly current of the Pacific with the equatorial stream of the India and Atlantic Oceans? Would the alternating monsoons effectually interrupt the continuity? We think not; for, whatever may impart the initial velocity to a *permanent* current, the impetus stamped upon the body of propelled waters, must be continued to give it *that* character, and as long as that is the case, impediments may derange, but not subdue the stream, for run, it assuredly will, in one direction or another; and observation helps us to a right conclusion here, as it has been repeatedly proved that streams, where circumscribed by lands in their lateral extent, urge on their course with irresistible energy, in opposition to winds of considerable force—an unanswerable testimony of design in the system of Oceanic Currents.

The monsoons may affect the margins of the stream, and even give to the upper stratum a curve, but neither obliterate its fluency, nor touch the heart or centre beneath, from the general direction which, by the unerring laws of nature, it pursues to effect the great objects of interchange of waters; a healthy circulation, and, perhaps, an assistant to man in his transits from one portion of the world to another.

We are next to consider the effects that would follow from the Peninsula of Cochin and the Archipelago of islands stretching thence to Australasia, standing in the way of a free course. No doubt the equatorial current of the Pacific would be broken by the chain of islands, but the divided streams would find their way through the various channels between those islands, and reuniting to the westward, flow onward in a compact stream again, towards Madagascar and the Cape. We again, to obviate objection, repeat here, that although the surface waters between the islands may be deranged, so as even to alternate, and to flow in a variety of directions, such may not, and we are persuaded does not, prevent the body of flowing waters *beneath*, from following its original impulse to the west; the extraordinary contention of the currents, inducing whirlpools and eddies, which are very perplexing, and sometimes dangerous to the mariner; may arise from the combined actions of current, tide, and wind. A very animated and graphic sketch

has been given by Capt. Thruston, R.N., of the peculiar sort of "badgering" a ship is sometimes exposed to in the narrow straits separating many of these islands.

The effect proceeding from the Continental coast on the current of the Pacific, would give rise to great irregularities. We have a noted instance recorded by Capt. Kotzebue, in his first voyage—that of some natives of the Carolines being driven, *against the trade wind*, about 1500 miles to the westward, in a canoe! Upon first reflection this circumstance may appear unaccountable, and, probably, has been thought so by many; *nil desperandum* should, however, be the motto of a practical observer; he should never give up a point requiring elucidation, until every available thought has been exhausted ineffectually.

This return current is, we have no doubt, only seasonal, as well as superficial, (the stream beneath it still flowing on to the west,) and is, probably, occasioned by the S.W. monsoon taking up the re-action of the waters upon the S.E. coasts of China, and so directing it to the eastward, without interfering with the main westerly stream to the southward. The counter-currents, northward of the tropic of Cancer, may assist in preventing this seasonal current from pursuing a N.E. course, and as the re-action from the coast of China would probably acquire a south-easterly direction from being deflected, the S.W. monsoon would be sufficient by its convergent action in this case, to turn that direction to nearly an E. or E.b.S. course. In this simple way, we conceive that such an anomalous circumstance may be fairly reconciled and satisfactorily explained. We need scarcely intimate, that it becomes material, when reasoning to arrive at just conclusions from stated facts, that the view should be extended beyond the locality of the observed phenomenon, in a case of this sort; for it should be remembered that effects often proceed from remote causes, as there is reason for believing in this very instance. To confine our view to the spot or space where such occurrences have been observed would, in effect, be the readiest way to draw an ideal circumvallation around the investigation of truth. It is well known that the very evidence of our senses avails us not, at times, in drawing correct inferences; for instance, we happen to find an *east* current running over the ocean in the identical wide space occupied on the chart by the equatorial stream, going *west;* and seeing this with our eyes, and proving it, moreover, by chronometer, we decide at once that the mighty ocean-river has, for a time, been annihilated! but, if we had tried an experiment, we should have found that a few fathoms below, the old stream was as energetic as ever. We hold it perfectly impossible, in a case of this sort, that it could have been otherwise, unless, indeed, a barrier was hove up by volcanic agency, so as to stop the progress of that "mysterious" wanderer on its mission. The circumstance alluded to, which has really occurred, is certainly extraordinary; but we think, that if *all* the circumstances had been diligently inquired into *at the time*, across the Atlantic, from continent to continent, it is not improbable that the combined causes which led to this retrograde movement of the surface stratum of the equatorial stream, might have been

detected; indeed, the point may even now be reasoned out, but, in so doing, we should occupy too much space.

The tendency of the waters north of Cancer, in the Great Ocean, to the eastward, has been proved from the circumstance of a Japanese vessel blown off from her own coast, drifting to that of California in America.

Causes in operation, of which, hitherto, we have not had even an imperfect knowledge, often produce cross, oblique, and even diametrically opposite currents within the limits assigned to the equatorial stream, and some of these of considerable strength. Anomalies of this sort, however, we consider as not interfering effectually, as might hastily be, and have been supposed, in obliterating the onward progress of the great flowing belt; it is not only possible, but highly probable, and from experiments, certain that these various movements of the surface waters may be passing on their respective courses, whilst the mass below is pushing steadily to the west.

The bed of this ocean, in thousands of spaces, approximates the surface, and as the heart of the great current is presumed to be deep, these sub-marine mountains would have much influence upon its course, as well as the variations in the strength and direction of the trade-winds would have upon the surface stratum. In the first case, by deflection, the main stream may deviate from a direct west course to the extent of each range, which would sufficiently explain why, for several days, a ship may find the current running due west, and for the succeeding two or three days, experience it deviating to the northward, or the southward, of that cardinal. In like manner, when salient angles in these sub-marine banks oppose the free course of the stream, a portion of the fluent waters may be turned off with a curve to nearly an opposite direction, which would also account for those puzzling irregularities so often noticed by navigators. In the second instance, the surface waters may be suddenly acted upon by the variations of the wind, which here, seasonaly, blows furiously from the westward, disarranging the uniformity of the *set*, and creating those irregularities in the movements of the waters which have been mentioned by voyagers. These explanatory causes appear so reasonable, the wonder is they should not have been thought of by those who have hitherto dwelt on the anomalies without exposition; contenting themselves with the consideration of their being inexplicable.

Analogy often assists us to just inferences; when we cannot arrive by direct proof in the solution of any particular case, are we not justified in turning to analogous circumstances to help us out in our conclusions? We all know from observations, the effects which arise from the particular disposition of the marginal contour of the land, upon surface currents and tides; similar effects, but more strongly marked, would follow when such obstructions to a free course of running waters, deeply seated, lie beneath the surface of the ocean; there is not any seaman, we presume, who would not agree to this point; indeed, if there should be a doubt in the mind of any one, let him turn to the fact, a "glaring" instance, of the Agulhas stream being turned by a bank laying 300 *feet*

beneath the surface. Such is on the great scale, and decidedly applicable to the point under review—a branch of this current being deflected by the deep sea-bank of the same name, is turned to the southward, and in accordance with the laws which govern fluids in their action and reaction, is ultimately directed to an opposite course to that whence it originally came. The observant seaman, indeed, cannot have failed to remark, that there is a tendency in the nature of aërial and aqueous fluids, whilst in motion, to form curves when deflected from a rectilinear course by any obstruction. We need scarcely advert to any other instance to confirm the view we have taken of this subject, or to uphold its extreme probability; thousands of examples present themselves daily and hourly to those who are familiar with the ocean and the sea-coast, and those who will not apply them must, indeed, be blind to truth.

We have essayed to connect the equatorial current of the Pacific, with that of India, the Agulhas, the South Atlantic parallel current, the Equatorial of the Atlantic, the Florida stream, and the indraught on the European and North American coasts; these may, we presume, be considered identical; one and the same ocean-river almost encircling the entire globe; and, certainly, not the least wonderful of the phenomena of nature, which arrest our attention and excite our admiration.

The cause or causes from which this mighty volume of water receives its original impulse must apply its power, or combined power, unceasingly; but until *all* permanent currents *are traced*, and their courses laid down and clearly defined upon a current chart, it will be difficult, from detached facts, to pronounce whether the *mutual effects* may not be one cause of *their continuance*, whatever may give rise to the original impulse, and however much we may feel disposed in the abstract to insist upon this particular point. How far possible it may be that many of the temporary currents of the North Atlantic have their origin in the great trunk of the Florida Stream, (as before hinted,) and are the result of certain directions of aërial currents, which become a directing power to off-sets from flowing waters, must be left to careful investigation and sound practical judgment.

This theme, which to the seaman is, or ought to be, one of great interest, as well as to all who contemplate the admirable system of the Universe with sober thought, has for years, made a due impression upon our mind; and we have, whilst pondering over the subject, often mentally soared above the limit assigned to man upon earth, and considered that if it were possible to tinge the various streams of the ocean with a permanent difference of colour, and take a bird's-eye view of the whole process, we should be agreeably surprised at the beautiful systematic order pervading the entire mass of moving and "living" waters, which, from our want of clear and perfect comprehension, arising out of our present circumscribed view embracing only detached portions of the detail, and thereby associating these, in our own ideas, with a confused and complex incongruity, we now imagine too complicated and irregular for the limited scope of human ingenuity and understanding to trace or to explain.

Fourth Part.

Of under currents, so little attention has hitherto been paid, that our knowledge of their movements is not very extended; but there cannnot be a question of their operation being as general as that of surface currents. In particular instances, these unseen movements have displayed their effect in so unexpected a manner, as to have created a considerable degree of surprise in the spectators; and it is highly probable that, one might just as successfully endeavour to persuade some incredulous persons that, a whale had been entangled in a rope from a ship, and so dragged her along against a surface current; or in a calm, as that there was a stream of greater strength, flowing in an opposite direction beneath the one of the surface.

There can be no doubt that, where insets are found in terminating inlets of the ocean, under currents, if tried for, would be detected running in a contrary direction. It is a well-known axiom that, water will find its level; and a very little reflection, even without trial by experiment, ought to convince, a seaman at least, that where water pressed into an inlet cannot return or escape, *on* the surface, it must necessarily find its way out again *beneath* that surface; this fact may safely be insisted upon in all such cases, because, there can be no other alternative than adopting it, when we find that the shore is not inundated; and, indeed, even then, the difference would be merely that, the water was forced in faster than it ran out. From an experiment we tried, it was ascertained in a particular case that, the under-current was less than a fathom below the surface, and moving with greater rapidity than the surface *set*, induced by counter-currents in the offing, and thrown or directed into the inlet by a fresh breeze.

Why are not ships provided with a "*parachute*" anchor, to be used where under-currents prevail, and surface streams and wind combine against their 'advance? Cases of this sort often occur, particularly in channels leading to the Baltic. What a pretty sight it would be, especially to a novice, to witness the apparent magic of such a scene! A ship with her sails furled, and yards braced up, dragged away against wind and lee-current by an invisible power! Egad! the steamers with their glowing reputation would be rivalled—and rivalled by what? By a huge *umbrella*, without noise, smoke, or paddle-wheels; the very thought seems ridiculous; but, is not the thing feasible? Who is there bold enough to gainsay it? Assuredly it has been accomplished to admiration, in the simplest way possible, by a boat, and an *old iron-pot!* and shall old William Boorn's* ingenuity of yore (1757) be altogether profitless, although exercised for a different design, (keeping ships from a lee-shore,) if it can be made answerable for the present purpose? We have, ourselves, long ago, planned a machine for steadying a boat, whilst trying for current, somewhat after the same fashion.

* See "Miscellaneous Correspondents," pp. 175, 178. By Ben. Martin, London, 1757.

Every attempt, in our present imperfect knowledge of the subject, to assign causes for the great equatorial stream we have been considering, must necessarily be hypothetical, and would scarcely be received otherwise than as mere speculation. The most apparently plausible reason, as already noticed, in the action of the two oblique currents of air within the tropics, has, the decided objection attached to it, that such cause does not appear to be equal to the production of a *deep-seated* stream. Other reasoners, no doubt, would readily suggest the diurnal motion of the earth, as fully equal to such an effect. It appears to us *more* than equal, and inadmissable; we have calmly, fairly, and fully considered that point, and although abstractedly, an inviting aid, we were constrained to reject it. The cause must be, we conceive, something, although powerful and incessant, much less *tremendous* than a rotary motion of 900 miles an hour, to produce a velocity of only from one to five miles an hour, in a belt of salt-water; which variation alone, often in the same space, we pronounce could never happen with a force *undeviating* in rapidity, and *exceeding* all external controlling powers in *intensity*; it is, however, with all due deference, that we feel constrained not to follow those whose opinion, on this head, seems to offer violence to the common-sense, and the practical observation of the ordinary mind; but, we are, nevertheless, happy in acknowledging their just pretensions to the privilege of instructing, and the great pleasure we have derived from a perusal of their works. That we have not yet decidedly hit upon the true cause of perennial currents, is no support of the rotary theory, nor objection to a dissent from it; the argument against such, is, we think, unanswerable, whilst no reasoning can expand beyond the mere abstract view of the existence of such a power, in its support; so, that, it remains an opinion only, without a single prop that could not be thrown aside by fair argument. How far the continued heat of the central line of the torrid zone may act upon the particles of the water, so as to create a motion among them, we shall not attempt to decide. It is well known, that the effect of a moderate degree of heat on fluids, is that of causing the surface to spread abroad, and an increased degree occasions them to rise, and occupy a greater space. Perhaps the former effect, aided by the directing force of the trade winds, may be so far influenced as to acquire a flowing motion to a particular point, instead of spreading equally on all sides.

The barometric changes of the atmosphere we may readily conceive to have some influence on the surface of the ocean; but, whether inducing a *set*, requires confirmation. Sudden changes in the temperature of the air, which must also effect the surface-waters, may act its part with respect to temporary currents. We shall say nothing of electrical agency, or magnetic force, or of the tendency of the prominent waters of the globe, to follow the course of the sun and moon, because, these are points left to the consideration of the philosopher.

The effect of volcanic action in the bed of the ocean, under the equator, upon the incumbent waters, with reference to an increased temperature of the fluid, we can have no correct general idea of; partially we see

it exemplified about Iceland, where founts of hot water are ejected from the ocean to a great height. The high degree of warmth which the equatorial current carries with it into the temperate region uninfluenced, but in a trifling degree, by elemental change, has never been philosophically considered, that we are aware of, although a very remarkable circumstance, and which, by the aid of the thermometer, has become available to the seaman. From detached facts, we are led to believe that, one of the transverse lines of submarine volcanic operation traverses the earth under the equator, and the effects produced, no doubt, originate those phenomena, noticed from time to time, and which are now engaging the attention of the scientific.

For practical purposes, and throwing light on the subject, the arrangement of facts, and the connecting these, as far as our knowledge and research would admit, could not fail of becoming useful in the elucidation. We, therefore, suggest a construction of a submarine volcanic chart. Such a chart indeed, would never be completed, but it would be a most interesting monitor to the navigator; many of the details would have to be filled up by the judgment of the compiler, and he would not be far wrong, perhaps, if he drew imaginary connecting branches from one volcanic island to another; for instance: he would be scarcely liable to err in tracing a line from Iceland to St. Michael, of the Azores, and thence with a curve towards Lisbon, to the Madeiras, Canaries, and Cape Verds. We have every disposition to believe that, throughout the whole earth, the internal fires are connected, and that, if it were possible, to throw off the *crust*, we should have displayed before our wondering eyes, (supposing we could be placed in a position to embrace a moiety of the sphere,) a labyrinth of cells, in the fashion of an ant's nest! Some philosophers hold the opinion of connection, and if we recollect rightly, the enlightened traveller, Humboldt, amongst the rest.

It is only by the energy of talented minds that, we can hope for the advancement of science, and happily for all who are interested, there exists at the present day, a glorious list of eminent names.

A Blue Jacket.

Observations in the North Pacific, on a Voyage from Lima to Canton.

Barque Maria, Whampoa.

Sir,—Should you think the following remarks worthy a page in your widely circulated journal (which, I conceive, the best channel through which we can communicate to each other any information we may acquire, tending to facilitate our trackless wanderings), you are perfectly welcome to them.

It may be my ignorance, but I have never seen any work written generally on the innumerable dangers which spot the chart of this mighty

Pacific Ocean, making it rather frightful to look at; many, no doubt, having no existence, and numbers existing that have never been seen. I have traversed these seas much, and spent many anxious nights that might have been saved me, would every one contribute to a work like yours, and let the world know what they do see; for even should their remarks have been anticipated (which may very probably be the case with mine), the more numerous the authorities, the more confidence in the result.

On the 4th of March last, I was, at noon, in lat. 19° 14′ N., long. 167° 11′ E., on my way from Lima to Canton; at 30m. past 5h. P.M. the look-out on the fore-top-gallant-yard saw low land on the starboard bow. I went aloft, and saw from the top-sail-yard a very low island, apparently about 3 miles in length, and not more than 6 or 7 from us; it lay in an E.N.E. and W.S.W. direction, was covered with low bushes, rather higher in the centre than at the ends. Unfortunately it was dark before we approached it sufficiently near to make any farther observations. Since noon I had made a due W. course and 29 miles difference of longitude, this would place the island in lat. 19° 18′ N., long. 166° 42′ E., the last was confirmed by the north star and a meridian altitude of Sirius, allowing the ship to be 4 miles south of it. This agrees nearly with an island called Helsion on the chart (N.B. my chart is 1835), of which no mention is made in "Nories' Epitome, of 1844," and this is the only register I know of for these places.*

This is a very dangerous spot, laying, as it does, immediately in the track of vessels from Peru, Central America, and the Sandwich Islands, and in a part of the ocean where vessels are generally running fast before the wind. I am confident it would not be seen more than 5 miles off deck, in the day-time; and in a dark night, never in time to avoid it if right ahead.

On a previous voyage, I passed this meridian in lat. 19° 0′ N. or right over the site of Wakes' Island, but saw nothing from the royal-yard, though at mid-day. Proceeding westward, I passed the meridian of Halcyon Island, in lat. 19° 13′, and that meridian now, on the present voyage, in 19° 30′, and saw no sign of land on either occasion. Norie gives it in 19° 23′; from this I am inclined to think that they are all one and the same, seen by different people, and had different positions assigned it.

There are two islands on the chart in 18° 17′ N. and respectively in 179° 15′ and 178° 12′ E., called Maurelle's. I passed over the site of each between 4h. A.M. and noon, but saw nothing; yet, from the number of birds, I feel confident we were near land somewhere. All these places are so very low, that even from the mast-head they are visible no distance.

I passed through the chain of Marian Islands, between Grigan and Assumption, and it may be well to remark that this channel is perfectly

* Has our correspondent consulted "Raper's Navigation," the best authority we know of, in these and some other matters.—ED.

clear, and no islands exist between them. The channel is 50 miles wide, and when clear, both islands may be seen 15 or 16 leagues. Assumption is a very remarkable object, being a perfect volcanic cone rising abruptly from the ocean, to an altitude of 1700 feet, its whole circumference, at the base, not being more than 3 miles; three small islands bear about N.N.W. 4 or 5 leagues from it. Grigan is larger, but also volcanic, having a few trees on the N. and S. ends, which descend gradually from what appears to be the crater, having at some period deposited streams of lava, or black ashes, a considerable distance down its sides.

From these islands I steered a course to endeavour to fall in with the Bishop's Rock, if in existence, and I was told, when in Valparaiso, it did exist. At 2h. P.M., on the 17th of March, I was immediately on the site appointed to it, which is 20° 15′ N., 136° 54′ E., but nothing could be seen from the royal-yard in any direction; the wind was very light and variable, and as I thought there was no danger of running on it before daylight, I shaped a course to the W.N.W., to see if I should be more successful with a reef, said to have been seen by Capt. Douglass, in 1789. At noon, on the 18th, I was in lat. 20° 23′ N., long. 136° 14′ E., stood on to the N.W., with a light wind, and at 2h. P.M. the look-out aloft saw breakers and a rock above water, on the lee bow; kept away W. to pass to leeward; when about 2 miles from the eastern extreme, I lowered a boat, and went to examine the reef. I found it to consist of a narrow perpendicular wall of coral, enclosing an oblong lagoon of deep water. I rowed along its whole length, which I should say, was 2 miles, by three-quarters of a mile wide, at one-third from the eastern point. Sharp heads of pointed coral appeared frequently through the surf, and one isolated rock of about 12 feet high and 15 feet long, rose from the smooth water of the lagoon, near its western extreme, with the rock bearing N.N.E. I put the boat through a narrow channel in the reef of not more than 3 feet, this was the only opening I saw, and had it not been very still under the lee, this would never have shewn itself; high breakers were rolling over the northern and north-eastern parts. When the boat was on the wall I had 3 feet, by backing two lengths, 17 fathoms; two lengths more, no bottom with a whole line. The south side is nearly straight, in an E.b.S. ½ S. and W.b.N. ¼ N. direction. The rock, when seen from the ship, 3 miles off, appeared exactly like a boat's tanned lug, from which circumstance, I should say it would be no great stretch of the imagination, to suppose that the Parece Vela, of the Spaniards, although 5° more E., and this are the same; that it is one and the same as the Bishop, I have no doubt.

Innumerable sperm whale were playing about the reef, and I thought the sharks would have come into the boat to dine off us, they appeared so familiar; in fact, the sea was perfectly alive with fish of many descriptions, and I have no doubt, had we had hook and line in the boat, many might have been captured with the greatest ease. What sport a whaler might have had! I never saw so many whales together, look where you would, there was a spout all round the reef. There were some fine old

patriarchs among them, with their heads covered with barnacles; others with backs and sides fat and sleek, their calves swimming by their sides, and sporting playfully as children, and, apparently, much less afraid of us than many children would have been. I suppose they are something like the crows; had we been in pursuit of them, it would have been a very different thing, a kind of natural instinct would have told them to avoid us.

I got on board at sunset, and kept away west; half an hour later the north star made the latitude of the ship 20° 28′, the meridian altitude of Sirius to the S. 20° 31′, allowing the ship to be 1½ mile S. of the reef, the mean would make it in lat. 20° 31′ N. Since noon, until the time I left the ship (the east end then bearing north), we made 81 miles difference of longitude, making the longitude of its centre 136° 6′. I have no hesitation in saying these positions may be depended upon, my chronometers going remarkably well, and having had during the passage, a frequent series of lunars, as well as sighting the Ladrones, Bashees, and subsequently checking them, by artificial horizon, at Whampoa.

Nothing can be more dangerous than this reef from its extent, its neighbourhood ought to be approached with the greatest caution, in dark and blowing weather; and in the months of November, December, January, and part of February, it blows very hard, with thick weather, when observations cannot be obtained; but, in fact, all the passage from the Sandwich Islands to the Coast of China, requires the greatest caution. It is not like looking out for islands high above the horizon; the obstacles in the way (and they be many) are low, treacherous dangers, giving no warning, on which a ship may blindly rush, until no skill can save her. And if we consider how little is known of this vast ocean, from the few vessels navigating it, we must allow that even where the charts appear clear, there is very little certainty that the ocean is so. The principal vessels traversing the North Pacific are whalers, who certainly have ample time to obtain (were they so inclined) much useful information, as time can be of little consequence, and position not much, and I have proved that near one danger, there is an ample field for their pursuit.

If not trespassing too much on your time and space, I will offer a few remarks on the passage from the west coast of China. It is a very A, B, C, sort of one to make, but when a stranger, I have ever been glad to get hold of any hints that might assist me. Leaving the coast (Peru) between July and February, a course should be steered for about 120° W. on the Equator. In 5° or 6° south the current will begin to run to the westward about half a mile per hour, increasing as you approach the Equator, to about 36 miles per day. On one occasion, in August, I had it for three days above 50 miles in the 24 hours. When in the strength of this current, or when it gets over 30 miles, should the S.E. trade-wind continue brisk, it would be as well to steer due W., until either the wind or the current fail; then steer suddenly to the northward; in about 4° N. the westerly current will cease, and be succeeded by one equally strong

to the E.S.E., get across this as quick as possible, and into the N.E. trade, which, when the sun is to the southward, will generally be found in from 5° to 6° N., and at any season seldom beyond 9° N. As this trade blows very much in veins, or currents, when you can go along at good speed, 8 or 9 knots, let her go W.; if the wind fails, make a little more northing, and frequently 30 or 40 miles latitude will bring you into a better breeze; then W. again, and so on. Any old sails will do for this passage until you reach the Marian Islands; from thence, as I have before stated, heavy gales from the northward, with overwhelming seas, frequently occur. During their continuance the current runs to the leeward very strong, obliging you to steer much more to the N. than a direct course; it is for this reason I advise the channel between Grigan and Assumption, being well to the N.; even to the N. of all the islands would be preferable, if it were not for the dangers N. of 20°; for should you endeavour to pass through the Formosa Channel, N. of the Bashee Islands, taking proper precaution as you approach the Gadds and Velerete Rocks, then steer a course to fall in with Piedra Branca; and should it blow strong through the Strait of Formosa, you will find two points to the northward of your course not too much, for there the current runs like a sluice to the S.S.W., and the weather is generally very thick.

I left the Ragged Islands, N. of Chusan, last November twelve months, under a close reefed main top-sail and reefed fore-sail. Passed through the Formosa Channel, and four days afterwards, when I got observations (for all the while it was as thick as a snow storm) S. of the Paracels, I found I had been set by current S. 18° W. 187 miles. There is no danger in approaching the land, even, if it is thick, if you are certain of being to the N.E. of the Lemas, which you will be certain of, if you shoal your water under 23 fathoms; should you find yourself near land and have 26 fathoms and upwards, you are off the E. side of the Lemas, and islands to the S.W. of them. You cannot be very near any other land in more than 20 fathoms, unless you are down about St. John's, which would be a great mistake. In running between the Bashees and the coast do not be alarmed in the night by falling in with fishing boats, for in the N.E. monsoon, you will find them on the edge of the bank, in numbers, as far off as 21° 30′ and 118° 0′ E.; caution and a look-out, with not much canvass, is necessary, for they are very thickly spread, always two together. Never pass ahead of them for they ride to their nets. In moderate weather, pilot-boats will always be met with N.E. of the Lemas, in the N.E. monsoon, and S. or S.b.E. of the Ladrone, in the S.W. monsoon.

Leaving the coast of South America in the opposite season, say from February to July, a more southerly course must be pursued for the S.W. monsoon will be blowing in the China Sea, when you reach it, therefore, keep to the southward of the equator, until in about 166° W., then strike off to the N.W., and pass to the northward of the Radack Chain; run along in from 13° to 14°. Pass south of Guam, and steer a direct course for the Strait of St. Bernardino, but mark! with caution, for the whole of the coast of Samai, Islands Batae and St. Bernardino, lay

much farther east than placed on Horsburgh's charts, and a tremendous current (with strong N.E. winds blowing,) sets into this narrow pass, from which strangers ought to keep wide until daylight, as the entrance is very crooked and narrow, with perfect whirlpools in the strength of the tides. Once past the rock, off the south point of Luconia, the navigation of the remaining part of the straits is very pleasant, although not very straight. Passing through the strait, between Mindoro and Bantangas, you enter the China Sea, where you will find a fair monsoon to your destination. In making the land on this route, the Grand Ladrone is the first usually seen; when bearing N.b.W. it appears like a dome; to the N.E. of it will shortly be seen the Asses' Ears, which cannot be mistaken. Should no pilot make his appearance, (their signal is a small blue peter,) do not hesitate, push in through any of the channels, they are all safe, and you have anchorage everywhere within the islands.

If you will excuse the trouble I am giving, before I lay down my pen, I should like to add my testimony, to that of many others, as to the very urgent necessity of an immediate new and particular survey of all the eastern straits. I need not say a new survey, but an original one; for I am not aware there ever has been one yet, to the eastward of Capt. Ross's very valuable researches, and for the benefit we *have derived from them we are not obliged to the Home Government.* The charts (even at this day) of all these eastern straits are so erroneous as to render the navigation of them irksome and puzzling, even to the most experienced amongst us, what must it be to the young and inexperienced commander; for we all know that, nothing but time and experience begets confidence in intricate navigation; now, with erroneous charts, where can this confidence be acquired?

The remarks of Mr. Martindale, in your December number, for 1845, do him great credit, and with one exception, (the Morepees,) I find his positions extremely correct, although (as in the Macassar, for instance,) differing from Horsburgh as much as 37′ of longitude. Cape Rivero to wit, given by Horsburgh in 120° 34′, Mr. M. makes it in 121° 1′, I made it in 121° 0′; as he states this error more or less extends to Cape Timoel; but, at Cape William, the opposite is the case, for that cape is actually ten miles more west, than placed on the chart, and five miles more south. By my observations taken off the coast, the Table Mount over Palos, bearing E., being in lat. 0° 56′ S., I found the land still 20′ farther east than the charts: the distance between Cape William and Palos, is about 104 miles. In this short distance the error is 30′ of longitude, or 17° in the angle of the coast line; in fact, the whole of the west coast of the Celebes is as erroneously laid down as it is possible to be, and even the Two Brothers, the landmark for the southern entrance of this now much used strait, and placed by Horsburgh in 116° 32′ E., are actually in 116° 22′, or by Mr. Martindale, 116° 21′, just as far *out* as they can be seen off deck. The Morepees I made in 116° 1′, Mr. M. gives them 115° 51′. I measured the distance most carefully between them, which was 21′; so, that, if the Brothers are in 116° 22′, the others are in 116° 1′.

I may also state that, from my own observation, I believe all the islands, banks, and shoals, facing the entrance of this strait, to be very erroneously laid down. The Laers Islands, and shoals south of them, are ten miles too far west, on Horsburgh's charts; the longitude of the islands actually being 118° 34, and the shoal water extends much farther south than is generally supposed, for with the islands bearing N. 5½° E. four leagues, I had half-four for more than two miles, steering E.; the Masdue, three miles more south still, had 5 fathoms. In the eastern passages also, many and great errors exist; for instance:—by cross bearings the west end of Bouro and Xula Bessy, I made these islands 9′ more to the eastward, than given by Horsburgh, and were I to refer to my many remarks during a long experience in these seas, I could point out numerous others. But, I am not a surveyor, my object is to point out the absolute necessity of an immediate survey, and where could the services of our surveying vessels be more beneficial to humanity than in these daily increasing commercial thoroughfares? The navigation of them under the most favourable circumstances, must be attended with great anxiety; but what is it now, when I declare throughout the whole Eastern Archipelago, to the eastward of the 115th degree of longtitude, you can scarcely get three bearings to coincide.

I do hope that Government will not lose a day in this most charitable undertaking, for in what can there be a greater charity than by doing what they can to facilitate our passages through this trying navigation, and thus, render the anxious hours of a long night less irksome, and the consequences less perilous, by giving us a faithful guarantee for the correct position of the dangers by which we are surrounded.

I will just mention before closing, that, in passing through the Northumberland Strait, I suddenly saw the coral rocks under the ship; had casts as quick as they could be hove, 8, 7, 6, 5½, then 6, 7, 12, and no bottom at 30, ship's head W., four miles per hour. The peak of North Quiniluban just visible from deck S.b.E. Extreme of the islands off Coron S.W.b.W. ½ W., lat. 11° 56′, long. 121° 0′; this is much less water than ever I had before, and much less than is on the chart, although there is a 5½ fathom bank, in about 120° 58′, but in lat. 11° 42′.

The *Lascar*, Capt. Thompson, was a short distance to the S.W. of me, and had two casts, 6 fathoms. We saw no sign of shoaler water.

The island mentioned by Capt Isaacson, in lat. 11° 48′ N., 121° 45′ E., and which I have seen myself, is another strange omission in the charts. Before I lay down my pen, let me advise no one to let go an anchor in Basselan Strait, unless the ship is actually in danger of going on shore, for he is sure to lose it if it *grips*. The whole bed of the strait is a series of overfalls, from 25 to, for what I know, 100 fathoms. I never tried this experiment but twice, the first time we lost the anchor: on the occasion on which I am now relating, I let go a heavy stream,

with chain in 23 fathoms; veered out 75 fathoms. The vessel's way or drift was stayed about two knots, but still she went rapidly to the westward; all at once she swung round, the chain being perpendicular, I naturally thought it had parted, but on heaving in, we found the anchor there still, which, had it hooked, I am confident would not have been the case, as I doubt not, the current was going, at least, six knots. At noon precisely, it stopped in an instant, and set, with equal velocity to the eastward; the moon being two days old. As to 14 fathoms, which is the water on the charts, I never could find anything like it, even a small quarter of a mile off shore. Unless at Amboangan I think no ship ought to attempt anchoring, if possible to avoid it; and that is a position in which a man is not likely to place his ship, unless in want of something.

My dear Sir, I will not try your patience any longer, but subscribe myself,

Yours very Obediently,

BENJAMIN SPROULE.

To the Editor N.M.

[We beg to assure our Correspondent that he is rendering a great service to his brother Commanders, as well as to navigation generally, by sending to us so much important matter for publication. We are quite aware of the imperfect state of the charts, which pretend to give the Hydrography of those important high roads for ships through the Eastern Archipelago, of the ill condition of which he so justly complains. No doubt they must be remedied by a proper survey. But there is much going on of this nature under the liberal views of our Government; and while such a thing remains among desiderata, what better can be done than to assist in correcting the existing charts, as our correspondent is doing. We have, before now, had occasion to advert to similar inaccuracies, pointed out by former contributors to this work, and we shall always consider it our duty to continue to do so, with such able assistance as they can supply us, until all their complaints are remedied, and the charts of the East shall be as good as those of the West.—ED. *N.M.*]

GREAT CIRCLE SAILING.

Devonport, April 17th, 1848.

SIR.—I beg to return you my thanks for your several kind notices of my tables, to facilitate the practice of Great Circle Sailing; they are now published by order of the Lords Commissioners of the Admiralty. There is one application, however, amongst others, which has not yet become the subject of comment, either in the pages of your valuable Magazine, nor in the columns of any other work that has come under my notice:—I refer to "Composite Great Circle Sailing." (See p. 48 in the tables.)

This *sailing* enables the mariner to strike out a track embracing the largest portion possible, of the Great Circle; together with the Rhumb, under circumstances, which render the former ineligible, on account of

climate, or any other obstacle, and the latter undesirable, from the increased length of the route. Under a restricted maximum latitude, as stated in the "Explanations," *no possible track can be shorter* than that described; but, perhaps, many, who have perused these remarks, may not be aware of the unprecedented simplicity of this kind of sailing. The greater portion of the *composite* track may be conducted by *simple* inspection, the latitude *only* being known to find the course; for instance: in Example XVI, during the first half of the voyage, it is only necessary to open the tables to "Latitude of Vertex," 50° (pp. 20 and 21), and against the ship's latitude will be found the course; and this will continue to be the rule, whether the ship is enabled to follow the route originally proposed or not. Any deviation from the intended track is adjusted thus:—if she be driven east of the original "Great Circle," she will have a short distance to run on the parallel of 50°; or, if west, she will have to continue longer on the parallel of the maximum latitude.

It will frequently happen, that the latitude of the place of departure or that of destination is the maximum latitude. This is the case in a voyage from Auckland, New Zealand, or round Cape Horn. The parallel of 56° will at once suggest itself to the mind, as the necessary *maximum latitude*, since we must attain that latitude to weather Cape Horn; and it would be generally undesirable to navigate in a higher latitude. In this case, the composite track would consist of adjacent parts, of only two tangent-circles: first, the Great Circle, extending to longitude 122° W.; and secondly, 56° of longitude on the parallel of 56° S. Now the sailing directions for such a voyage might be comprised in the following words:—"Open the tables to Latitude of Vertex 56°, and adjacent to the ship's latitude, from time to time will be found the course;" for, if the ship cannot with advantage follow the course which the tables direct, and she, consequently, leaves the intended track; yet, as soon as a favourable wind prevails, her course will be again regulated by her latitude, and found precisely in the same manner as though she had, from the commencement of her voyage, kept the track originally directed by the rule for composite Great Circle Sailing. The *latitude*, therefore, is all that is necessary to be known, in order to choose the course during the whole of this voyage; and a knowledge of the longitude could only be of use, to ascertain the progress made by the ship in nearing her destination, and to guard against the possibility of the ship being driven 56° E. of her originally intended track. Such a *sailing* would, therefore, assume all the simplicity of navigating between places in the same latitude, by "Parallel Sailing;" and here we would observe that, in the before-mentioned voyage, conducted along the composite track, the distance run would only exceed by 163 miles the Great Circle route, which passes through the unpracticable latitude of 70°, whilst it would be 353 miles shorter than the rhumb.

I am, Sir, yours, &c.,

JOHN THOMAS TOWSON.

To the Editor N.M.

Voyage to Port Philip.

Iris, at Sea, November, 1847.

Sir.—The repeated invitations met with in the pages of the "*Nautical*," to the commanders in our Mercantile Marine, to contribute towards your widely extended journal, as well as the valuable information I have myself found in the pages of the "Blue Book," induce me to forward you the following crude remarks:—

I left the Downs, December 12th, 1846, bound for Port Philip (South Australia), and, with a northerly wind, was enabled to drag down Channel, clear of Ushant, before the wind backed to N.W., and finally to W.; passed about 60 miles to the westward of Cape Finisterre on the 18th, and on the 24th crossed the latitude of Madeira, about 160 miles to the eastward of the island. The wind continuing from the W. and W.N.W., carried me to the eastward of the Salvages also. Got the N.E. trade on the 26th, the Peak of Tenerife then in sight, bearing S.W.b.S., distant 74 miles. Passed to the westward of Tenerife, Gomero, and Ferro, and to the eastward of Palma.

At noon, 27th, lat. 27° 30′ N., long. 18° 55′ W.; being the season when fresh northerly winds may be expected between the African coast and Cape Verd Islands, shaped a course to pass to the eastward of the islands, which I did, keeping in longitude about 20° 15′ W., passing over the position assigned to the Bonetta Rock, in Norie's Chart; winds N.E., strength, 5 and 6, b. c., to lat. 11° N. The winds then gradually decreased in strength, but continued steady from the N.E. quarter, and finally left us on January 6th, 1847, in lat. 6° 51′ N., long. 20° 14′ W. From that date to the 15th, experienced the usual fine weather: calms, with much rain. On the 13th shot a heron; these birds, I believe, seldom fly far from the land, and the nearest known land at this time, was the coast of Africa, 460 miles distant. I have frequently seen herons on the rocks and shoals of the Indian Ocean. Speaking of the passage inside, or to the eastward of the Cape Verd Islands, I may observe, from the remarks of Mr. Davy, of H.M.S. *Thunderer*, I was induced to try the inside passage, in the month of August, 1846, homeward bound. Having crossed the line in 18° W., August 12th, passed up inside the islands, in long. 19° 40′ to 20° 30′ W.; winds, S.W. and W., 4 and 5; squally, with rain, until the lat. of 14° N.; had then no more squalls, but fine clear weather. August 21st, lat. 16° N., wind veered to N.W. and N., and on the 22nd, got the N.E. trade, without having experienced an hour's calm. Passed in sight of, and 21 miles to windward of, Sal; the trade wind gradually freshened as we proceeded on.

Reverting to my present voyage. Got the S.E. trade, hanging far S. January 17th, lat. 0° 16′ N., long. 23° 31′ W.; experienced this day about 14 miles of westerly current: and on the 18th, 30 miles; afterwards no more. Carried the S.E. trades, veering eastward as we proceeded to the southward, to the lat. 24° S., long. 31° W.; average strength, 4 and 5. January 29th, lat. 26° S., long. 32° W.; from this

position the distance, by the Great Circle route, to Cape Otway (South Australia), is 6887 miles, and the present course S. 4° E.; but to continue a course by the Great Circle, would have been impracticable, the vertex laying in a high southern latitude, (86°.) I, however, determined to approximate my course to the Great Circle route, as near as circumstances would admit, or might be considered prudent. I here annex the courses made good by Mercator, in periods of 8 or 10 days, although the course of Great Circle was worked out every day, and the ship's compass altered as circumstances rendered necessary:—

January 29th, to February 10th.

° ′	° ′	° ′	° ′	° ′	*Miles.*	*Winds.*
26 S.	32 W.	39 43 S.	16 38 W.;	S. 43 E.	1127	...N. veering E.

February 10th, to February 17th.

39 43 S.	16 38 W.	45 56 S.	5 33 E.;	S. 69 E.	1044	...Variable & fine.

February 17th, to February 25th.

45 56 S.	5 33 E.	50 56 S.	38 15 E.;	S. 77 2 E.	1336	...Wstly. 5 & 6, fine.

February 25th, to March 5th.

50 56 S.	38 15 E.	50 19 S.	75 25 E.;	N. 88 31 E.	1429	...Wstly. 6 & 7, c g h

March 5th, to March 12th.

50 19 S.	75 25 E.	47 30 S.	105 35 E.;	N. 82 E.	1202	...Wstly. 5 & 6, fine.

March 12th, to March 21st.

47 30 S.	105 35 E.	40 17 S.	137 2 E.;	N. 69 16 E.	1195	...W. & N.W. 8 & 9

Total.....7333 miles.

During the above 51 days, the weather was generally fine; had two breezes from the W., which brought us to double reefs; at other times the barometer was seldom below 30; winds, N.W. to S.W., 6 and 7; never more than one day elapsed without obtaining an observation, and met with very little fog.

February 25th, whilst steering E. ½ S. true, lat. 51° S., long. 38° E., intending to go a little farther to the south before I commenced to run upon a parallel, fell in with a small iceberg, about 108 feet in height and 460 in length; from which circumstance I declined proceeding farther S., and ran upon a parallel from that date until March 6th, in long. 79° 15′ E. While continuing in this latitude, the average of the thermometer, in the air, in day-time, was 42°.

March 4th, passed to the southward of Desolation Island, but did not see it, having passed it before I was aware. I believe this to be a common circumstance with ships making the islands of this ocean from the westward, owing, so I suppose, to strong currents prevailing in the immediate vicinity of the islands (which I afterwards found was the cause of my being set past Desolation without seeing it). A captain of an American whaler, on the coast of New Holland, informed me, he was in a similar manner set past St. Paul's, which he at that time attributed to an error in his chronometer, but which proved to be correct with Cape Leewin. He also informed me, that the whole of the American

whalers, cruizing in these seas, consider St. Paul's to be placed 30 miles in error to the eastward. Capt. Horsburgh mentions a Capt. Lavender, of New York, making the longitude of the island, in three successive voyages, 77° 22½′; it is placed in Raper, 77° 53′. This is a point which should be cleared up, as several of our Colonial traders are in the habit of making St. Paul's, in order to test their chronometers.

March 21st, lat. 40° 17′ S., long. 137° 2′ E., I may be considered to have joined the track generally adopted; and from lat. 26° S., long. 32° W., where I commenced to deviate from that track, have ran 7333 miles; now from 26° S., and 32° W., to lat. 40°, long. 0′, the distance of Mercator on the rhumb line is, 1790 miles; and from thence, on that parallel to long 137°, 6302 miles; making a total of 8092 miles; and the distance by the route which I adopted 7333, effecting a saving of 759 miles, but which I consider, is not the only advantage obtained. It is well known that, the S.E. trades, when the sun is near the southern tropic, frequently extend to lat. 30° S., and even beyond that; and when that is the case, steady westerly winds are more likely to be met with in a high southern latitude, than near the limits of the trade wind, which, I think, the passages of some of the ships that left about the same time as myself, tends in some measure to prove.

I am very confident that, a ship about 500 tons, of moderate sailing qualities, might make the passage to South Australia, within three months. Small ships labour under very great disadvantages in making passages.

I arrived at Port Philip, March 24th, after a passage of 102 days from the Downs, in a strong breeze. The entrance appears to break right across the impetuous tides and overfalls; but by keeping the lighthouse on a N.E.b.N. bearing, a stranger may run boldly in, although it ought not to be attempted during a strong ebb; and never during the night. Pilots are always in attendance, as you approach the entrance, but even in calm weather, the overfalls on the bar (as it is called, although there is plenty of water), are so heavy as to prevent them coming out in a whale boat, during the strength of the tide. Hobson's Bay, at the head of the inlet, is a fine anchorage for ships, but very inconvenient for business; the town of Melbourne being nine miles distant, up a narrow and tortuous river. Vessels drawing 12 feet, can go up to the town.

The town of Melbourne is yet in its infancy, but thriving very fast. Poverty appears to be unknown, and the only want, a want of a labouring population, which the shipping trading to the port feel exceedingly, as from the great wages given to labouring men, the seamen are tempted to desert their vessels, and the commanders have no remedy, but to obtain others, (if they can,) at most exorbitant wages. During my stay in the port, one month, no less than six vessels were detained from the above cause, and one of them, for I believe, ten days, with a great many passengers on board. The inhabitants were subscribing to a fund, for the introduction of labourers into the colony; and I heard it had been proposed to send to China for a cargo of Chinese. I could

but remark, at a time when many families in Great Britain are perishing for the want of the necessaries of life, there is enough and to spare in this colony.

From Port Philip I proceeded to Sydney, and from thence to Manila, to return with a cargo of sugar. I have already carried out these remarks to a greater length than I at first intended; but, before I conclude, I wish to acknowledge that, I have received a very great deal of useful information from the pages of your "Blue Book," not to be found in any other work, particularly in my late passage up to Manila, viz.: Torres Straits. The instructions for that intricate navigation contained in your volume for 1846, are certainly the best I have anywhere met with.

Should you deem any portion of these salt-water notes worthy of circulation in the *Nautical*, (making due allowances), I may, at a future time, forward a few remarks of the passages from Sydney, to and from Manila; but if not, set them aside.

I remain, Sir, &c.,

J. F. TRIVETT.

To the Editor N.M.

NAUTICAL SKETCHES.

Mutability.

THE veteran Admiral, Lord Rodney, was of opinion that, naval men had nothing to do with party or politics; their business was to obey orders. I am very much of the same opinion; and, therefore, leave aside those remarkable changes which have passed over the political surface of this great empire. Nautical mutation alone claims our attentiou.

Few of the alterations of the sea service have been abrupt; generally these have been gradually introduced, and, unquestionably, for the better in all respects. The great fault in times past was, the dread of innovation,—a blindness to the facts which the mirror of naval history displayed, to the mind's eye, to show that professional polity must change with the change of times, manners, sentiments, and the superior, or progressive enlightenment of the mind. "Fixidity,,' is a dreamy idea!

The treatment of the seamen has in particular undergone great ameliorations, and they have for some years been considered as rational creatures, which was scarcely the case when "keel-hauling," and other brutal punishments, as Sir William Monson informs us, were practised. Indeed, down to a much later time, even throughout the revolutionary war, the system of command was exceedingly oppressive, and in its general exercise highly detrimental to the service. A long peace has given time for reflection, and improvement is still going on, rendering the minds of all classes on board ship, more contented and more happy.

Old writers complain that the discipline of the navy was materially

hurt by party disputes during the first American war, or struggle for independence, as it has been called.

Whether these party disputes relate to contentions among the officers, or the remark alludes to political strife invading the neutral precinct of the man-of-war, does not clearly appear; but, I suspect both were rife for many year in the fleet; yet, amid such conflicting elements of discord, there was concord in the old tune, "Come cheer up my lads, 'tis to glory we steer;" for many gallant actions were performed; and, isolated instances of improvement appeared from time to time, as manifest from the observations of one writer,* who says: "Yet, as far as respected the good order and improved regulations of *individual ships*, there was an attention to it, that, had never before been seen."

He then goes on to explain the difference of the then state of the navy with what it was in preceding times; "For," says he, "if we compare the past practices and methods as they have been explained to us thirty years ago, (that is, about the period of 1758,) by the old seamen in the service, with the present, (1788,) we shall find, that in no one thing under the British Government has there been so much improvement as in the art of fighting, sailing, and navigating a British ship-of-war."

The elapsed time spoken of, embraces some stirring events in naval warfare, such as, Admiral Byng's affair off Minorca, Louisbourg; Quiberon Bay; Havana; Manila; Nelson's debut (1773); Byron, Carteret, Wallis, and Cook, made their respective curcuits round the world; the "New Englanders" (1774) commenced the episode which ended in the independence of the transatlantic settlements; Keppel's action; Rodney and Langara, &c., &c.

Our author proceeds:—"The old method of enforcing discipline, was without method, by main strength, and the frequent use of the rattan; without which, no officer, from the captain down to the youngest midshipman, ever went upon deck! Even twenty years ago (1768) there was much of this sort of discipline (if it can be called by that name) remaining in the service."

Had our author lived twenty years longer, he would have found that, some of the practices he rejoices as having become obsolete, were revised in all their outrageous severity! For the "rattan" was substituted, the "colt," and the rope's-end, not, indeed, in the hands of the quarter-deck officers, but in those of the boatswain and his mates; and an unrestricted use of the "cat-o'-nine-tails" at the gang-way: greater irregularity occasionally occurred, such as the breaking of trumpets and spy-glasses upon the heads of the seamen, by first-lieutenants!

In those days, the profession of a seaman was considered as scarcely coming within the pale of the national laws. The right of "the free-born" was, in his case, if not disallowed, disregarded; no serfdom, nay, no slavery could at any period of the world's history have been enforced

* The Authors I quote are out of print, and perhapas are in few hands.

with more rigour than on him. What a blessing it is, *to all*, that such a state of things has ceased! May we not hope, without the possibility of renewal, come what may?

But, in the contemplation of such events, how inexplicable does it appear to the mind that, *malgré* the excessive rigorous treatment endured, there should have been no abatement of the influx of youth into this so designated "hell afloat." One is perfectly at a loss to account satisfactorily for such a singular circumstance; for the *instinct* of nature alone, without the aid of reason, would seem sufficient to deter the mind from the pursuit of a life so fraught with evil, when other occupations were open to the choice. To say that some occult and irresistible impulse predominated over the apprehension of a palpable and but too apparent consequence in the adoption, would be stretching a point to an unreasonable extent; and, which indeed, no exertion of reason could possibly make comprehensible to the understanding; it is a mystery, and that is all I can say about it. Happy for Old England it was so; and, I ardently hope now that the "hell afloat," has been swamped; and there is a nearer approach to heaven, the charm will never leave us.

As discipline is the "soul of the service," I may be permitted to enlarge a little on so interesting a subject to the seaman. It has been much discussed of late. Confidence, devoid of arrogance, in a good cause, needs no apology; and, as a straight-forward course is one of honesty, I shall start off with the adoption of the words attributed to a gallant Admiral, that, "The indiscriminate use of the *cat* had the effect of spoiling a good man, and making a bad one worse."

If in the recollection of the victories gained, and the *spoila opima* won from the enemy, from 1793, to 1815, our senators find reason to deplore the rigorous means adopted to maintain discipline on ship-board, they should not be unmindful at the same time that, the officers had had no hand in framing the "martial laws," and that a portion of the blame attached to the adoption of a vicious system must go to those in power then.

Assuredly a very high panegyric belongs to the performers of the actions which occurred during the above stated periods, they, for near a quarter of a century, gave to an astonished world such displays of consumate skill, undaunted bravery, and perseverance, attended with success, as far to surpass most of the martial deeds recorded in ancient or modern history of a single arm of power.

I know that, as a successful people, the British are accused of "egotism;" if repeating the *truth* that, in future our sons may emulate their sires, be so, then the British are egotists; but the approach is harmless; everywhere, the *winner* will rejoice.

Since the peace, we have been in a progressive state of improvement, in almost every respect, but especially in the moral obligation of governing men by *reason*, and, therefore, with *method* and *mildness*.

To a great degree, let us bear in mind, the motives to actions take their tone from the manners and customs, the culture and opinion, prevalent at the period in which the actors live. It was, in times past, one

of the errors of our education to impress upon the mind, the *delusion* that, subordination could not be maintained by those intrusted with power without the assistance of despotic coercion, and the exercise of severity! Experience however, has shown its *fallacy*, and the expansion of our intelligence, combined with other causes, has happily nearly rid us of that *crotchet*.

It must be obvious to the least reflecting, that as improvement has proceeded, generally, men's minds, of all conditions, have taken a corresponding tincture of elevation; slowly, perhaps, but not the less sure. There are abundant evidences of that fact; then it is equally obvious, that as the happiest and the best interests of general society, are intimately connected with good government, that, in isolated associations (being portions of the general society,) where the power that commands is less divided than in large communities, how very essential it is to guard against the possibility of error, from *caprice* or *passion*, in those who wield authority, as in the Navy, for instance.

No doubt it is from this principle the Lords of the Admiralty have been, and are acting. I conceive that the nation at large, and the captains of the Navy in particular, ought to be gratified with the new arrangements; and I have not the least apprehension that our seamen will become more difficult to control on account of the ameliorations which may flow from those arrangements.

Some few months ago, I saw a published letter of Capt. Bruce, R.N. The remarks therein, express, in a few words, the proper line of conduct for sea-officers to pursue, to insure discipline and good order. Those words are worthy of attention, as coming from one who, not only has had experience in the art of governing seamen, but who also upholds his high station, as a Christian and a gentleman should do—by conduct and example.

They who, "measuring themselves by themselves, and comparing themselves among themselves, are not wise;" this admonition of the "pride of self-importance," from station, officers of all degrees should endeavour to impress upon the tablet of their memory. Exclusiveness is not unattended with pain to the possessor; but, between haughtiness and familiarity, surely a line might be drawn?

I hold that the feeling of humility in all men, as mere men, leads to propriety of conduct; and the observance of strict obedience to authority as a duty of life also, as emanating from the highest source, is obligatory upon the individuals of every station, independently of the consideration of the social benefits arising therefrom.

These sentiments once imbibed, become incentives to good order in any, but especially in a small community; they are of the highest antiquity in the code of morality; yet, unless they carry the *moral force* with them, the mere habit of acknowledgment, will not guarantee the full and effective measure of good to be expected from their operation.

Among the high-minded, there is a spring to obedience far more noble than that which actuates from the consideration, that he who is remunerated is bound to the observance. Let an officer bear that in

mind, the young officer especially; and farther, that a duty performed as a matter-of-course, and not from *principle*, will seldom be performed well; and negligence, in that respect, is scarcely separable from criminality.

With reference to the "foremast men," some of the evils arising from their irregularities may be laid to the account of the State—their early culture has been neglected.

It is remarkable that a country so dependent on her maritime supremacy, should not have, long ago, instituted national schools in all the principal sea-ports, for the moral and religious education of boys intended to be brought up in the sea-service. To the neglect of such a measure, and to the want of an established system of rotation of servitude in the Royal Navy, may be traced the deplorable necessity for the exercise of the *consuetudo*, constituting the lawfulness of impressment.

The annual expenditure of the Navy, both in its *matériel* and *personnel*, is costly indeed; but the outlay is *imperative;* our safety, as an independent nation, principally depending upon the efficiency of that branch of our colossal power; but, however much we may deprecate war, as we cannot control altogether the fiery passions of the other maritime nations of the world, and a very trifling incident may unwillingly plunge us into it, it behoves us be every way provided for such an evil; and this is to be done principally in perfecting our navy and sea-defences, dealing honestly and justly by the seamen, providing for the officers in their old age, and encouraging the young.

The "Charles Heddle's" Hurricane.

Sir,—Your correspondent, "*Stormy Jack*," adverts in your number for November last, in his letter on the contraction of the whirlwind, to the *Charles Heddle's* storm, and to my opinion as expressed in that memoir, that the diameter of that storm was a decreasing one. He farther says, that "there has been no established proof of the contraction of the hurricane meteor." Let me first express here my great satisfaction at finding this gentleman to agree mainly with me, in the long investigation of the *Charles Heddle's* storm, and say, that I hope to profit by his criticism on my new work on storms for all parts of the world, of which a copy will reach him through you, and then proceed to state upon what my views are founded.

With respect to the decreasing size of the *Charles Heddle's* hurricane, I think this is fairly inferred from the diminished number of hours and miles required to make a complete turn on the different days, coupled with the remark in the log for three days, that the wind was always about the same strength, and her run also being marked nearly the same. Nevertheless there may be a large zone of wind of the same strength, no doubt, and I may be wrong in my inferences.

But the fact of the decreasing size of hurricane storms, and that they augment in violence when they do decrease, has been very clearly shewn in India, for the Bay of Bengal, in my second memoir published in the "Journal of the Asiatic Society," Vol. IX., in which it is clearly shewn that the hurricane which desolated Coringa, on the 16th of November, 1839, which is traced across the Bay from the Andaman Islands, was of about 300 miles in diameter on the 13th, when it was a "severe gale," and was *certainly* not more than 153 miles in diameter when it reached Coringa, on the 16th, as a furious hurricane. This storm is so clearly traced, that I think the evidence derived from it is quite conclusive as to the fact of their decreasing in size.

H. PIDDINGTON.

To the Editor N.M.

MUNN'S REEF.

March 22nd, 1848.

SIR.—Having been some years a subscriber to your valuable publication, I presume I shall not be intruding by making the following observation:—

In your number for March, 1847, I observe a report, taken from an American paper, of a rock seen in lat. 40° 20′ N., long. 63° 50′ W., that such rock does not exist I will not presume to say, but I am doubtful of it, and still more so, on seeing the report, and the track chart of Lieut. Fayrer, (in the September number,) whilst commanding the *Liverpool;* it appears morally impossible that, a rock, of the magnitude described, twenty-five to thirty feet high, and 300 feet in circumference, should exist, and be not more publicly known, since it is in an every-day track of ships passing between the United States and Europe.

On finding the above report in the *Nautical*, it reminded me of an occurrence that took place with me in the year 1843, on my passage from New York, being in lat. 39° 45′ N., long. 64° 10′ W. I had been laying becalmed a few hours, when towards the meridian, the weather became hazy, with a light wind from the eastward, the report was given of a boat coming towards the ship; I was rather surprised at this, as no ship had been in sight during the day, although it had been very clear; for some time fancy pictured the oars dipping in the water, and the crew labouring hard at them, but on nearer approach, imagination would insist on its being a rock. On examining my chart, I found "Munn's Reef" to be in lat. 39° N., long. 64° 20′ W., therefore, I supposed it must be "Munn's Reef;" but not being satisfied with supposition, I got a boat out, and proceeded with lead and line to be assured by a survey. To my surprise, when along side the supposed reef, I found it to be a very large tree, the roots had evidently been cut

off; it stood in a perpendicular position in the water, and the receding of the swell would leave it about eight feet above the surface; occasionally, the swell would completely cover its top or root, and I do not hesitate in stating, the root to be, at least, forty feet in circumference; I could trace the body of the tree for several feet, under water, but could not see the extreme end, for the shoal of fish that surrounded it; they were so numerous, that on either side of the tree, for several fathoms, I could not see far below the surface water. Had I passed this tree without examining it, I should, without a doubt, on my arrival in port, have reported seeing the "Munn's Reef," which would naturally have caused additional anxiety to ship-masters crossing its track.

If you consider the above worth noting in the *Nautical*, you have my permission for doing so, and I hope the supposed rock, seen by our American friend, or the "Munn's Reef," are, neither of them, more nor less than an *old tree*.

Yours most respectfully,

G. P. LOCK,

Master of the "Martha Shalla," of Liverpool.

To the Editor N.M.

[We very willingly give the above letter publicity. Mr. Lock deserves high commendation for the means he adopted to satisfy himself. It will serve as a caution to seamen, not to draw hasty conclusions respecting these apparent dangers, and we would urge on them to follow this very laudible example, in putting such questions beyond all doubt, by a similar investigation.]

GARIA OR GARCAS SHOAL.—*Official communication made to Major General of the Fleet, by Lieut. P. V. C. Louveiro, commanding the Portuguese brig, "Villa Flor."*

(*Translation.*)

On the 17th and 18th of January, 1848, on board H.M.F.M. brig, *Villa Flor*, on her way from Loanda to Lisbon, wind N.N.E., NE., fresh and steady.

At 3h. 30m. P.M., on the 17th, the men on watch reported that, a breaking of the sea was seen to leeward on the bow, and I, and other officers having got up to the foremast crosstrees, saw, beyond all doubt, that it was a shoal, which we marked W. ¼ N.W. magnetic at 6′ distance; the ship being then to the eastward of it, and having taken the ship's reckoning to that hour, it was found that her position, at 3 o'clock, was lat. 12° 30′ N., and long. 28° 56′ W. of Greenwich, the longitude being determined by a very correct chronometer, and the latitude by observation, deducting the ship's course up to 3h. 30m. P.M., when the shoal was seen.

From the observations taken at noon, on the 18th, and from the course

followed, the ship ought to have passed over the shoal, called the "Garia" or "Garças," as she was then in its latitude, and 11° 45′ west of it. I did not, however, see it, which shews that, the real "Garia" or "Garças Shoal" is that which was seen at 3h. 30m. P.M., on the 17th.

(Signed), P. V. DU COSTA LOUVEIRO, E PINHO,
First Lieut. Commandant.

LA BRILLIANTE SHOAL.

Colonial Secretary's Office, Sydney, October 14th, 1847.

The accompanying notice received from Captain, the Count du Bouzet, of the French corvette, *La Brilliante*.—His Excellency the Governor, desires to acknowledge to Captain, the Count du Bouzet, his attention in furnishing the government with this information.

By His Excellency's Command,
E. DEAS THOMPSON.

(*Translation.*)

On the 28th of August, 1847, the French corvette, *La Brilliante*, having left Anatam on the 26th, with a gale of wind from the east, which changed on the next day to the south, after having veered round to the N.E. and N.W., was, at half-past 5 in the morning, by reckoning, in lat. 23° 9′ 30″ south, and long. 167° 51′ east, (from Paris); the day was just dawning, the weather thick, with a fresh breeze from the S.S.W., but the sea still very high; the vessel was on the port tack, under plain sail, and making three knots; the look-out signalled a shoal ahead, very near the ship. The helm having been put up, she fell off immediately, and cleared the shoal to the E.N.E., at the distance of little more than a cable's length; the commander gave orders to wear, and to heave to on the other tack; it was then only that bottom could be found. Two soundings were obtained, of 20 and 23 fathoms, on a rocky bottom, no other indication being visible on the sounding lead, than the removal of the arming. Immediately after, soundings could not be obtained with 50 fathoms, the corvette being then about three cable's length to the E. ¼ S.E. of the shoal. The sea still running high, the commander did not send a boat to examine it; but having passed so near, it could be perceived, from the colour of the sea, which was quite yellow, that there was very little water upon it, at most, two or three metres, (from 6·5 to 9·75 feet.)

The shoal appears to be a mass of coral, its form is round, and it is about forty metres wide. It is the more dangerous, as the sea did not break upon it, although there was a heavy swell.

The weather cleared in the forenoon, so that good observations for time could be taken, and an excellent latitude at noon. With the aid of these observations, the position of the danger was fixed (approximately) to be in lat. 23° 13′ 52″ of south, and 167° 35′ 18″ east of the meridian of Paris, and consequently, a considerable distance from the Durand

reef, as marked in the charts. The commander of the corvette, believing it to be unknown, thought himself justified in calling it "La Brilliante's Shoal." If, instead of coming upon it at day-break, the vessel had encountered it during the night, especially as the weather was so dark, it would have been almost impossible to avoid it. It is to be regretted that, the weather did not admit of this danger being examined more minutely.

Jury Rudder.

3, *Madeira Place, Leith, April 8th*, 1847.

Sir.—Having observed that several vessels have lost their rudders during the last severe winter, and, I believe, in several cases, if not in all, the loss of the vessel followed, I have thought the following statement might, perhaps, be hereafter of service to some that might be placed in the same trying position. I may remark as to the proving of the plan, that it was, perhaps, more severely tested than any plan previously tried. First, the distance was great, from the Cape of Good Hope to England; and, also, the vessel was deeply laden, her cargo being nearly all copper ore; and during the time she was without a rudder, she was quite unmanageable. The usual ways of trimming with sails, steering with a spar, &c., had little or no power upon her; it was often with difficulty she could be wore round, with after sails all furled, fore-yards braced hard aback, head-sheets hauled to windward, and with several water casks towing from the lee bow, with one head out.

On our passage with the *Royal Archer*, from Australia to Swansea, April 21st, 1847, while lying to the wind, under close reefed main-top-sail, off Cape Recife, with a heavy N.W. and W.N.W. gale, and a very high cross sea, the rudder gudgeons gave way, and the rudder soon broke off below the case. We constructed a new one, by taking a spare top-mast for a main-piece, a lower yard for the next two pieces, and a small spar abaft all; building a proper rudder, and bolting the parts as well as possible. To prevent reducing the main-piece, we nailed a batten on the front part, so that in bevelling the fore part of it to the proper angle, it did not much injure the main-piece. The difficulty, of course, was to secure it below to the stern-post. We did this by taking a thick iron bar, the standard of spanker-boom crutch, or the stock of a kedge anchor might also answer. This was let into the fore edge of the rudder, with two large thimbles on it, with washers between the eye-bolts and thimbles, to prevent their jambing. Several eye-bolts were rove over the bar and driven into the main-piece, to keep it firm to the edge of the rudder; it was farther secured by two lashings of small chain, round the bar and the three main-pieces of the rudder, thus securing both the rudder and the bar. A short chain was put round each thimble, crossing on the fore-part, with a seizing on it; thus the thimble was turned into the bight of the guy, and revolved on the iron bar; the bar was let into the fore edge, so that the cross lashing on the guy, was on a line with the fore edge of the rudder. In the way of the two thimbles there was sufficient wood hollowed out to permit the thimbles, with the guys round them, to revolve freely, to prevent cutting the corner of the post, but more particularly, to make the guy keep firm in its place. The guy was well encased with canvas, &c., and afterwards covered over with pump leather

where it took the corner of the post, thus making a pad that might form and lie solid when the guy was hauled taut. To these short chains we connected top-sail sheets and purchase chains (two on each side), taking one in-board, after part of main, and the other after part of fore chains, and hauling them well taut with lanyards and luff tackles. To keep these from working on the side with the wash, we put short perpendicular guys in one or two places, and kept them taut on deck. the gudgeon at the bottom of the rudder-case being left, we put a short chain round the main-piece, rove it upwards, through the gudgeon, and took it up the case, which kept it in at that part, and also kept the rudder from rising; the gudgeon and pintle on deck being saved, were put as before.

To ship it, a gun was attached to the lower part to sink it; if a hole is made at the bottom, a good line rove through it, and secured at the head of the rudder, the gun, or heavy kedge anchor, will unreeve itself, when that is let go, and can be hauled in by the other part. As the guys may get foul in shipping, the rudder should be launched over the taffrail, keeping the guys in at the quarters, with a good rope down the case, it may then be hauled up and secured, and steer as formerly.

It is particularly necessary to pay close attention to the guys, keeping them well taut, otherwise the rudder will lose power. After three weeks, arriving at St. Helena, we took it inboard to examine it; we found the chain guys very much damaged with the copper; the short ones, next the rudder, were safe; we, therefore, condemned the long parts, and cut up a hawser, tarring it and serving it well, and where it came against the vessel, it was rounded with small rope, &c.; as the lower guy was independent of the upper one, we took them up, once a fortnight, one at a time, and examined them. Care was necessary to keep the short perpendicular guys well taut, to prevent their washing up and down the side.

With this, although deeply loaded, I believe we made as good a passage to England as the other vessels (seven weeks). When near the Channel one of the short chains gave way, which caused me much anxiety, as the weather did not permit us well to unship it, but the other guy held. I found, although these guys were not touching the vessel, yet where there was slack water, the chain was cut as with a gouge, on the outer surfaces particularly; but the vessel's lines being finer below, the lower guys were not so much hurt, but they had been seven weeks out. Rope might be safer, or the chain well covered with tarred canvas; next the rudder, I would recommend rope along the side. In St. Helena we succeeded in getting a pintle made, and shipped in the gudgeon left at the water's-edge; this kept it stiffer, but we then found it necessary to put a forelock in the pintle, under the gudgeon on deck, and also lashed a kedge anchor on top of the tiller to keep the rudder down.

I am afraid, Sir, I have taken up much of your time, but as a neglect, or mistake, in the bustle, hurry, and anxiety, attending such a case, might prevent the plan succeeding, I thought it better to state the whole process; also, what experience pointed out afterwards. I may mention, that the vessel was often rolling gunwale under, and in danger of losing her masts; keeping with the Cape current on the edge of the bank; with an exceedingly cross sea, while we were engaged in making the new rudder. Had not the crew used the most praiseworthy exertions, we could not have succeeded. Should you think the above might be of service to any in future placed in the same position, perhaps you would allow it a place in your valuable Magazine.

I remain, Sir, &c.,

D. Scott.

[This is a subject which has received much attention in the *Nautical Magazine*. Our Correspondent will find a variety of contrivances in our early as well as our recent volumes. The first appeared in our volume for 1834; several others, in 1836, with illustrations, and the last adopted in the Royal Navy, is described, with a sketch, in our volume for last year, p. 258, May number; all well worthy the attention of seamen.—ED.]

THE REGULATION OF EMIGRANT SHIPS.

At the Court at Osborne House, Isle of Wight, 15th of April, 1848; present, the Queen's Most Excellent Majesty in Council.

Whereas by an Act, passed in the eleventh year of the reign of her Majesty, intituled "An Act to make further provision, for one year and to the end of the then next Session of Parliament, for the carriage of passengers by sea to North America," it is enacted that, it shall be lawful for her Majesty, by an Order or Orders in Council, to be by her made, with the advice of her Privy Council, to prescribe any such rules or regulations as to her Majesty may seem fit, for preserving order and for securing cleanliness and ventilation on board of British ships, proceeding from any port or place in the United Kingdom, or in the Islands of Guernsey, Jersey, Alderney, Sark, or Man, to any port or place on the Eastern Coast of North America, or in the islands adjacent thereto, or in the Gulf of Mexico. Now, therefore, her Majesty doth, by and with the advice of her Privy Council, and in pursuance and exercise of the authority vested in her by the said Act, order, and it is hereby ordered, that the following shall be the rules for preserving order and for securing cleanliness and ventilation to be observed on board of any such ships proceeding on such voyage as aforesaid:—

1. All passengers who shall not be prevented by sickness or other sufficient cause, to be determined by the surgeon, or, in ships carrying no surgeon, by the master, shall rise not later than 7 o'clock A.M., at which hour the fires shall be lighted.

2. It shall be the duty of the cook, appointed under the 3rd clause of the Act 11 Vic., cap. 6, to light the fires, and to take care that they be kept alight during the day, and also to take care that each passenger or family of passengers shall have the use of the fire-place at the proper hours, in an order to be fixed by the master.

3. When the passengers are dressed, their beds shall be rolled up.

4. The decks, including the space under the bottom of the berths, shall be swept before breakfast, and all dirt thrown overboard.

5. The breakfast hour shall be from 8 to 9 o'clock A.M., provided that, before the commencement of breakfast, all the emigrants, except as herein before excepted, be out of bed and dressed, and that the beds have been rolled up, and the deck, on which the emigrants live, properly swept.

6. The deck shall further be swept after breakfast, and after every other meal, and as soon as breakfast is concluded, shall be dry holystoned or scraped. This duty, as well as that of cleaning the ladders, hospitals, and round houses, shall be performed by a party, taken in rotation from all the adult males above 14, in the proportion of five to every hundred emigrants, and who shall be considered as sweepers for the day; but the occupant of each berth shall see that his own berth is well brushed out.

7. Dinner shall commence at 1 o'clock, P.M., and supper at 6 o'clock.

8. The fires shall be extinguished at 7 o'clock P.M., unless otherwise directed by the master, or required for the use of the sick, and the emigrants shall be in their berths at 10 o'clock P.M.

9. Three safety lamps shall be lit at dusk, and kept burning till 10 o'clock P.M., after which hour two of the lamps may be extinguished, one being, nevertheless, kept burning at the main hatchway all night.

10. No naked light shall be allowed at any time, or on any account.

11. The scuttles and stern-ports, if any, shall, weather permitting, be opened at 7 o'clock A.M., and kept open till 10 o'clock P.M., and the hatches shall be kept open whenever the weather permits.

12. The coppers and cooking utensils shall be cleaned every day.

13. The beds shall be well shaken, and aired on deck, at least, twice a week.

14. The bottom boards of the berths, if not fixtures, shall be removed, and dry scrubbed, and taken on deck, at least twice a week.

15. A space of deck-room shall be apportioned for a hospital, not less, for vessels carrying one hundred passengers, than forty-eight superficial feet, with two or four bed-berths erected therein; nor less, for vessels carrying two hundred or more passengers, than one hundred and twenty superficial feet, with six bed-berths therein.

16. Two days in the week shall be appointed by the master as washing days, but no washing or drying of clothes shall on any account be permitted between decks.

17. On Sunday mornings the passengers shall be mustered at 10 o'clock, A.M., and will be expected to appear in clean and decent apparel. The Lord's-day shall be observed as religiously as circumstances will admit.

18. No spirits or gunpowder shall be taken on board by any passenger; and if either of those articles is discovered in the possession of a passenger, it shall be taken into the custody of the master during the voyage, and not returned to the passenger until he is on the point of disembarking.

19. No loose hay or straw shall be allowed below for any purpose.

20. No smoking shall be allowed between decks.

21. All gambling, fighting, riotous or quarrelsome behaviour, swearing, and violent language, shall be at once put a stop to. Swords and other offensive weapons shall, as soon as the passengers embark, be placed in the custody of the master.

22. No sailors shall be allowed to remain on the passenger-deck among the passengers, except on duty.

23. No passenger shall go to the ship's cook-house without special permission from the master, nor remain in the forecastle among the sailors on any account.

24. In vessels not having stern-ports, or scuttles in the sides, such other provision shall be made for ventilation as shall be required by the emigration officer at the port of embarkation; or, in his absence, by the officers of customs.

And the Right Hon. Earl Grey, one of her Majesty's principal secretaries of State, is to give the necessary directions herein accordingly.

C. C. GREVILLE.

SUPPLY OF SEAMEN.—The following is a copy of the report of the committee appointed by the Admiralty, to inquire into the supply of seamen from the merchant service:—

"In accordance with the directions of the Lords Commissioners of the Admiralty, to report the number of merchant seamen entering Her Majesty's Navy, we have the honour to state, for their Lordships' information, that we have given the subject due consideration, as far as time and the means at our command would admit; and we are enabled to give the following opinion as to the result of our inquiries. We have taken the entries of the last eight years, from 1839 to March, 1847, extracted from the muster books of Her Majesty's ships in commission, and find that of 68,559 men entered, about one-third of that total, (22,543), were said to be merchant seamen, and filled the ratings of working petty officers, able and ordinary; that 8,940 were first entries into the service, of landsmen, artificers of various descriptions, and persons in the capacity of cooks, stewards, and other servants; and that 37,076, petty, able, and ordinary, had previously served in the navy. We beg also to report that, in the course of our researches we found the desertions from the service of merchant seamen and persons from the shore, had been in the proportion of 26 per cent. upon the total of the entries for the above eight years, and but 16 per cent. upon the total number of seamen who had previously served in the navy for the same time. It is right to observe that, the average number of men borne for the last eight years is 29,903. In conclusion, we beg to remark that, of the seamen entered during a period of eight years, (landsmen, artificers, &c. deducted,) nearly two-fifths appear to be of the merchant service, and three-fifths seamen who had previously served in the navy. We enclose for their Lordships' information, a return of the number of seamen entered into the navy from 1839 to 1847:— M. F. F. Berkeley, Captain; T. Maitland, Captain; W. W. Chambers, Capt tain; J. W. Nicholls, Clerk of the Cheque, Greenwich Hospital.—*Nautical Standard.*

METEOROLOGY.—One of those phenomena, the frequent spectacle of Arctic climes, but a rarity in our own latitude, was observed on Wednesday last, and remained visible for upwards of two hours, causing wonder and amazement to all who witnessed it. In a less enlightened age it would have been regarded as a portentous omen of the times. Our correspondent describes it as it appeared to the untutored astronomer, leaving it to those more versed in the science for a more detailed account, as regards the cause and effect. About thirty-five minutes past noon, the sun obscured by a cloud, the atmosphere otherwise clear, of a bright bluish colour, interspersed with a few fleecy clouds radiating from the northward and eastward; light breeze from the southward and westward; barometer 29·55, thermometer 57°, there appeared a large pale white circle, parallel with the horizon, of about seventy to eighty degrees in diameter, passing through the sun, and extending itself to the northward. The cloud having passed over the sun, it now appeared enveloped in a mist of halo, outside of which there was a ring of about fifteen degrees diameter, beautifully tinged with varied colours, particularly that part of the ring to the eastward, which was much more luminous; from hence proceeded another ring, of an elliptical shape, and here, at the junction of the two rings, was exhibited a luminous parhelion; also at the parts where the larger circle intersected the other rings, were seen two parhelia, beautifully tinged with purple. In the W.N.W. quarter, at some distance off, there appeared a segment of another circle, having all the beautiful tints of the rainbow, and which intersected a long range of numerous streaked fleecy clouds (more like alternate blue and white lines, than anything else), which traversed from N.W. to N.E., where they converged. At the same time similar clouds diverged to the southward, where there appeared another segment, similar to

that in the western quarter. This extraordinary appearance in the heavens lasted until half-past two o'clock, when the phenomena gradually disappeared. On referring to several works on the subject, for explanation, we find in *Milner's Gallery of Nature*, that a similar phenomenon is related, by Matthew Paris, to have occurred in England in the year 1233, and which lasted from sunrise till noon. At the same time, on the 4th of April, about one o'clock, on the borders of Herefordshire and Worcestershire, besides the true sun, there appeared in the sky four mock suns, of a red colour; also a certain large circle, of the colour of crystal, about two feet broad, which encompassed all England, as it were. There went out semi-circles from the side of it, at whose intersection the four mock suns were situated; the true sun being in the east, and the air very clear. An engraving appears in the same work, from a drawing by Capt. Parry, as "The gorgeous phenomena which appeared" to him during his winter sojourn at Melville Island, and which, in almost every respect, corresponds, or rather, bears a resemblance to the phenomena in question. A still more remarkable phenomenon occurred at the same time—that of a white cloud in the N.E. quarter, having all the appearance of a hand, with the fingers and thumb extended in an upright position. We merely mention this as remarkable for its singularity.—*Hunts Paper.*

Hydrographic Department of the Admiralty.

Of all branches of our public expenditure there is scarcely any, of the cost of which, less complaint can with justice be made than of the hydrographic department of the Admiralty.

From returns recently laid before parliament, on the motion of Mr. Hume, (Sessional Paper, 1848, No. 232), we learn that the expenditure of the Hydrographical Department, (exclusive of Arctic and Antartic expeditions,) has been:—In 1837-8, £68,517; in 1838-9, £59,202; in 1839-40, £58,862; in 1840-1, £52,517; in 1841-2, £91,832; in 1842-3, £142,235; in 1843-4, £134,126; in 1844-5, £126,583; in 1845-6, £178,782; and in 1846-7, £123,678.

What has been effected by means of this outlay will be seen from the following report by Admiral Beaufort:—

A Return of the Surveys undertaken by the Hydrographic Department of the Admiralty, between the years 1838 *and* 1847 *inclusive.*

1838.—In that year the surveys in progress were the following:—At Home: River Thames, H.M. steam-vessel *Boxer;* coast of Wales, hired boats; North Sea, H.M.S. *Fairy* and tender; Solway Frith, hired boats; Orkneys, H.M.S. *Mastiff* and tender; N.E. coast of Scotland, hired boats; coast of Ireland, hired boats; Lough Derg, hired boats; Irish Channel, H.M.'s steam-vessel *African.*—Abroad: Mediterranean, H.M.S. *Beacon* and *Magpie;* West Coast of Africa H.M.S. *Etna* and *Raven;* West Indies, H.M.S. *Thunder* and *Lark;* St. Lawrence River and Gulf, hired schooner; West Coast of South America, H.M.S. *Sulphur* and *Starling;* N.W. Coast of Australia and Bass Strait, H.M.S. *Beagle.*

1839.—The surveys were the same as in 1838, except that of the west coast of Africa, which was discontinued in consequence of the sickness which prevailed in the vessels; and that at home—the party employed on the survey of the coast of Wales proceeded to the coast of Cornwall.

1840.—The same surveys continued, except that the Lough Derg party was transferred to the navigable parts of the river Shannon; and that of the Solway Frith was extended along the west coast of Scotland.

1841.—The same arrangement, except that circumstances requiring the immediate survey of Portsmouth and Spithead, the Cornwall party was removed to that duty in the *Sylvia* cutter; and that abroad, H.M.S. *Sulphur* and *Starling* quitted South America, and were employed in surveying the waters of China, and in co-operating with our squadron there.

1842.—To the above surveys the important investigation of the Barrier Reefs of Australia and Torres Strait, was this year added in the *Fly* and *Bramble;* the *Philomel* was sent to examine the harbours of the Falkland Islands, and a survey of the Azores was commenced by the *Styx* steamer; the *Sulphur* and *Starling* quitted the survey of the coast of China, but leaving the *Plover* and *Royalist* to continue that work. At home, the *Shearwater* steam-vessel was appointed to the North Sea survey in the place of the *Fairy* (unhappily lost at the close of 1841), and the *Rocket* steam vessel was substituted for the *Sylvia* at Portsmouth and Spithead.

1843.—The *Rocket* was replaced by the *Fearless* steamer; the *Shearwater* steamer was sent to the West of Scotland survey, and the *Blazer* steamer to the North Sea, instead of the *Shearwater*. The survey of the coast of Lancashire and Cumberland was commenced in hired boats. Abroad, the survey of the dangerous Gulf of Fundy was commenced by the *Columbia* steamer, and the *Beagle* returned from her survey of Bass Strait, and of the coast of Australia.

1844.—At home, the south and western coasts of Ireland were so little known that an additional survey was commenced in Galway Bay by means of hired boats, and the Shannon party, having finished that work, was directed to make a complete survey of Cork Harbour, in the *Tartarus* steam-vessel, which was replaced in the Thames by the *Porcupine*. The *Firefly* was put on the soundings of the Irish Channel, of which there was no accurate chart; the *Lucifer*, steamer, was appropriated to the continuation of the east coast of Ireland survey, and the *Sparrow* ketch was given, in lieu of hired boats, for the survey of the north coast of Scotland. Abroad, with the close of the year, the survey of the Azores and the Madeiras terminated.

1845.—Her Majesty's ship *Herald* and *Pandora* were despatched to the Pacific to continue the survey of the west coast of America from the point where that of the *Sulphur* and *Starling* broke off, and the *Avon* steamer proceeded to the Bight of Benin for a like purpose. At home, the *Dasher* was substituted for the *Fearless* in the Portsmouth survey, and the *Tartarus* was taken from the south coast of Ireland survey, which was continued by means of hired boats.

1846 —The survey of the Isle of Man succeeded that of the coast of Lancashire by means of hired boats; and the great interior lakes of Corrib and Mask in Ireland were undertaken. Abroad, the *Fly* returned from the survey of the Barrier Reefs of Australia, leaving the survey to be continued in her Majesty's ship *Bramble* and a hired vessel. The *Philomel* having finished the survey of the Falklands, joined the squadron in the river Plata. The *Avon* also returned from Africa, having completed the work assigned to her; and also the *Plover* from China, leaving the *Royalist* to carry on the remaining operations.

1847 —Abroad, the *Rattlesnake* was sent to prosecute the survey of Torres Strait, in continuation of the work begun by the *Fly;* and at the close of the year the *Columbia* was ordered home from the Bay of Fundy, and paid off. Her Majesty's steam-vessel *Acheron* was commissioned to survey the coasts and harbours of Newfoundland. At home, in the spring of the year, the *Avon* steamer was established for the *Sparrow* on the coast of Scotland, the survey of which had advanced to Cape Wrath; and in the autumn the *Blazer*, *Dasher*, *Firefly*, *Lucifer*, *Porcupine*, and *Shearwater*, with a new set of officers, were employed in relieving the famine on the western shores of Ireland and Scotland; the several surveys in which they have been respectively occupied being ordered to be continued in hired boats.

The portions of the United Kingdom of which the surveys, charts, and sailing directions may be considered defective, are as follows:—"1. The greater part of the south coast of England is very roughly laid down, and with none of that accurate detail which is absolutely necessary in considering

the value of the numberless projects that are brought before the Admiralty —2. The charts of the western coast of Scotland, from the Mull of Cantire nearly to Cape Wrath, and all the Hebrides, are in a most disgraceful state, not only in that hydrographic minuteness requisite for the actual safety of its navigation, but in geographic positions, many of which are several miles out, even in latitude.—3. Two large intervals of the western coast of Ireland have never been surveyed, and the charts are merely eye sketches.—4. The south-eastern coast of Ireland, between Waterford and Cork, is nearly in the same state.—5. A full investigation of the tidal streams of the English Channel is likewise a desideratum of very great importance to the navigator of those seas, and ought to be at once undertaken.

These several objects might probably, be accomplished with the requisite precision in ten years, by the seven small steam-vessels that have been lately employed on this service, assisted by the four boating parties, and averaging altogether about 550 men and officers.

The foreign surveys that are requisite in order to ensure correct charts and sailing directions would include a very large portion of every sea-coast on the globe, and could scarcely be enumerated here in any reasonable space; but those most urgently necessary to be taken up by this country may be thus stated:—

1. The Eastern Islands of the Mediterranean, along with the coasts of Syria and Egypt, and as much of the northern shore of Africa as would meet the French survey which, having commenced with Algiers and Morocco, will very probably be continued along Eastern Barbary and Tunis.

2. From the Strait of Gibraltar the western coast of Africa has been sufficiently surveyed and published, as far as Cape Formosa in the Bight of Benin; but as there is much legitimate traffic in the eastern part of that great Bight, as well as further to the southward, both it and many of the ports and anchorages on this side of the Cape of Good Hope require a more careful and connected examination.

3. The charts of the whole of the Cape Colony are exceedingly defective, as the numerous wrecks there amply testify, and from thence to the Portuguese settlements of Delagoa we know scarcely anything.

4. From Delagoa to the Red Sea and the whole contour of Madagascar are sufficiently represented on our charts for the general purposes of navigation, though many further researches along the former coast might still be profitably made.

5. The Red Sea, part of the coast of Arabia, the Gulf of Persia, and many detached portions of the East Indies, have been already executed by the Company's officers, and no doubt it is intended that the coasts of Malabar and Coromandel shall soon be undertaken by the same hands. The long Malay peninsula and the Strait of Malacca will require much time and skill to complete and to combine with each other those parts that have been surveyed.

6. With the China Sea we are daily becoming better acquainted, but much is still to be done there; for probably not one of the multitude of rocks and shoals with which it is almost covered is put exactly in its right position; and while some are repeated two or three times, others have been omitted. A sea, therefore, which is traversed by so many large and valuable vessels, and so replete with dangers, ought to be early and efficiently undertaken.

7. On the coast of China the charts are excellent, from Canton round to the mouth of the great river Yang-tse-Kiang; but of the Yellow Sea we know very little, and still less of the Corea, Japan, and the coast of Tartary, and up to the confines of the Russian empire.

8. The southern passages in the China Seas have never been examined with the care they deserve; and all that is known of what are called the Eastern Passages through the Great Malay Archipelago, are only the results of the casual observations and sketches made years ago by industrious seamen.

9. The islands and surrounding shores of the Arafura Sea, if better known, would offer many ports of refuge, and probably an increased opening to commercial enterprise.

10. The Strait of Torres has been satisfactorily surveyed, but before it becomes the great highway for steam vessels to and from Sydney, its approaches and also its contiguous coasts of New Guinea should be more intimately known.

11. The whole circuit of the great island of Australia has been well explored, and the general characteristics of its several shores are sufficiently known for all general purposes; but far more minute surveys of its immediate waters and maritime resources must precede their being inhabited, beginning with the Eastern coast, along which the tide of colonization seems to be already creeping.

12. The shores of Tasmania, in like manner, are but very roughly laid down, and even to this day there is no chart of the harbour and entrance to Hobart Town, its capital and principal seat of trade.

13. A full survey of New Zealand has just been commenced, and will no doubt answer all the wants of both the settler and the navigator.

14. In advancing to the eastward across the Pacific Ocean there are many groups of islands with which our merchant vessels have occasional traffic, or in which the whaling vessels refit, and which, ought therefore, to be more efficiently examined and charts charted for their benefit.

15. On the opposite side of the Pacific some progress has been made in surveying the coast between the Russian territory and the Strait of Juan del Fuca; but with the long interval between the Oregon district and the entrance of the Gulf of California we are very superficially acquainted, and but little is known of the interior of that extensive gulf. In the present state of those countries it does not appear necessary to push our survey into their inner waters; but there can be no doubt that the coast of Mexico, Guatemala, and New Granada, which contain many valuable harbours and innumerable trading ports, ought to be minutely and connectedly surveyed.

16. From the Equator to Cape Horn, and from thence round to the River Plata on the eastern side of America, all that is immediately wanted has been already achieved by the splendid survey of Capt. Fitzroy.

17. Some parts of the great empire of Brazil we owe to the labours of the Baron de Roussin and of other French officers, but there is much yet to be done on that coast between the Plata and the Amazon rivers, and again along Guayana and Venezuela up to the mouth of the Orinoco.

18. The shores of the main land between Trinidad Island and the Gulf of Mexico have been charted and published by the Admiralty; but many of the West India islands are still wanting to complete a wholesome knowledge of those seas.

19. The United States are carrying on an elaborate survey of their own coasts, and to the northward of them, a part of the Bay of Fundy has been done by ourselves, as well as all the shores of Nova Scotia, Canada, and Newfoundland; and when these surveys are finished we shall only want to complete the eastern coast of America, those of Labrador and of Hudson Bay, which, being in our possession, ought to appear in our charts with some degrees of truth. In reply to the latter part of this clause it may be stated, that on an average of the last few years the Admiralty have employed on foreign surveys 11 vessels and about 950 men; and that however incumbent on this country, to take the lead in such efforts, still this amount of force, if properly distributed and constantly employed may be fairly considered as our full share of that great duty which all maritime nations owe to the interests of navigation.

The Admiralty surveys, charts, and sailing directions, have been rendered available to the mercantile marine by selling them at very low prices, and, in order to prevent any mistake on that head, the price is invariably printed on each chart, plan, or book.

The largest sizes that are engraved—viz., antiquary or double elephant

—are sold for 3s., the next size for 2s., and so on down to the small plans, for which 6d. is charged.

For the sale of the charts the Admiralty employ a general agent (Bate, 21, Poultry,) with a commission of 40 per cent. Sub-agents in all the ports of the United Kingdom are appointed by that house, with an allowance of 25 per cent.; and when any alterations are made in any plate, corrrect impressions are given in exchange for all the copies which the agent may have on hand, and which are immediately cancelled in this office.

The several objects stated in the last clause of the order of the House of Commons would be attained by placing a competent person at the head of the hydrographic department of the East India House in London. He ought to be a seaman, in order to select the points of information required by the navigator; and he ought to be a surveyor, that he may know how to express with precision that information.

The Court of Directors have always been the patrons of useful science; they have several active and experienced officers in their Marine; and a very moderate establishment would soon give a new face to Eastern hydrography.

E. BEAUFORT, *Rear-Admiral, Hydrographer.*

March 2, 1848.

NAUTICAL NOTICES.

Trinity House, London, 27th March, 1848.

WRECK NEAR THE WEST BLYTH BEACON, RIVER THAMES.—Notice is hereby given, that a Green Buoy, marked with the word "*Wreck*," has been placed 10 fathoms N.N.E. of a barge, sunk in 9 feet at low water spring tides, near to the above-mentioned beacon, and with the following marks and compass bearings, viz.:—

Gravesend Mill, just open of the Lower Hope Point	W. ¾ S.
Frindsbury Mills, just open Westward of a cottage, having two high chimnies, at Cliff . . .	S.S.W. ¼ W.
West Blyth Beacon	S.W.b.W. distant 1 cable's length.

By Order,

J. HEBBERT, *Secretary.*

Captain Sir Edward Belcher, lately in command of the *Samarang*, makes the following observation, on the navigation of the Straits of Singapore. "Keeping on the northern danger line in four to six fathoms, we groped our way at night towards Singapore; but, several times found ourselves grazing on the fishing stakes. To a lighter vessel than the *Samarang*, this might have proved dangerous, and I think, considering the navigation of this channel, is considerably risked by these obstructions, the authorities of Singapore should prevent their being placed in any greater depth than three fathoms: they might be made available as danger marks by day. As our work is well known at Singapore, we repeat the foregoing, and trust, the importance of the advice, as respects navigation, will not be lost on the authorities.

CORAL REEF *discovered to the N.E. of the Wallis Isles by an American Whaler.*—The ship *Lalla Rookh*, of New Bedford, Capt. Reynard Ower, discovered a coral reef, 40 miles to the N.E. of the Wallis Isles, 10 fathoms water were found on it. The ship was going at the rate of 3 knots, and was two hours in passing over the bank, running W. ¼ S.W. The captain supposed that the reef extended about two miles on each side of his course. In many parts there appeared to be less water. The latitude of this reef is 13° 2′ S., and its long. 175° 38′ W. of the meridian of Greenwich.

This information was given by Capt. Reynard Ower, of New Bedford, during his stay at the Wallis Isles.

CURRENTS OF THE OCEAN.

Steam Packet Office, Belfast,
March 20th, 1848.

SIR.—At the request of Mr. Lewis, of the ship *Ann*, of London, I send you the latitude and longitude in which he dropped a bottle overboard, on the 2nd of January, off Co. Derry, with a letter in it for me. Lat. 52° 10′ N., long. 12° 00′ W. The bottle was washed ashore at Perlock, in the Bristol Channel, on the 12th of March last.

I remain, yours, &c.,

JOHN MONTGOMERY.

To the Editor N.M.

Barque *John Hutchinson*, from Odessa to England, January 2nd, 1848, running before a heavy S.W. gale, with a high sea. Lat. 44° 45′ N., long. by chronometer, 12° 35′ W, when the bottle, containing this paper, was thrown overboard.

(Signed), R. LEIGHTON, *Master*.

LIST OF THE DANISH MEN-OF-WAR NOW IN ACTIVE SERVICE.—The *Galathea*, 20 guns; *Najaden*, 20 guns; *Flora*, 20 guns; *St. Thomas*, 25 guns; *Mercurius*, 25 guns; *St. Croix*, 25 guns; *Gefion*, 46 guns; *Thetis*, 46 guns; *Delphinen*, schooner; *Pilen*, schooner; *Neptune*, cutter; *Hecla*, steamer, 200 horse-power, armed; *Geiser*, steamer, 160 horse-power, armed; *Skirner*, steamer, 120 horse-power, armed; *Ægir*, steamer, 80 horse-power, armed. Besides a flotilla of gun-boats, armed with 2 guns, 60 and 40 pounders, each.

The Danish Government has besides, 6 line-of-battle-ships, of 64 to 90 guns; 15 frigates, 5 schooners, 2 steamers, and 85 large and small gun-boats, which can be put into active service in from fourteen days to three weeks. 25,000 mariners in all, in time of war, stand at the Government service.

AT THE USUAL QUARTERLY MEETING OF THE ROYAL NAVAL BENEVOLENT SOCIETY, held the 17th of April, at which Admiral Lord Radstock presided, the total receipts for this quarter amounted to £1948 8s., deducting expenditure, the balance of £973 remained. The sum of £400 was distributed among applicants, and a nomination to the Royal Naval School, was presented to the son of one of the officers who perished in the *Avenger*.

THE AVENGER.—A letter dated April the 8th, from Rome says "A portion of the wreck of the *Avenger*, lost on the Sorelli rocks, (Tunis) has turned up on the Roman shore, near the Torre de St. Augustine, six miles west of Civita Vecchia. Although washed on shore on the 19th of March, it was not taken to Civita Vecchia till the 5th of April, when the Vice-Consul, Mr. Lowe, discovered "*Avenger*, F. D. P., 1846," with the broad arrow between the initials and the year. It appears to be the lower part of a mast, or the bowsprit, twenty-six feet long, and six feet, ten inches, in circumference.

The *Aurora*, Scott from Liverpool to St. John's, N.B., arrived at Halifax on the 18th of March, with part of the passengers taken from the wreck of the *Omega*, Garrick, from Liverpool to New York; twenty of whom subsequently died of starvation.

THE COMPETITOR.—This vessel left Gravesend on the 17th June last, for Port Adelaide, was struck by lightning when near the Island of St. Paul. The occurrence is thus described by one of the passengers:—"On the first occasion a ball of fire, apparently double the size of a man's head, came down the main rigging, and passing over from the port to the starboard side of vessel, disappeared in the water. At the first appearance of the meteor, some of the crew were working at the pumps, the first and second mates standing by, and the wind blowing what is called 'half a gale.' The deck was strewed with sparks, as if scattered from a fire-brand, and many persons below as well as on deck felt the shock. The two mates and four men at the pumps were not only struck down, but felt the effects for some time after. A portion of the pump was melted, as was also the leaden 'apron' which encompasses the mast, just above the deck; and a portion of the latter in a molten state, was carried a distance of some yards, and found embedded in the deck. On the second occasion, within a quarter of an hour afterwards, the shock was still more terrific. The electric fluid struck the foremast and ran down the rigging, and simultaneously it struck the iron tanks in the half-deck, producing a noise resembling the heavy discharge of ordnance, and leaving between decks a sulphureous smoke, like that arising from gunpowder. A seaman, who had just unrigged a pump, and was removing the gear, was precipitated to the foot of a hatchway ladder." It does not appear that any injury beyond that described, has been sustained by the vessel, cargo, or anybody on board.

NAVAL APPRENTICES.—There are now on board the *San Josef* 200 boys, who are apprenticed to the Naval Service, and who a short time since were beating about the streets. The boys have the middle deck of the *San Josef* for their use, and schoolmasters have been appointed for their education. For their encouragement, a system of rewards has been established, which promotes a spirit of emulation. The *Nautilus* brig is appropriated for their exercise as infantry. An excellent code of regulations has been drawn up by Sir Henry Leeke, setting forth the occupations of every hour, and the most minute details of duty. The system of apprenticeship, by which 600 boys are now being regularly educated for the Service in three of our naval ports, is likely to be of great benefit to the Service, and no doubt prove a nursery for good seamen. Sir J. West inspected the establishment on the 14th instant. The boys went through their various evolutions, much to the satisfaction of the admiral, who expressed himself pleased with their proficiency.

THE ROYAL POLYTECHNIC INSTITUTION was on Wednesday evening opened for a private view of the scientific wonders collected for the amusement of the public. During the recess the whole interior has been renovated, and a most important addition made in the shape of a large and well-proportioned theatre, to be dedicated to scientific recreations. The assembled visitors were amused by a lecture on the structure and functions of insects by Mr. Goadby, illustrated by a powerful oxy-hydrogen microscope; whilst in the smaller theatre Dr. Ryan dilated on the philosophic mysteries of the breakfast table. Another attraction was a series of dissolving views illustrative of scenes in the Holy Land. Various curiosities were scattered in profusion over the various departments, and the Polytechnic Institution may be fairly recommended to the notice of the sight seekers who are likely to be scattered over the metropolis during the approaching holidays.

The *Barbara*, Cook, from New York to Cork, with one hundred and thirty passengers, and twelve of the crew of the *Omega*, struck on the north point of the "Spout," near Petty Harbour, Newfoundland, fell over and sunk on the 2nd of April. Only forty persons were saved, of whom four or five died from cold and exhaustion. The *Omega* is stated to have been of 1277 tons burthen, belonging to Stromness, Mr. D. Carrick, Commander, left Liverpool on the 16th of January, with three hundred and fifteen emigrants for New York.

THE EXPEDITION IN SEARCH OF SIR JOHN FRANKLIN.—The *Herald*, 26, Capt. Kellet, C.B., was at Point Chirambira, above Panama, on the 25th of February, when she was ordered to proceed to Behring's Straits in search of Sir John Franklin and party. In the first instance she was to go to Petropolski (a Russian settlement of Kampschatka). An officer of the *Herald* observes, "We are particular in this (off Panama) portion of our survey, as numerous rivers debouch on this coast, which take their rise in mountains in the back ground. Similar rivers descend the eastern side, rendering a passage across the isthmus possible at this point. In fact, we have met men here who assert that, the River San Juan runs to within a quarter of a league of the Atrato, a river on the opposite side, navigable for large boats. Should this be found correct, the new road in this direction (across the isthmus) would soon supersede the one at Panama, as the anchorage at Chagres is so unsafe."

ADMIRALTY COURT.—(Before Dr. Lushington.)—*The Mayflower.*—Collision.—This was an action brought by the Zante packet, to recover the amount of damage sustained by reason of a collision between that vessel and the *Mayflower*, on the 14th of July, 1845, between the South Foreland and Dover Roads. The Trinity Masters imputed the blame solely to the *Mayflower*, and the learned judge condemned her in the damage, with costs.

The Isaac Allerton.—In this case an action was brought by the Liverpool and Dublin Steam Packet Company, to recover the amount of damage inflicted upon the steamer *Queen Victoria*, by reason of a collision with the *Isaac Allerton*, on the 10th of November last, a few miles from the Skerries Light. The Trinity Masters attributed the collision entirely to the *Isaac Allerton*. The Court pronounced for the damage and costs.

NAVAL FORCE OF GREAT BRITAIN.—The following is the official return of the present Naval Force of the United Kingdom:—Flag-Officers.—Admiral of the Fleet, Sir J. H. Whitshed, Bart., G.C.B. Admirals.—Of the Red, 10; of the White, 10; of the Blue, 10; total 30. Vice-Admirals.—Of the Red, 15; of the White, 15; of the Blue, 15; total 45. Rear Admirals.—Of the Red, 25; of the White, 25; of the Blue, 25; total 75. To consist of 150 Flag-Officers; viz., 30 Admirals, or 10 of each squadron; 45 Vice-Admirals, or 15 of each squadron; and 75 Rear-Admirals, or 25 of each squadron. Retired Rear-Admirals, 47; to be reduced to 25; on the pay of £1 per diem, 96: ditto 36, at 18s. per diem; 132, to be reduced to 100. Captains for service, 544; to be reduced to 500; retired under Her Majesty's Order in Council, August 10th, 1840, 50. Commanders for service, 869; retired under His Majesty's Order in Council, January 30, 1816, 97; retired under His Majesty's Order in Council November 1st, 1830, 208; retired from the Masters' List, under Her Majesty's Order in Council, May 18th, 1846, 39. Naval-Knights of Windsor (Lieutenants), 7; Lieutenants for service, 2,339. Masters for service, 435. Mates, 49. Second Masters, 160. Chaplains retired or entitled to half-pay, 55; 51 not entitled to half-pay, but holding civil appointments.

Medical Officers.—Director-General of the Medical Department of the Navy, Sir William Burnett, Knt., M.D., K.C.H., F.R.S.; Inspectors of Hospitals and Fleets, 6; retired, 6; Deputy-Inspectors, 12; retired, 6; Physicians, 2; Surgeons for service, 354; Assistant-surgeons, 243; acting assistant-surgeons, 63; Surgeons retired, 26; on a commuted allowance, 35; unfit for further sea service, 222; Assistant-surgeons, 43; Dispensers of Hospitals, 4,; Paymasters and Pursers for service, 456; retired under Her Majesty's Order in Council, January 10th, 1843, 38; Clerks qualified for Paymaster and Purser, 237; Naval Aides-de-Camp to Her Majesty, 11; Marine Aides-de-Camp, 2.

The Naval Force of Great Britain consists of 678 ships-of-war, (carrying from 1 to 120 guns each, of different calibre), either in commission, ordinary, or building; of these 165 are armed steamers, many of them built of iron, and propelled by the screw. This immense fleet employs, in time of peace, 45,000 able-bodied seamen, 2,000 stout lads, and 14,000 Royal Marines, consisting of 100 companies, thus divided:—Head-quarters, Chatham, 1st division, 24 companies; Portsmouth, 2nd division, 28 companies; Plymouth, 3rd division, 24 companies; Woolwich, 4th division, 24 companies. Royal Marine Artillery, 10 companies, head-quarters, Portsmouth. Besides the above, are the embodied dockyard battalions of Deptford, Woolwich, Sheerness, Chatham, Portsmouth, Plymouth, Devonport, and Pembroke; all of whom are instructed in gunnery and battery defence, and are always ready in case of emergency.—*Nautical Standard.*

DISCOVERIES IN AUSTRALIA.—The *Adelaide Observer* has the following:—"The New South Wales exploration party, under Mr. Deputy-Surveyor Burnett, has traced down the Boyne to lat. 24° 53′ 50″, where it was strongly influenced by the tide, and beyond which points the party could not usefully prosecute the desired explorations; but they had arrived sufficiently near the coast to be quite certain that the outlet of the Boyne was in Hervey's Bay, most probably at the spot where Flinders noticed two shallow inlets, but which he did not examine. Mr. Burnett has no doubt the Boyne will be found navigable for steamers and sailing craft to a considerable extent, and until very extensive means of road communication shall be found connected with the head of navigation."

New Books.

Narrative of the Voyage of the Samarang, *during the years* 1843-46, *employed surveying the Islands of the Eastern Archipelago; accompanied by a brief vocabulary of the principal languages. Published under the authority of the Lords Commissioners of the Admiralty, by Sir Edward Belcher*, R.N., C.B., F.R.S., F.G.S, *&c., Commander of the Expedition, with notes on the natural history of the islands, by Arthur Adams, Assistant surgeon*, R.N.

The contributions of hydrographic surveyors, to the general store of knowledge, have neither been few, nor unimportant. The journals of Beechey, Foster, King, Fitzroy, and Stokes, afford evidence of the assiduity and diversified intelligence, with which this section of naval officers labour in their prescribed vocation, is carried on; and give abundant proof of the energy and perseverence with which they collect materials for publication, and record their daily proceedings. If we have enlightened and eloquent histories of important national events, from the pens of military writers, graphic details of heart-stirring campaigns, episodes exceeding romance and drama, in daring and pathetic incident, and not unfrequently a lurid unfolding of the intricate texture of national policies, and *strategetical* statesmanship; from the naval literati, (created by the Hydrographic Office,) we have the researches of fresh and unfettered intellect, in new and untrodden fields of nature; startling situations of individual peril, that seem designed only for the illustration of individual bravery; manifestations of resource and promptitude in extremity, and personal exposure that wear the bearing of inspiration from a presiding providence, together with invaluable hints for the young and aspiring seaman, in the important accomplishment of knowing "what to observe and how to observe." Such works can scarcely be perused without engendering a love of knowledge, and also of adventure; both of which, tend at once to form and to dignify the character of the British naval officer. But they do much more than this; they often suggest the most important views of what *should* be the policy of Great Britain, towards distant countries. They do their utmost to enlighten her statesmen on the great questions of our commercial relationships; and where their evidence is candidly received, they assist in dispelling many absurd and injurious illusions in the minds both of senators and of the public.

In calling the attention of our readers, to the two interesting volumes before us, we have to observe that, on the return of Sir Edward Belcher from his former voyage, in H.M.S. *Sulphur*, in 1842, during the continuance of hostilities with China, he offered his services, to take part in the operations, expected to be proceeded with in the ensuing spring. They were accepted, and he, consequently, commissioned the *Samarang*, of twenty-six guns, on the 17th of November, of that year.

About this period, however, intelligence of the conclusion of the treaty of peace arrived, and the object of Sir Edward's voyage was happily changed.

His talents were now required for an employment more conducive to the advancement of civilization, and to the true principles of international policy; and we find him engaged to proceed to the Chinese Seas, for the purpose of making a satisfactory survey of regions, the hydrographic knowledge of which was by the opening of several Chinese ports, rendered of such great importance to British commerce.

The *Samarang* left Spithead on the 26th of January, 1843, but did not reach Falmouth until the 5th of February, owing to the severe gales that prevailed. Here, agreeably with Sir Edward's instructions, the *Samarang* was swung, to determine the amount of local attraction, and experiments were made on shore with Hansteen's needles. These were conducted at the

house of Robert Ware Hose, Esq , to whose scientific merits a well-deserved compliment is paid *en passant*.

On the evening of the 9th of February, 1843, the *Samarang* proceeded to sea, and on the 25th, passed between the Island of Fuertaventura, (Canaries,) and the coast of Africa. Here, in lat. 27° 7′ N., long. 14° 34′ W., she fell in with the wreck of a large vessel, which had been observed on the homeward voyage of the *Sulphur*, off the coast of Portugal; the fore part of her bow timbers and stem, still above water. Her drift to this position is considered, by Sir Edward, as evidence of the prevailing southerly currents, for being two-thirds immersed, and probably covered with barnacles, she could have been but little affected by the wind.

On the 2nd of March, the *Samarang* passed the Island of Bonavista, and "much closer to the breakers," observes Sir Edward, "than we should have ventured, had I been aware of the danger reported in that neighbourhood." The next day she anchored in the Bay of Porto Praya, in the Island of St. Jago, Cape de Verds. Here she remained four days, refitting, watering, and completing astronomical observations, the observing position being "upon Quail Island, rather nearer to the landing place than the centre of the island, and just below the highest ground."

"I deem it necessary," remarks Sir Edward, "to be particular in stating these facts, because discrepancies are frequently noticed by successive visitors to the same port, which may be traced to the difference in locality. Magnetic observations for correct comparison should always be conducted in *one* particular site, and especially amongst islands of volcanic origin. At Tahiti, the differences of observation are often great. The consul, or principal merchant should be apprised of the exact spot, and the place should be marked, if time permit, by some such effectual method as digging a hole and filling it up with lime and stones, which will soon become a solid conglomerate. Three good angles to conspicuous objects, would also assist in finding such a position.

"The amount of magnetic variation or dip, is well known to differ on the eastern and western sides of islands, and therefore on basaltic or trap formations too much care cannot be taken to select the same localities, used by former observers. The data offered to prove the question of *annual* change can be of little value otherwise, although we may notice in recent publications, the deduction of this element, from the year 1600 to the present, without any certain knowledge of the positions at which they were observed."

These remarks seem well worthy of remembrance by other observers. After leaving Porto Praya, the *Samarang* directed her course to the Cape, and there her commander had the pleasure to meet the discovery ships, *Erebus* and *Terror*, and to exchange social and naval courtesies with his good friends, Ross and Crozier.

On leaving Simon's Bay, the *Samarang* sailed for Singapore, and thence to Borneo; the instructions comprehending an especial visit to Sarawak, and its justly celebrated *British Rajah*. For many particulars of this sojourn we must return to the work at future opportunities, and also for numerous interesting facts, relating to the social, political, and moral condition of the islands visited, contributed by Mr. Adams, in addition to that department especially committed to him, namely: the natural history of the places described. The loss and recovery of the *Samarang*, in the River Sarawak, will be found a most interesting incident in the history of proceeding, and is another testimony of the resource and promptitude of Britons, both officers and seamen, in the hour of emergency. The attack of the pirates, and their defeat is also an episode of much and heart-stirring effect. Altogether, the work will well repay a perusal, in the variety and importance of its informa-

tion, as well as in the practical value of many of the suggestions and facts which it brings together, bearing both on the naval and commercial interests of Great Britain, and directing also the eye of the christain philanthropist and philosopher, to many a neglected region in which the tree of life as well as of knowledge, might be successfully planted. We shall close this, our first notice, with the following extract, relating as it does to an important object, long since proposed to the naval world, and soon, we trust, to be accomplished.

"I received a communication from the Governor, Lieut.-Col. Butterworth, requesting an opinion as to the site for the Horsburgh testimonial, intended to be erected as a lighthouse, in some part of the Strait of Singapore. The sum of 6,400 dollars was already subscribed for that purpose. A surveying party, under the command of Lieut. Baugh, was despatched to examine the Romania Islands, and shoals adjacent, and upon the completion of the plan executed by Mr. Richards, second master, my opinion was given in favour of placing it upon the outward and southern Romania Island, not only as calculated to guide vessels safely in and out of the straits, but as a better lead to ships approaching the eastern side. Vessels could graze the island on which the lighthouse would be erected, could anchor to await tide, and would always be in a condition to make progress, without any attendant danger.

"This would not, however, to be the case, if placed upon Pedro Branca; it is true that it would then point out where the dangers, so well described by Horsburgh, exist, and enable a vessel, if she had sufficient breeze, to avoid them; but more than this it would not effect, but if Romania Island *invites* approach, and *securely* clears Pedro Branca, there can be no solid reason for putting a light in a spot where it could only partly serve one purpose.

"The Romania Shoals are not dangerous, even if a vessel ground there, and she must then draw above eighteen feet, and the position of Romania would afford facilities of communication, as well of forwarding letters to Singapore, without detention. There are many other reasons for preferring this spot for a lighthouse, one of which, and the most important is that a light will carry a vessel clear of Johore Shoal, as long as it is kept in sight, and the same outwards. No light in any other place could effect this desirable object."

Webster's Royal Red Book is the best Guide Book that we have met with for the Metropolis of Great Britain. An alphabetical arrangement of residencies, followed by another of persons, renders it at once one of the easiest possible of reference for immediate information of that kind which is sought for, not only by strangers, but even by residents. It is carefully done; the whole of the proper names appearing in capital letters, and those of the streets in red ink, accompanied by an almanack, evinces a degree of attention not always bestowed on these matters.

Engravings.

Her Majesty's Visit to the Clyde.—This is another of those heart-stirring scenes which cannot fail to animate every beholder of this print, with the wish to have been present on an occasion which forms an interesting event in the annals of English history. The talented artist, Mr. Clarke, of Greenock, has endeavoured to concentrate within prescribed limits, every object that presented itself. It is needless to say how difficult it is to portray a moving panorama; Mr. Clarke has been particularly happy in

the group; the principal objects, and not least H.M. yachts, are truly demonstrated, the whole forming a *coup d'œil*, at once impressive as it is faithfully depicted.

BRITISH AND NORTH AMERICAN PACKET SHIPS "EUROPA" AND "NIAGARA."—We must not overlook the impression of the British and North American Mail Packet Ships, *Europa* and *Niagara*, by the same artist also before us. These proofs of Mr. Clarke's talent are an evidence that he is master of his particular profession; while Mr. Dutton's superior touches, as the lithographer, have not been lost in giving much effect to both scenes. The productions of Mr. Clarke will be considered ornaments to the portfolio of every lover of the fine arts.

H.M.S. "QUEEN."—Another of Mr Dutton's lithographs has been received. In the nautical world, what seaman is there who does not feel that his ship is part of himself? and when he separates from her, would not wish to preserve the resemblance of the noble vessel that has "walked the waters like a thing of life," that has borne him through the raging seas or the deadly strife, in safety to the shores of his native home. Such objects must be highly valued by the mariner, particularly when they come within his means of possession. From the specimens we have seen, Mr. Dutton claims a share of our notice; he is a young and rising artist, and while we feel it a duty to encourage native talent, whenever it comes under our observation, it is incumbent on us to give an unbiassed opinion as to its worth. A view of H.M.S. *Queen* lies on our table; we can safely say that, it is executed in Mr. Dutton's usual correct and masterly manner, being a faithful representation of a painting, by Lieut. West, who with the generosity that characterizes the British sailor, and the noble zeal that emulates the philanthropist, bestows the proceeds in aid of the fund for the relief of the widows and orphans of those who lost their lives in the *Avenger*.

PROMOTIONS AND APPOINTMENTS.

ADMIRALTY, *March* 20.—The following promotions have this day taken place, consequent upon the death of Admiral Richard Matson:—Vice-Admiral of the Red Sir Adam Drummond, K C.H., to be Admiral of the Blue—Vice-Admiral of the White George M'Kinley, to be Vice-Admiral of the Red—Vice-Admiral of the Blue Sir Samuel Pym, K.C.H, to be Vice-Admiral of the White—Rear-Admiral of the Red James Richard Dacres, to be Vice-Admiral of the Blue—Rear-Admiral of the White Hon. Josceline Percy, C.B., to be Rear-Admiral of the Red—Rear-Admiral of the Blue Hon. Sir Fleetwood Broughton Reynolds Pellew, C.B., K.C.H., to be Rear-Admiral of the White—Captain Charles Sotheby, to be Rear-Admiral of the Blue.

ADMIRALTY, *March* 23.—The following promotions have this day taken place, consequent upon the death of Vice-Admiral Frederic Warren:—Vice-Admiral of the White, Richard Curry, C.B., to be Vice-Admiral of the Red—Vice-Admiral of the Blue Samuel Butcher, to be Vice-Admiral of the White—Rear-Admiral of the Red John Surman Carden, to be Vice-Admiral of the Blue—Rear-Admiral of the White Hon. Sir Anthony Maitland, C.B., K.C.M.G., to be Rear-Admiral of the Red—Rear-Admiral of the Blue Sir Francis Augustus Collier, C.B., K.C.H., to be Rear-Admiral of the White—Captain Sir Augustus William James Clifford, Bart., C.B., to be Rear-Admiral of the Blue.

ADMIRALTY, *April* 3.—The following promotions have this day taken place, consequent upon the death of Rear-Admiral Samuel Hood Inglefield:—Rear-Admiral of the Blue Sir Charles Napier, K.C.B., to be Rear-Admiral of the White—Captain Sir Joshua Rowley, Bart., to be Rear-Admiral of the Blue.

PROMOTIONS

COMMANDERS.—J. Dodd, G. H. Dacre, M. Hewson, J. Waterman, J. Treeve, J. Atkins, H. Conn, and T. Drane, to be retired Commanders—V. O. Inglefield.

LIEUTENANT.—W. M. Dowell.

APPOINTMENTS.

FLAG OFFICERS.—Sir William Hall Gage, G.C.H., to be Commander-in-Chief at Devonport, *vice* Admiral Sir John West, K.C.B., whose period of service has expired.

CAPTAIN.—J. W. Morgan, to *Hastings*.

COMMANDERS.—J. A. Paynter, to *Gorgon*—R. R. Quin, to *Waterwitch*—J. H. Cockburn, to *Hastings*—H. Harvey, R. R. Western, and H. J. Douglas, to study at the Steam Factory, Woolwich.

LIEUTENANTS.—J. C. Bailey, to command *Sharpshooter*—C. H. Young, and M. Lowther, to *Gorgon*—H. T. Vernon, to *Star*—J. F. Ross, and G. V. Voss, to *Hibernia*—C. G. Grylls, W. F. Warren, and W. C. Forsyth, to *Waterwitch*—W. L. N. Lockyer, to be flag to Sir Francis Collier—H. J. Grant, G. A. Phayre, G. Hancock, E. Webber, C. T. Curme, H. B. Everest, and W. G. Lonard, to *Hastings*—Lord John Hay, to *Powerful*—J. P. Branch, to *Caledonia*—M. F. Brownrigg, to be flag to Sir William Gage.

MASTERS.—J. Chegwyn, (act.) to *Powerful*—G. H. Forster, to *Gorgon*—H. D. Beach, to *Waterwitch*—T. Driver, to *Royal Sovereign*—H. Brehaut, to *Hastings*—J. S. Pritchard, to be Chief Officer in command of a Station.

MATES.—P. de Kautzow, to *Star*—T. Campbell, to *Sharpshooter*—G. Elliott, to *Prince Regent*.

SECOND MASTERS.—F. J. Crabbe, to *Sharpshooter*—J. Symons, to *Victory*—W. Imrie, to *Blenheim*—F. S. Skeed, to *Dee*—B. B. Stuart, and M. T. Wright, to *Hastings*.

MIDSHIPMEN.—C. L. Waddilove, and Gray to *Victory*—Hon. W. J. Ward, and the Hon. M. Hay, to *Prince Regent*—J. W. Newport, to *Powerful*—Hon. S. O'Grady, to *Trincomalee*—A. H. Law, A. C. F. Henage, D. G. Davidson, A. Broadhead, T. M. S. Pasley, H. Beamish, W. H. Wright, T. H. Martin, and E. T. Nott, to *Hastings*—A. J. Bullock, to *Gorgon*—W. Spark, to *Waterwitch*.

NAVAL CADETS.—S. Douglas, to *Caledonia*—J. J. Barlow to *Victory*—J. Patton, to *Powerful*—A. H. Caulfield, E. H. Wilkinson, and W. H. Buckle, to *Hastings*—C. F. Hill, to *Prince Regent*—H. W. Mist, to *Gorgon*—W. J. Walker, to *Hibernia*.

MASTERS' ASSISTANTS.—F. Piper and J. Hitchfield, to *Triton*—W. E. Hare, to *Waterwitch*—C. B. Brodie, and P. Parks, to *San Josef*—C. May, A. Howe, and G. Nixon, to *Hastings*—R. H. Gronsell, to *Enterprise*—R. L. Tracey, to *Investigator*—T. E. Milne, to *Sharpshooter*—C. Chatfield, to *Prince Regent*.

SURGEONS.—A. Smith, to superintend *Tory* convict ship—J. W. Webb, to *Gorgon*—R. T. C. Scott, to *Hastings*—J. T. Jenkins, to *Waterwitch*.

ASSISTANT-SURGEONS.—C. Sproull, (act.), and J. D. Cronin, to *Victory*—J. Closs, (act.) to *San Josef*—P. Porter, to *Triton*—J. Elliott, to *Alban*—W. C. M'Clare, (act.), to *Gorgon*—D. McEwen, to *Hastings*—C. Roberts, to *Sharpshooter*—H. French, confirmed to *President*.

PAYMASTERS AND PURSERS.—G. W. Pickthorne, to *Gorgon*—C. G. Burney, (act.) to *Waterwitch*—W. Burke, to *Hastings*—J. Irving, to be Secretary to Sir William Gage, G.C.H., Commander-in-Chief at Devonport.

CLERKS.—H. J. R. Miall, to *Resistance*—J. Winstanley, (in charge,) and C. Hutchins, to *Sharpshooter*—C. A. Shapcote, to *Gorgon*—C. G. Burney, (acting paymaster and purser,) to *Waterwitch*.

ENGINEERS.—G. Aitchinson (chief) J. D. Beaton (second class assist.), to *Fisgard*—C. M. Mauwich (assist. chief) F. M. Sutton, J. A. Barby, and J. D. Beaton (assists.), to *Triton*—G. Wicks (first class chief), to *Gorgon*—J. Barber (first class act.), to *Sharpshooter*—A. Leys (second class), to *Blenheim*.

Births, Marriages, and Deaths.

BIRTHS.

April 2, at Cahirbane, County Clare, the lady of Capt. Creagh, R.N., of a son.

April 8, at Leeds, the lady of Capt. T. Carpenter, R.N., of a daughter.

MARRIAGES.

March 28, at Freshford, Capt. E. H. Beachamp, R.N., to Anna Maria Louise, relict of the late E. D'Oyley Barwell, Esq.

April 11, at Stoke Damerel Church, Com. A. D. White, R.N, to Rosalie, youngest daughter of W. Ady, Esq.

April 11, at Plymouth, Mr. J. E. Heathman, Paymaster and Purser, to Ellen Elizabeth, eldest daughter of the late Com. R. Jones, R.N.

April 13, at Marylebone Church, Com. A. Grant, R.N., to Eliza, daughter of T. Costa, Esq., Regent's Park.

April 15, at Lichfield Church, Arthur Price, Esq., Secretary to Rear-Admiral Sir Francis A. Collier, to Elizabeth, daughter of the late Capt. E. Crouch.

Official Quarterly Obituary.

Flag Officers.—Admirals Sir George Parker, K.C.B., Sir Robert Laurie, Bart, K.C.B., Richard Matson; Vice-Admirals William Grainger, Charles Carter, Frederick Warren; Rear Admirals Pringle, Stoddart, Sir Thomas Ussher, C.B., K.C.H., the Hon. James W. King. *Retired.*—Rear-Admiral Spelman Swaine.

Captains.—Samuel Hellard, Charles G. E. Napier, Peter Hambly, John M. B. Brisbane, John Moberly, William Rochfort, Robert H. Judd, William Rogers, Sir W. G. Barker, Bart. *Retired.*—Sir George Young, Bart.

Commanders.—John Richardson (a), Thomas Dalafons, William H. Haswell, Richard Robinson, Arthur Kellet, John Walkie, John W. Montagu, Charles De Courcy Ross, John M. Potbury, Richard Jones, John H. Bowker, Hector Loring, Daniel Tandy, Arthur T. Gregory, John Derry, Benjamin Smith, George Timins, David Keys, James Stanton, Alexander Brodie, Charles Evelyn Houghton, James Masters, William Dufty, Joseph Magin, William Crotty. *Retired.*—J. P. Tweed.

Lieutenants.—William Fitzmaurice, John Smith (d), Peregrine Bowen, Prosper Ambrose, William Bishop, Meyrick B. Sparrow, Thomas Johnson Irvine, George H. Bowlby, John Wright, Thomas Hare, James Cowan, Hanbury Clements, John Sleigh, Matthew Combe, Hugh M. Kinsman, Josiah James Dornford, Frederick Marryatt, Alexander B. Davies, Frederick A. L. Bullock.

Masters.—James Boyd, Alexander M'Kenzie, Edward Hankin, William Archer, William Betts, James Cunningham.

Royal Marines.—Colonel Thomas Peebles; Captain William Beddeck Cock. First Lieutenants James Marrie, Edward Bailey, James Morrish, Patrick Bryson, William J. Burney, Samuel B. Ellis: Second Lieutenants James Hill, Arthur Dewell, Samuel Walker, Henry S. Baynes, (Artillery).

Medical Officers.—Surgeons John Houston, John Watt Reid (a), John Park, John Cunningham, Benjamin Lara, David Moore, Lancelot Armstrong, Andrew Allen, Robert Whitelaw. *Retired.*—James H. Steele. Assistant-Surgeons Robert Wright, James David Simmie, Daniel Wilson, William Patterson Banks, M.D., John Henderson, M.D., David Davidson, M.D., Bernard Delaney (act.) Dispenser.—Joseph Woolnough.

Paymasters and Pursers.—Thomas Ricketts, Richard Smith (a), William Augustus Davies, William P. Browne, Thomas Gorton, Matthew Lyon, Frederick Siddall, Valentine A. Haile.

A FRIGATE FOR THE USE OF THE MARINE SOCIETY.—At the last quarterly general meeting of the above Society, held at the office of the Institution in Bishopsgate-street, Lord H. Cholmondeley in the chair. The report for the past quarter was read, which stated the receipts to have been £3,144 16s. 3d.; expenses, £2,963 7s. 6d.; leaving a balance of £181 8s. 9d. During the last three months, the Society has received under the will of the late R. Lowrey, Esq., £2,131 13s. 9d., and £1,000 under the will of the late A. Macklew, Esq., of Twickenham. The addition made to the funded property of the Society was £4,221 12s. 3d. At the anniversary dinner, presided over by the First Lord of the Admiralty, it was intimated that Government would provide the Society with a new ship, since which orders have been given to fit up the *Venus*, a 42-gun frigate, for the use of the Society.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory From the 21st of March, to the 20th of April 1848.

Month Day	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade				Wind. Quarter.		Strength		Weather.	
		9 A.M	3 P. M.	9AM	3PM.	Min	Max	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
		In Dec	In Dec										
21	Tu.	28·80	29·10	40	43	38	44	W	NW	5	5	qors 1 2	qo
22	W.	29 59	29 67	38	51	31	51	SW	SW	1	2	b	bc
23	Th.	29·67	29·77	51	55	47	57	SW	SW	5	5	qo	qbc
24	F.	30·01	30·05	48	51	45	52	NW	NW	3	3	bcm	o
25	S.	30·14	30·10	42	50	39	51	N	N	2	2	o	o
26	Su.	29·90	29·80	46	50	40	52	SW	SW	2	3	o	or 4
27	M.	29·67	29·68	47	54	43	55	SE	S	3	4	o	or 4
28	Tu.	29·76	29·82	49	53	42	54	S	SE	3	3	bcr 1	bcr 4
29	W.	29·89	29·88	47	55	43	56	E	S	1	1	op 1	bc
30	Th.	29·78	29·78	49	59	38	60	SE	S	2	2	o	bc
31	F.	29·95	29 98	56	66	47	67	S	SE	1	2	bc	bc
1	S.	30·06	30·04	52	68	43	69	N	E	1	1	b	b
2	Su.	30·00	29·96	53	67	43	68	N	NE	1	2	b	b
3	M.	30·00	30·00	53	67	47	68	N	S	1	2	bm	bc
4	Tu.	30·08	30·08	58	70	48	71	W	W	1	1	bc	b
5	W.	30·02	29·90	53	60	49	61	W	W	2	2	bc	bc
6	Th.	29·66	29·66	43	49	40	50	N	N	3	3	or 1	bc
7	F.	29·58	29·50	43	48	36	48	NE	NE	4	3	bc	ophr 4
8	S.	29·33	29·37	39	42	37	43	NE	NE	5	5	od 1 2	od 3 4
9	Su.	29 56	29·56	39	41	37	43	NE	NE	3	3	od 1 2	or 3 4
10	M.	29·46	29·36	37	44	32	48	W	S	2	5	bcrs 1	beprs 3
11	Tu.	29·67	29·77	42	48	34	48	N	SW	2	2	bc	bcmr 4
12	W.	29·46	29·50	45	54	41	56	W	SW	2	5	or 1 2	qbcprh 3
13	Th.	29·67	29·69	53	56	45	57	W	S	2	2	bcp 2	or 4
14	F.	29·86	29·97	43	51	38	52	NW	NW	4	6	bcr 1	qbc
15	S.	29.98	29·88	44	52	34	52	SE	S	1	2	o	or 3 4
16	Su.	30·00	30·00	47	54	41	55	SE	S	1	1	o	o
17	M.	29·63	29·65	51	57	46	58	W	SW	4	3	bcp 1	bcp 3
18	Tu.	29·62	29·48	51	53	41	57	SE	S	2	5	op 2	qor 3 4
19	W.	29 31	29·33	50	66	42	57	S	S	4	2	bc	bc
20	Th.	29·30	29·30	53	51	40	54	NE	NE	4	4	bc	or 3 4

March, 1848.—Mean height of Barometer=29·572 Inches; Mean Temperature=42·9 degrees; depth of rain fallen=3·29 inches.

TO CORRESPONDENTS.

Mr. Biddlecombe's "Treatise," has been received.

HUNT, Printer, 3, New Church Street, Edgware Road.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

JUNE 1848.

DESCRIPTION OF THE MADEIRA ISLANDS.—*By Capt. Alex. T. E. Vidal, R.N., of H.M.S. Styx.**

THIS group of islands consists of Madeira, Porto Santo, and the Desertas. They are situated between the latitudes 32° 23′ 15″ and 33° 07′ 50″ N., and the longitudes 16° 13′ 30″ and 17° 16′ 38″ W.

There is evidently some obscurity both as to the exact date, and the accident of their discovery, in the minds of the early writers on the maritime adventures of the 15th century; but, however this may be, the romantic story which assigns the honor to an Englishman, named Robert Machim, is a popular belief of the Islanders, and seems sustained by the fact that the first settlement made upon Madeira bears the name of Machico, and that it is situated in the little bay where the narrative states the last scene of the adventure to have happened.

In the great hall of the governor's palace at Funchal is a painting illustrative of Machim's and Anna D'Arfet's embarkation, surrounded by the portraits of Gonzalves Zargo the first governor, and several of his successors.

Father Antonio Cordeyro of the order of Jesus, a native of the Island of Terceira, published, in 1717, his "Historia Insulana," of the islands in the Atlantic Ocean subject to the Crown of Portugal, and as he appears to have bestowed much labour and attention on the work, and would naturally be acquainted with the writers of his nation on the

* We must refer the reader to the general chart of these islands, recently published by the Hydrographic Office, the produce of Captain Vidal's survey, as an accompaniment to the following description.—ED. *N.M.*

same subject, he has here been consulted for such historical notices as it seemed desirable to introduce.

It is generally acknowledged that Porto Santo was the first island of the group known to the Portuguese, and in reference to this Cordeyro writes:—

"It is said by many that the Island of Porto Santo was first discovered by those French and Spaniards, who went from Spain to the conquest of the Canaries; that they fell in with it either on the outward or return voyages; but finding it small and uninhabited, they did not consider it worth occupying, and that they named it Porto Santo, from the circumstance of its having afforded them shelter during a severe storm. It is also related that one of those Spaniards who had been engaged in the discovery of the Canaries, being aware of the great desire of Don Henry to discover unknown islands in the ocean, communicated to him the existance of the island of Porto Santo, and, from his information, the Infante sent Bartolomeo Perestrello, Isao Gonçalves Zarco, and Tristao Vaz Teyxeyra, to find it, in which they succeeded. Others amplify the account by stating that the Infante sent the two latter gentlemen to explore the Coast of Africa beyond Cape Non, but on the outward voyage, before they reached that coast, they experienced a furious tempest which drove them out to sea, and having lost their reckoning, and the vessel being very small, they were in much danger of foundering. In this dilemma they invoked the saints of Heaven, who discovered to them an unknown island, which they, in consequence, named Porto Santo. On reaching it, and finding it uninhabited, they returned to the Infante with the news.

Immediately on the receipt of this intelligence many offered themselves to go out and settle there; and amongst them, a person of consideration named Bartholemew Perestrello, a gentleman of the household of Don Joao, his brother. Don Henry forthwith ordered the necessary preparation to be made, and provided three vessels, one for Perestrello, one for Joao Gonzalves, and one for Tristao Vaz Teyxeyra. The expedition safely reached its destination, the island was taken possession of, and the colony established, and Perestrello soon afterwards returned to Portugal."

The date of this transaction is not well defined, but it appears to have been between 1417 and 1419.

Cordeyro next gives the traditional details of Robert Machim's misfortunes, and the discovery of Madeira to which those misfortunes gave rise; and, then he relates the Portuguese discovery, wherein we are informed that from Porto Santo a dark cloud was seen constantly in the S.W., which gave rise amongst the settlers to many wild surmises, and a great desire to know what it might be. For this purpose Gonçalves Zarco, and a large party, left Porto Santo in a vessel called the *San Lourenço*, with several boats, three hours before sunrise on the morning of the 1st July 1419, making to the S.W. A little after noon they discovered land, and on nearing the eastern point Gonzalves cried out "*Ho! San Lourenço, approaches*"! and that point was thenceforward named Ponta De San Lourenço.

Arriving at a spacious bay they passed the night there, no one landing, and all were greatly rejoiced at their discovery.

The next morning at daylight, Ruy Paes was sent in a boat to reconnoitre the shore, and return with a report of what he saw.

He found it impracticable to land in the bay, where there was a river and much drift timber, but he got on shore a little further to the eastward, on some stones, at the place which is now called the landing, and where the English had previously landed. The country appeared beautiful with some meadows and extensive woods; and, observing certain shreds and human foot marks, he presently lighted upon the tombs, crosses, and epitaphs of Machim and Anna D'Arfet. With this intelligence he returned to the vessel. Next morning, the 2nd July, Gonzalves Zarco landed with two priests and some gentlemen of the party, at the place of the graves; and having returned thanks to God for the discovery of this new land, and consecrated some water, they cast it on the earth, taking possession of it in the name of God. Finding a habitation formed in the trunk of a large tree, there they prepared an altar, and celebrated Mass, and after it a requiem for the dead, over the graves of Anna D'Arfet and Machim.

This took place on the day of the visitation of St. Isabel, the 2nd of July, and on this spot was afterwards founded a church dedicated to Christ. Some of the party went into the forest, and up the river to see if they could discover any wild animals or reptiles; but they found no living thing, save divers kinds of birds, which flew into their hands; and seeing this, they collected some, and took wood and earth from several places, with sundry other tokens, and then returned to the vessel.

Next day the 3rd of July the captain and pilot in one boat, and Alvaro Affonso, with other gentlemen, in another, coasted along the shore keeping close to it; observing the points, bays, rivers, and streams of fresh water, and, because one of these issued from a rock, they named it Porto do Seixo. In a bay beyond this they found some drift wood, of which the captain caused some crosses to be made which he erected there. That place was thenceforth named Santa Cruz; and afterwards became the site of one of the principal towns in the captaincy of Machico. Further on they reached a large and lofty head-land jutting out into the sea, swarming with birds which alighted on their heads and oars, on which account they named it Ponta do Garajao: it is three or four leagues to the westward of Machico. Two leagues beyond this head-land, they saw another, and between them a beautiful bay sloping to the sea, and uniformly covered with trees, above which were seen cedars of very great height. Presently they came to a Ribeira which was named Gonçalo Ayres, because that gentleman landed there to see if he could discover any wild animals, but they found only birds. A little further on they entered the bay, which was bordered by a stony beach; there were no trees near the shore, but quantities of fennel (Funcho), and there were three rivers flowing into it. They called this place Funchal, and, here a settlement was afterwards established, which became, and still is, the chief city of the island.

At the end of the bay are two islets, where they passed the night; sleeping in the boats. Next morning the 4th of July they reached the head-land seen the previous day; and erecting a cross upon it, gave it the name of Ponta da Cruz.

On rounding the point they arrived at a beautiful beach which they named Praya Formosa; a little beyond it they found a large river flowing into the sea, which, certain young men of Lagos attempting to ford, were so carried away with the stream that they would have perished, but for the timely assistance of the boats. From this circumstance it was named Ribeira dos Accorridos (the assisted). Soon after passing this river they saw two rocky points jutting out from the shore, having between them a large inlet or cove, which they entered with the boats, and finding many seals thereon they amused themselves with killing them, and named the place Camera dos Lobos. It was from hence that Captain Joao Gonçalves Zarco assumed the name of Da Camera.

They went to another point beyond this, to which they gave the name of Ponta Girao (they turn), and then returned in the evening to the islet from whence they started; and the following morning they all got back to their vessel.

The very next day they sailed for Portugal, and on arriving at Lisbon they related their discovery and adventures to the king and his son, the Infante, Don Henry; and presented them with specimens of such things as they had brought from the new island. Their serene highnesses were greatly rejoiced at the intelligence, and immediately ordered public processions and thanksgivings to God. They directed the island to be named Madeira, from the circumstance of the forests with which it was overspread; and Joao Gonçalves Zarco was rewarded with an appointment in the king's household; was confirmed in his assumption of the name of Da Camera, and was further distinguished by particular armorial bearings. The king, moreover, conferred on him the title of Captain Donatorio (Chief Donee) of the jurisdiction of Funchal, which comprises half the island, as an heritage to himself and his successors.

In May, of the following year, (1420,) the same princes invested Bartholemeo Perestrello with the entire captaincy of the Island of Porto Santo; and made Tristao Vaz Teyxeyra the second Captain Donatorio of Madeira, in the jurisdiction of Machico; the other half of Madeira, also with the same right of heritage as Joao Gonçalves Zarco. Cordeyro adds, this was always called "the Tristao."

In the summer of 1420, the two Donatorios commenced the settlement of their respective portions of the island. Joao Gonçalves Zarco's government extending from Ponta Oliveira along the south coast to Ponta Parga and thence to Ponta Tristao; and Tristao Vaz Teyxeyra's from Ponta Tristao to Ponta Lourenço and thence to Ponta Oliveira.

Such is the relation given by Cordeyro.

It appears that the king gave every encouragement to the undertaking, but his illustrious son, the Infante, Don Henry, was the prime mover. His genius and munificence, his enterprise and persevering industry, his systematic prosecution of maritime discovery, gave that stimulus to

nautical enterprise which eventually broke up the monopolies of Genoa and Venice, and opened the trade with India to the rest of Europe.

He may be said to have laid the foundation of our present extended system of ocean navigation; and, there can be little doubt, but that his example, and its practical results, confirmed and sustained Columbus in those resolves which led him in triumph over every obstacle to the discovery of the New World; for it may be noticed that that great man had married the daughter of Perestello, the colonizer of Porto Santo, and had become personally acquainted with the principal commanders of the Portuguese exploring expeditions of his time.

Regarding then these islands as the first fruits of a new system of navigation, they may be viewed with interest by navigators in general, for whose benefit a detailed survey of them has recently been made; and by Portuguese, with pride and satisfaction, as honourable evidence of the lead taken by their countrymen in the establishment of that system.

Madeira.—The Island of Madeira is situated between latitudes 32° 37′ 18″ N. and 32° 51′ 31″ N., and longitudes 16° 39′ 30″ and 17° 16′ 38″ W. Its greatest length, on a straight line, from Ponta Lourenço to Ponta do Pargo is 31 $\frac{7}{10}$ths miles. Its extreme breadth, from Ponta da Cruz on the south to Ponta San Jorge, is 12 miles; and the circuit of the island along its line of coasts is about 79 miles.

The magnetic variation in 1843 was 24° 45′ W. It is high water at full and change at 12h. 48m., and the rise of the tide is seven feet. The population of the island is stated to be 120,000.

The characteristic features of Madeira are, its great and general elevation above the sea; the number and picturesque outline of its mountains; the depth and grandeur of its ravines; its numerous mountain streams; the abundance and purity of its water; the fertility of its soil; the extreme mildness and uniformity of its temperature; and the excellence of its climate.

Although of volcanic origin there are no craters to be seen upon any part of it, except San Antonio, a mountain about a mile and three-quarters west of Machico, which has a smooth shallow basin on its summit.

The most elevated of the numerous peaks which occupy the interior of the island is Ruivo, 6056 feet above the sea. It has a well-defined but rather rounded summit, and stands on the north edge of the stupendous ravine of the Curral, and with reference to the coast, lies nearly 7$\frac{3}{4}$ miles north of Ponta da Cruz, and not quite 5 miles from Ponta San Jorge.

This mountain has a continual slope towards the sea, in a north and north-east direction: on the south-west side it drops abruptly into the Curral.

The lofty ridge of the Lomba Grande, with several peaks upon it, forms the head of the Curral, and extends from Ruivo 2$\frac{1}{4}$ miles to the westward. At that distance it is intercepted by a high rocky ridge running north from Pico Grande, another high mountain situated between the Curral and the great ravine of the Serra d'Agoa. The rocky sum-

mit of Pico Grande is 5391 feet above the sea, and somewhat resembles a ruined castle. To the south of Pico Ruivo is a ridge of peaks of nearly equal elevation with it; and amongst them, distant about half a mile from Ruivo, are the remarkable castellated peaks of the Torrinhas, 5980 feet in height. Three-quarters of a mile south of them, is Pico Sidrao, and half a mile further, to the S.E., is Pico Arriero, 5893 feet high.

The northern portion of the Curral lies in the semi-amphitheatre formed by these mountains, which have their summits upon its very margin.

Three-quarters of a mile S.S.W. of Sidrao Peak, is the Peak of San Antonio, 5076 feet high. Arriero and San Antonio are both smooth, round-topped, mountains, covered with grass, and sloping gradually to the southward, but rather abruptly into the Curral. There is very elevated land for about two miles, south of San Antonio, to the edge of the heights which overlook the bay and city of Funchal.

The ridge of elevated land on the west side of the Curral commences at Camera de Lobos, and runs nearly north, with a very irregular outline, to Pico Grande.

The first considerable peak upon this ridge is Bodes, 3726 feet in height, and about three miles north of Camera de Lobos. At the foot of this peak the vast ravine becomes much contracted, and there is a comparatively narrow gorge, through which the Soccoridos river, after winding along the bottom of the Curral, flows out towards the sea.

On the western side of this ridge, is the valley and Ribeira of the Jardin da Serra; and at the head of the valley, $3\frac{3}{4}$ miles from the outlet of the Ribeira, is a sharp narrow ridge which overlooks the eastern parts of the Serra d'Agoa valley. The heights, which form the northern limit of the mountain range, terminated by Cape Girao, lie one-third of a mile west of this, and are called Terra de Fera. They are 4614 feet in height, with a long and broken slope towards the coast; but on the north they descend with much abruptness into the ravine beneath.

Nearly a mile north of Pico Grande, a sharp mountain ridge (the Encomiado) runs across $3\frac{1}{2}$ miles west, to the margin of Paul da Serra, and divides the valley of Serra d'Agoa from the valley of San Vicente. The ridge is a complete Serra, and both it and the valleys are thickly wooded.

The Paul da Serra is an elevated and comparatively tabled land about three miles in extent from east to west, by two perhaps in greatest breadth. The mountain on its north-eastern margin, the most elevated part, is 5210 feet in height. Pico D'Oursa on the S.W. margin is 4611 feet. The N.E. mountains overlook the valley of San Vicente which is thickly wooded, and dotted here and there with white washed houses, and also the great Lonibas beyond it covered with dark forests.

The descent from the Paul on the east, and on the north, is very precipitous: on the south it has a mere gradual slope to the coast. Near the centre of this dreary uninhabited region there is a house built by a British merchant for the accommodation of travellers, which it is to be

regretted is rapidly falling to decay. The southern and eastern part of the Paul are barren looking lands covered with a scanty vegetation.

The north and north-west parts are particularly beautiful with bright green swelling slopes tufted with dark clumps of trees. At the western extreme of the Paul, at the foot of Pico D'Oursa, and of three or four small hills to the north of Oursa, the waters of the Great Ribeira of Sanella take their rise. The deep valley, through which it runs to the sea, is nearly 7½ miles in length, and thickly wooded. On the south-west side of it is a narrow ridge of mountains extending from Pico D'Oursa quite round to the heights above Porto Moniz.

The highest parts of this range are situated four miles beyond Pico D'Oursa, nearly midway between it and Porto Moniz; and are crowned by several rocky knolls, the most elevated of which is 4271 feet above the sea. They have a steep descent to the coast on the south-west and north-west, looking down on the lands in those directions; and commanding to the eastward a more extended view, embracing the Paul da Serra, the ravine of the Janella, and the lines of sloping hills beyond.

A large portion of this ridge, is rock scantily covered with coarse grass and various shrubs; but some of the hills are green and wooded, especially those from the parallel of Ponto Pargo to Moniz, which are composed of bright red earth covered with grass, and studded with fine old bay trees, the remnants of the original forest.

The land on the opposite or eastern side of the Janella, are of much less elevation, and have a gradual slope to the top of the precipitous heights which characterize the north coasts of the island.

On the eastern side of the valley of San Vincente there is an immense Lamba, covered with forest, reaching the whole way from the junction of the Encomiado, and Lomba Grande ridges, (north of Pico Grande) to the high bold cliffs upon the sea coast, near the outlet of the Ribeira, a distance of 4½ miles. Another great wooded Lomba runs north from Canario Peak near Ruivo to the Arco de San George, which is a sharp pointed mountain near the sea, with a peculiar little tuft of trees upon its summit. On the western side of this Lomba is the deep Ribeira of Boa Ventura. To the north of Canario and Ruivo, the lands have a gradual slope from the top of the mountains towards the coast about San Jorge, Santa Anna, and Fayal.

Between Ruivo the Torrinhas and Arriero Peaks there are several large and deep ravines, which have their outlets about Fayal. From Arriero, a chain of mountains runs for about 3½ miles E.b.S., to the Obobras Peak, at the head of the valley of Machico; and thence it divides into two ridges, the one running north-east to the woody peak above Point Antonio, and from thence, onward to Point Lourenço; the other running nearly east to Antonio and Ponta Queimada; enclosing between them the whole valley of Machico.

The lands to the north of the Arriero and Abobras Peaks, and as far as Point Antonio are drained by the Ribeiras of Fayal and Ponta da Cruz, and slope all the way to those places, excepting where they are

interrupted by the great mountain of the Penha D'Aguia, situated on the coast between them.

Several other ridges radiate from the Abobras Peak to the south-east, and all the land along the eastern coast slopes to the sea, and is broken by numerous ravines and Ribeiras, the principal of which are Machico, Santa Cruz, and Porto Novo.

Another ridge of high land runs from the Peak of Poizo in the interior to the Peaks of Infante and Silva, and from this latter it slopes to the coast, spreading out into numerous minor ridges which extend all over the country, comprised between the Ribeiras of Porto Novo and Gonzalvo Ayres.

On the eastern side, it has a precipitous descent to the Ribeira of Porto Novo, near the margin of which, at a great elevation, and $2\frac{1}{2}$ miles from its outlet, is the village of Camarcha. Another village, Caniço, stands on the rising ground above Ponta Oliveira, about a mile inland.

At Cabo Garajao, and above the cliffs, immediately to the west of it, the ridges terminate abruptly, at a considerable height. Near their western margin, almost on the meridian of Pico da Silva, and about one mile and a quarter from the coast, is the beautiful estate of the Palheiro, (the property of the desendants of Gonzalves Zarco,) on which are some extensive plantations of pines and other trees; and beyond this, on the west, is the valley of Funchal, extending to the base of Pico da Cruz.

The city of Funchal spreads along the shore of the bay, from the Fort of Santiago in the east, to the River San Paulo on the west, about seven-tenths of a mile. The densely peopled parts of it do not extend back, perhaps, more than a quarter of a mile; but the extent of suburbs is not easily defined, as there are buildings and quintas scattered over the numerous ridges behind the city to very irregular distances. It is said to contain 20,000 inhabitants.

The view of Funchal, from the anchorage, is extremely beautiful. The most conspicuous objects on the west side of the bay are the Peak of Ponta da Cruz, the Pontinha, the Loo Rock near it, and the old fortress of the Pico, on a rocky eminence, half a mile north of them. To the eastward of these, the Castle of Lourenço, the official residence of the governor situated near the beach, and the outlet of San Paulo river; the square towers of the ex-Jesuit's college, and the cathedral, the latter having a small triangular spire; Bangor's pillar, on the beach, near the custom-house; and on the extreme east the castle of Santiago, and the quintas upon the sloping land behind it.

A multitude of buildings, religious and domestic, with numerous mirantes, or high square turrets, all dazzling white, and covered with red tiles, fill up the intervening spaces; and reach far back up the rising grounds beyond the city, in the midst of gardens and vineyards.

One of the most striking objects approaching Funchal, is the church of Nossa Senhora da Monte, standing out conspicuously on one of the mountain ridges, which descends from the Peak of Arrebentao, (3844

feet high,) towards the city. It is 1965 feet above the sea, and distant from it about one mile and eight-tenths.

Nothing can well exceed the beauty of the gardens and quintas of Madeira, abounding as they do in trees, shrubs, and flowers, and so many varieties of delicious fruits and vegetables common to the tropics and to Europe. The markets of Funchal are, in consequence, well supplied with these good things, and all necessary refreshments; and there is an ample supply of excellent water. It should be added, that a depôt of coal, for steam vessels, has been established here, and that it is situated near the beach, a short distance from the custom-house.*

No part of Madeira affords a sheltered harbour; and the word 'Porto,' which is attached to several places on the chart, must be taken as the designation given by the islanders to those little coves, or landing-places, where they haul up their fishing-boats, and those of larger construction, employed in the transport of their wines to Funchal, or on other coasting business of the island.

It may be stated generally, that the south coast has a gradual slope from the mountains in the interior to the sea; and that the north and west coasts, on the contrary, are, with few exceptions, high and bold, and descend precipitously.

The cultivation of the island, on its south side, seldom extends more than from 2 to 2½ miles inland; and, on its north side, not half that distance; and it may be asserted generally, that no cultivation is at present attempted at elevations exceeding 3000 feet. The whole of the mountains above that height, and which constitute so large a portion of the island, are left wild and uninhabited.

The defences of Funchal on the sea-board are—first, a battery at the outlet of the Ribeira of Gonsalvo Ayres, named Loires; second, the Fort of Santiago, at the eastern end of the city; third, Forte Novo, about 750 yards to the west of Santiago; fourth, a battery, called Pelhorinho, at the outlet of the Ribeiras of Isao Gomez and Santa Luzia; fifth, another battery at the custom-house; sixth the castle of San Lourenço; seventh, a battery at the outlet of San Paul Ribeira, called Das Fontes; eight, a battery at St. Lazarus; ninth, the battery on the Loo Rock, or Ilheo, as it is most usually called by the Portuguese; tenth, the little fort of San Jose at the outer end of the Pontinha; eleventh, a battery at Penha da França in the little bay, west of the Pontinha; and, lastly the citadel of Pico on a rocky hill half a mile north of the Loo Rock.

* An account of this will be found in our volume for 1845, p. 600, with the plan of the best anchorage for coaling from, communicated by Capt. Hope, of H.M.S. *Firebrand*.—Ed.

H.M.S. Alecto aground in the Parana.—*By Commander J. L. M'Kinnon, R.N.*

The following circumstances attending the grounding of H.M.S. *Alecto*, in the river Parana, serve to illustrate the enormous quantity of matter held in solution, by the turgid waters of that river, and afford a proof of the sudden manner in which banks, and islands are formed in it. Had not the *Alecto* been extracted from her perilous position, when her rescue took place, her detention for at least eight months was certain. It hardly admits of a doubt that, if this delay had taken place; the vessels hull would have formed the nucleus of an island. The following year therefore, (in all human probability) when the waters again arose, the channel would have been completely altered, and the poor *Alecto* remained embedded in a sandy prison. Nature's revenge for the audacious invasion of steam! But to our subject.

The *Alecto*, with one engine disabled, had been for several days struggling up the Parana, towards the Town of Gaya. At noon we came in sight of the *Convoys* mast-heads lying there, and began to congratulate ourselves on speedily arriving at the anchorage, after our difficult and tedious navigation. At two o'clock when within four miles of our destination, and all hands anticipating a speedy arrival, an ominous grate or grind, (never to be mistaken or forgotten by a sailor) excited general attention on board. The engine was immediately stopped, and an attempt made to reverse it: but alas! the ship had lost her way, the current was too powerful; nature took art at a disadvantage, and the vessel hung amidships. The *Alecto* was worse than powerless, her engines nought, but dead weight. The exasperated current, wroth at the triumph of steam hitherto, now laid an enormous pressure on the starboard bow, and drove it round with great force, broadside on to a sand-bank, six inches of water at the least, less than *Alecto* drew. She immediately commenced bumping violently, and heeled over several degrees.

As, at first sight, the circumstance appeared to be similar to a previous mishap, we attempted to extricate her in the same manner, by laying out a cable to a tree astern, on the banks of the river. On this (stream cable) a very heavy strain was hove without success; but, on multiplying the power with deck tackles, the cable parted in the nip, pulling down by the jerk, at same moment, the tree to which it was attached. This disaster put a stop to any more work for the night; and as the men were quite worn out, from the constant work since daylight, under a nearly vertical sun, they were all sent below for rest and refreshment.

On the following morning, a kedge was laid out to windward, to enable us to warp out our large boat, containing a bower anchor. Whilst we were performing this operation, the depth of water was carefully watched, and, to our surprise and annoyance, we found, that it had decreased under the lee, from eleven to seven feet. It became, therefore, manifest, that the current was forming a bank under shelter of the vessel's

hull, still increasing and growing towards the surface. To put a climax to our annoyance, a message come down from Gaya, to inform us that, the river had commenced the most rapid period of its fall.

At length the bower anchor was laid out, and the hemp cable hove taut; but great was our mortification on finding the anchor gradually yield to our efforts, and come home. This aggravated the work enormously, as we had all the extra labour of heaving so cumbrous a plough on board through the sand. On this day a strong northerly breeze was blowing, which materially assisted the river's fall.

Having succeeded with much labour in dragging our anchor to the bows, we determined again to alter the direction of the cables, right astern. Several large trees were now selected, and the cables firmly attached to them. A powerful purchase was now applied to the cable, composed of a hawser rove through both cat blocks; a luff tackle was attached to the hawser, and its falls brought to the windlass. Even with this powerful purchase, we only succeeded in drawing the vessel five feet astern, in as many hours. This plan was given over as useless towards night.

In the evening, whilst the men were reposing, we discovered that several small water snakes were twisting and twining about the blades of the lee paddle-wheel. These reptiles, the native pilots declare, were extremely poisonous. All bathing was therefore stopped, although, up to this period, it had been commonly practised, and found a great relief after the heat of the day.

During the night, the impetuous current, as it rushed along the keel and bottom, hollowed out the sandy foundation on which they were resting. When a certain portion had thus been abstracted, the poor *Alecto* would suddenly slip down the excavation thus formed, and grind her bottom, and jerk her keel, shooting thrills of annoyance through our hearts, at the poor ship's agony; these unpleasant throes continuing for a few minutes, until the vessel had worked a bed for herself; all was then quiet, until the current had again washed away the foundation.

Every time this happened, she forged broadside on, several feet, bodily down stream; and, as the water shallowed every yard, it became necessary to get her afloat, or remain eight hundred miles from the sea, passively occupied in the novel duty (to an English man-of-war) of forming an island! The river fell, during the night, four inches.

On Tusday, April 20th, all hands felt our critical position, and the greatest exertion was made to lay out, up stream, both bower anchors with chains, instead of hemp, as heretofore. The labour was excessive, as not only where these anchors to be laid out in the teeth of a current like a mill-dam, but our clumsy Correntino boat had to be warped up stream with this immense weight. At 11h. P.M., after thirteen hours harrassing work, our scanty crew succeeded in getting all the geer in position; all hands completely done up.

The next morning, about two hours before daylight, both chains were hove taut, with the most powerful purchases we could produce. Several of the officers, anxious to try the depth of the water, were for-

ward on the port bow. To the inexpressible surprise of all, the lead appeared to float!—"Why, what on earth can this mean?" was the general exclamation. "Send a man down; let's know the worst at once."

A man was instantly slung, and lowered down; suddenly the rope slacked—he was standing on firm ground—the bank had grown up to the surface! This was a dreadful damper to all our spirits. All hands were now evidently under the influence of deep anxiety for the events of the forthcoming daylight. At length the day broke with its accustomed beauty, in a dead calm. The attention of the officers was suddenly roused by a quarter-master saying, "Why, Sir, that 'ere sand-bank is not half so big this morning as it was yesterday; that dead tree was twenty feet from the water. It is now close."

We were now assured that our former good luck was invincible. The river was rapidly rising, without any apparent cause!

"Hurrah! for the Grimy Nigger!" and, amidst loud cheers, the chain cables were hove as taut as harp strings. This sudden rise was as extraordinary as unexpected, and still continued much faster than it had fallen.

At noon the sand-bank was completely covered, the river had risen ten inches! Just as the hands were turned up after dinner, a light air sprung up from W.S.W.; her head lying due W. The head-yards were immediately braced sharp up, on starboard tack, and all sail made. At 3 o'clock the breeze had freshened considerably, and came on in heavy squalls. This was a very powerful assistance to the crew, who, with might and main, were increasing the tremendous strain on the cables, in hopes of moving her bow up the stream.

At length, in a heavy squall, her bow moved slightly up; this movement, slight as it was, caused greatly increased energy amongst the crew. The very elements were in our favour; the breeze, as if sympathising with our loud cheers, appeared to concentrate all its strength in one good hearty puff. This combination of the wind, with the strength of our crew, was too powerful even for the mighty current. Six links of the chain unwillingly struggled into the hawse-holes. The victory was gained. The current overcome. To use a nautical phrase, "she had watered her hole." The current was now a forced auxiliary to our success, and rushed up with great violence under the forefoot, rising in a mound, two feet high on the opposite side. In an hour's time the *Alecto* was warped into deep water.

As soon as the ship's hull was removed, and the water had a clear run at the bank, it boiled up like a race, rising with great violence above the level of the surrounding water. Two hours after our extrication, I proceeded, by sounding, to examine the depth of water. To my great surprise, the bank was entirely swept away; leaving the muddy stream eleven feet deep!

So much for the formation of banks and islands in the Parana. Immediately the *Alecto* was liberated, the wind died away and the river fell! Can any one assert that all these extraordinary coincidences were mere chance?

Description of Karang Bollong, Java, and of the Birds' Nests Rocks there.*

The district of Korang Bollong is situated in the residency of Bagelen, division Ambal, on the southerly sea coast between the rivers Chinching-golong and Djetis, both of which have their embouchure in the sea.

The first is crossed at the post named Sowook, and this is often attended with danger; because, when the sea is rough, it runs in a bay in the river, which capsizes small boats, *(getek)*, and occasions the loss of life from time to time. Having crossed we arrive at the foot of the hill Bollong, and from this we are carried further in chairs. On the top of this hill, which is about 250 to 300 feet above the level of the sea, we have a most beautiful view over the south promontories, the ocean, and to the west over a fortification. Descending thence we come to the village of Karang Bollong where the residence of the overseer is situated.

The house is built of stone, and covered with allang-allang. It has a verandah in front and behind, and is provided with six rooms, besides a stone godown covered with tiles to keep the birds' nests, and having convenient out offices of bambus. From the front verandah we have a view of the south promontory, Karang, called Kilda, on the east mount Klotto, on the north the mountain Pangerangan, and on the west the mountain Koboroubo. On the summit of the mountain Kalibelet lies in the form of a triangle the fortification named Karang Bollong, which is furnished with two 6-pounders, and has a garrison of one serjeant, five Europeans and thirty native soldiers.

Before the house of the overseer on a knoll there is a bamboo cupola, from which we have a view to the east, through a cleft, of the ocean; while the view to the westward embraces the village of Karang Bollong.

At Djeldrie situated in the vicinity of Karang Bollong there are ponds into which the flow of the sea brings fishes. These fish ponds, however, are dependent on the more or less favorable state of the weather, because it has happened that the fish have escaped from the overflow of the water. Once or twice in the year the fish are sold to the population of the district of Karang Bollong, and from the proceeds the sluices of masonry and cleansing of the ponds are provided for. The surplus is divided between the people of the villages of Sowook and Djeladrie who keep the watch.

Generally speaking the place may be considered healthful. The thermometer (Fahrenheit) is found, as a mean, in the morning at six o'clock from 70° to 74°, at noon from 82° to 85°, and in the evening at six o'clock from 77° to 79°.

The population of the district Karang Bollong consists of one thousand able-bodied men, who are free from all state-service and contributions, excepting the maintenance of the roads. They find their livelihood by

* Translated from the "Tijdschrift voor Neerlands Indie."

gathering birds' nests, in the cultivation of sawa and tagal* fields and in fishing. The women on their part keep themselves busy in weaving cloths, which are everywhere in good demand, and are sought, as I have heard, in the capitals of the residencies Surakarta and Djokjokarta.

It is generally known that Karang Bollong furnishes annually an important produce of birds' nests; but it is less known in what manner the collection is made, and with how much danger to life it is attended. For this reason I have deemed it not inappropriate to give a description of it here as exact as possible, commencing from the time when the collection begins.

The gathering of the birds' nests takes place three times a year under the name of *Uduan ketongo, tellor* and *kapal.* The first begins in the end of April, the second in the middle of August, and the third in December. The yearly produce is commonly between fifty and sixty piculs.

When the time for the gathering approaches the heads come together with the persons they employ, before the residence of the overseer, who then, in the presence of the Wedons, Mantre, and the writer, fixes the amount destined for the procuring of buffaloes, he-goats, rattans, bambus, and torches, as well as the distributioa of opium, incense, and *atal.*

After all this has been done, a servant is sent to the *Goa Nogosarie,* accompanied by the head men of this cliff. The Goa Nogosarie is the most accessible, provided the sea is not too rough. Six nests are then ordinarily collected to be compared with the sample of the previous year, and to judge if the collection can take place or not.

If the head men consider that the nests are fit to be collected, the people then send for the Wayang and Toppeng, and the overseer makes further regulations with the head men of the cliff for what is necessary for offerings and feasts.

According to old custom, a Thursday is always chosen to make a beginning with the preparation of what is needed for the feast, so that on this day the people occupy themselves with cleaning the Bollong, the cliff which is situated at the mouth of the river Tjinting Guling.

The next morning (Friday) the Buffaloes are killed. Two hours afterwards they take some pieces of flesh, tongue, entrails, &c., from the slaughtered animals, and place them on small bowls, woven of bumbus, called *Sadjen.* They are then offered to Bollong Watu Tumpang, and near the watch-houses of the cliffs at Dabar, Gedee, Wale, and Nogosarie; while at the cliff of Medjienkick, a he-goat is offered with incense. This festival must, by old custom, always take place on a Friday, which by the natives is called Ngaderan. In the afternoon of the same day, a Wayang is performed in the Bollong, generally a piece of seven acts: while the necessary flowers, fruits, ointments, siri, pinang, &c., and what is further required for the offerings are prepared by the *Tuken kembang.* All the materials are placed on the before mentioned bambu bowls, and in the evening at half-past five o'clock, are brought by a servant into the Bollong near the Seroot tree. The origin of this tree is

* Tagal, dry rice, cultivation equivalent to the Malay úmah.

ascribed to a Javanese named Kiai who is buried there, and above whose grave the tree has risen; and now the superstition of the natives declares that the tree has sprung from the naval of the dead. They likewise make offering on the burial place, at the waringin-tree, and in the room, the pantry, kitchen, and other places in the dwelling of the overseer.

After the wayang-players have returned from the Bollong, the bed placed near the entrance of the godown, known under the general apellation of devil's-bed, or bed of Nyai Ratu Kidul (which has existed from time immemorial) is put in order by the *Tukang Gedong*, and ornamented with some silk and other cloths. Nobody but this woman is allowed to do this. Every Thursday during the time of the collection this bed is cleaned, and offerings are made to it.

After everything has been made ready, the small lamps are lighted, and the small bambu bowls with flowers fruit, &c., are placed with particular marks of honor by the Tukang Gedong before the bed, on a small couch made for the purpose. At the same time she says, in high Javanese, as if addresssng some distinguished person "By order of Mijnheer, (meaning the overseer,) I here bring wherewithal for you alone to eat." After this speech the Tukang Gedong herself answers "Yes, mother Tukang Gedong, say to father Mijnheer, (the officer,) that I return my thanks for the food which he has sent me."

After this ceremony is finished, the Tukang Gedong remains sitting on the bed, and further asks Nyai Ratu Kidul (who is supposed to be present in the bed,) "if it be agreeable to her that the birds' nests should be collected, and if it shall take place without mischance," which request is ordinarily answered with "yes" (*ingie*). During this time the wayang is kept up till the next morning.

The following morning (Saturday) the heads of the cliffs, Dahar and Gedie, go with the persons whom they have employed, to their goas, with the ladders which have been prepared some days before, and accompanied by the Gedeks and Sentonos for each cliff, in order to make further preparations for a commencement; while during all the day the toppeng play is maintained.

The cliffs Walo and Nogosarie are visited eight days later, and Medjienkick two days after that. I have enquired what could be the reason for visiting these cliffs latest, but no explanation could be given to me. In the evening, the toppeng-play being finished, the so-called Karang Bollong, wherever a feast begins, on which occasion the gamilang and two or three dancing girls turn their heads towards the birds' nest warehouse, in honor of Nyai Ratu Kidul, and it is a general custom in the district of Karang Bollong wherever a feast is given, to dedicate the first seven songs to the honor of Nyai Ratu Kidul. So soon as the wedons, mantre, writer, the head of the cliffs with their people, and some heads of the dessas, are met, they sit down on a mat in a circle to dine. The writer places himself at the head of this table and proposes different toasts to the success of the approaching collection. After the guests have satisfied themselves, opium is offered to every person present. The company enjoy themselves, some with dancing to the music of the

gamilang, some with opium smoking, while others occupy themselves with chewing seree, and this continues till midnight, when the feast ends.

After this feast (on Sunday morning) the head men take their departure for the rocks; and, if the sea is not too rough, the ladders are joined in order to reach the entrance of the holes that they may collect six birds' nests, which, from prudence, are again compared with the musters. The harvest then is arranged. But if it should be found that the nests are not ready to be gathered, further preparations are stopped in order that the swallows may not be disturbed. If it is found that the nests are of the proper bulk, the work is continued by making stages and ladders, and fastening them to the rocks into which the collectors have to descend. All these operations being completed in five or six days, the inhabitants of the nearest dessa go to the cliffs, Dahar and Gedee, with the men belonging to these cliffs, accompanied by gandecks and sontonas, who carry with them the requisite bags to contain the nests which may be gathered.

The number of collectors for the first day is limited to 80 or 90 persons for each of the two cliffs, and this number afterwards diminishes as the nests are gathered. When the bags are filled they are brought to the godowns under the direction of a Guru. On arriving there, a *sedeka* is given, consisting of red and white bubor, and this feast is regulated by the collectors of the day for each cliff. After the priest has spoken his benediction over it, and the dishes have been eaten, the nests are weighed and stored in the godown on a flooring of plank made for them.

The work of the remaining cliffs Wollo, Medjienkick, and Nogosarie is nearly the same, but the collection at the first two places is made by the people employed, without any payment, on account of the smallness of the produce. With respect to the last, sixty or seventy persons are ordinarily employed, and fifty-seven to sixty rupees, copper, are paid for each collection to the head men. The sum is divided amongst the bekels and the people. On account of these cliffs being situated at about five miles distance, over very difficult roads, the birds' nests are kept and watched till the next morning in a bambu house, called *kongsie*, made near the watch-house of the cliff. They are afterwards brought to the godowns for which each bearer receives five cents, a sogo of opium of quarter sikar weight.

The collection of the nests necessarily depends altogether on the state of the sea. On the top of the mountain Kuda, a flag-staff has been erected for this reason, and when a white flag is hoisted it is a signal that the sea is calm and the holes can be approached, but; if a black flag be shewn it is a signal that the sea is too rough. Each collection from all the holes is finished in twenty to twenty-four days. The principal birds' nest cliffs are those which I have described above, and they extend from the east to the west along the Karang Bollong south cape. Between these, there are, some smaller cliffs, the produce of which is of little or no importance.

The collection of the nests is attended with much difficulty, and sometimes even with danger to life, because the apertures are situated at the foot of the rocks, and are consequently on a level with the surface of the sea, so that the water washes in and out of the holes. Hence, when the sea is somewhat rough it is impossible to reach the apertures, much less to enter them. In order to form a just idea of the dangerous work which must be performed by the collectors, I will try to give an exact description of it.

To enter the cliffs you descend one precipice of two hundred feet, nearly perpendicular, by means of one, two, or three rattan ladders, (according to the greater or less height), which are 5 inches broad, and 77 feet long. The lateral or principal ropes are composed of wild rattans twisted together to a thickness of two inches, and having wooden steps two inches thick, and thirteen inches distant from each other. The upper end of the ladder is well fastened to a strong tree by black ropes, and the lower end is placed on one of the rocks.

In order to reach one of the holes, they make use of two rattans, each one hundred and eight feet long; but in some cliffs bambus are used 12 to 48 feet long, which are placed one above the other—that they may steady themselves by holding the upper when walking along the under. The entrance of the caves is about 18 feet broad, more or less, and 30 high. The interior is from 60 to 114 feet broad and from 420 to 480 high. The bottom of most of the caves is washed for about one-quarter of its length by sea-water, three, four, or more, feet in depth. The whole of the interior appears to consist of limestone. In the caves are stages made of bambus, which are bound by ropes to the walls of the rocks on which the collectors stand. It often happens, in consequence, that the cliffs on which the ropes of the stage are fastened, become loosened, and the whole stage is precipitated, which sometimes occasions a loss of life. Most of the nests are taken from the wall by the hand, and those which are on the roof, by an iron hook fastened to a long bambu.

The swallow named *lawet*, has a compressed head, which, however, with its thick and rounded feathers, appears large in comparison with the body. The beak is broad and wide, with a black awl-shaped small point bent downwards. The eyes are black and tolerably large, and the tongue arrow-shaped. The throat is very short, as well as the bones of the wings and feet. The feet consist of four toes, of which three are in front and one behind. All the toes have black, curved, sharp, and tolerably long claws, so that the bird can everywhere lay fast hold of the rocks and cliffs. The tail is almost as long as the whole body. When the throat, the wings, and the head are spread out, the bird has a circular appearance. The colour is a greyish black, inclining a little to green. On the back, near the tail to the belly, the blackish passes into mouse-colour. The breast is bluish.

Besides these, some wild species, called *lintye*, inhabit some holes. These are somewhat smaller, and have a white breast. In other respects they agree completely with the *lawet*. The nests which they make are

constructed of grass stalks. They are, however, of the same form, and are as artfully made as the others, but are without the least value. The residence of these swallows, *lintye*, in the caves, contributes greatly to the injury of the holes, for which reason they are destroyed as much as possible at each gathering.

On the walls of the rocks, the birds build their nests in horizontal layers close to each other. They place them at different heights from 50 to 300 feet, as they find room, and leave no holes or suitable spaces, open, provided they are clean and dry; for when the walls prove damp they forsake their nests. When the sea attains a high level, which is usually accompanied by a strong surf beating against the cliffs, a percolation of water is caused, which is, in the highest degree, prejudicial.

In the mornings, at break of day, the birds fly out with a great noise, to seek their food, to the neighbouring places in the east monsoon or dry season; but in the west monsoon, or rainy season, they do not go far. They return to their caves about four o'clock in the afternoon. They feed upon different kinds of bloodless insects, hovering above the stagnant waters, for which their wide open beak is very useful.

Their greatest enemies are the birds *úlang* and *alap-alap*, who pull the young swallows out of the holes, and seize many as they fly out of the caves.

They form the nests, by vomiting the strongest and best fragments of the food which they have eaten.

When the nests have been all plucked, the entrances are closed with bambu fences, the doors are sealed, and the rattan ladders are brought back to the store-house.

The nests in the store-house are, some days afterwards, weighed, and packed in hampers, (*geboks*, each 25 catties,) made very tight with cross ropes, and sealed with the stamp of the overseer. Pieces of paper are placed on each hamper, with the number and the nett weight of the nests written on it.

All this having been done, the hampers are surrounded with cocoa-nut leaves, prepared in the manner of kadjang mats. Every two hampers are then made fast to a piece of bambu (pikol-an) provided with two props, in order that, when resting on the way, the hampers may not touch the ground. They are, besides, covered with pinang bark, so that when it rains the water can run off. Finally, they are all sent to Surakarta, in order that they may be there sorted.

The evening before the birds' nests are sent off another feast is given, and on the following morning, all the coolies depart, with their hampers, for Surakarta, amidst the playing of the gamilang and shouts of hurrah.

Orkney Lights.

H.M.S. Mastiff, Alloa, 30th March, 1848.

Mr. Editor.—In the course of my visit to the Orkneys last summer, for the completion of the survey of that group of islands, in H.M.S. *Mastiff*, while engaged in my duties on the Island of North Ronaldsha, I was much interested by witnessing the great number of vessels passing round the island; and considering that they were likely to be as numerous by night as by day, the fact of there being no light on it to guide them round it, appeared to me most extraordinary.

On looking into the subject I found that there once was a light, and the tower of it still stands, and does serve as a beacon; but that in consequence of numerous wrecks taking place on Sanda, the island south of it, a light was established on the Start Point of that island, and the light of North Ronaldsha was discontinued. Doubting very much the good policy of that measure, and being indeed fully impressed with its impropriety, I lost no time in calling the attention of the Commissioners of Northern Lighthouses to the subject. I transmit herewith a copy of the correspondence which ensued, the result of which I am most happy to say is quite favorable to my views, that the grand turning point of our islands for shipping passing and repassing between the Atlantic and the German Ocean *should be lighted.* The proposal at present remains with the Trinity House of London, which Board I can scarcely doubt will view the subject in a similar way that every one here has done, who is conversant with the dangers of North Ronaldsha.

As a gratifying conclusion to this communication, I trust you will allow me to add my humble testimony to the kind and ready attention with which my representations were received by the Northern Lighthouse Commissioners, their Engineer, and Secretary. The question was immediately taken up, the great importance of it was duly considered, and its *precedence* to other works allowed and established. This you might observe, is nothing more than the duty of a Board, the members of which receive some handsome salary for their trouble. But it is very little known that the Board of Commissioners of Northern Lighthouses is not one of this category: it is an unpaid Board, the members of which (saving the Secretary and Engineer,) give their time and attention to their duties gratis! "*in salutem omnium,*" as their motto says, for the dispensing of safety to the mariner. This is a distinction highly honorable to the gentlemen of the Northern Board, and although it might be urged against them they are not seamen, yet they are clear sighted men, cool headed, and of good judgment, and well able to give that close attention to reasons which seamen place before them, and determine for the best. For such reasons above all they are entitled to the thanks of their country, as well as seamen generally, and I trust you will assist me in making this known.

Your obedient servant,

A. B. Becher, *Com. R.N.*

To the Editor N.M.

Northern Light Office, Edinburgh, 10th Jan., 1848.

SIR.—In terms of the conversation, which took place on Saturday last, as to the proposed renovation of the Start Point Lighthouse, I have been directed by the Commissioners of Northern Lighthouses to communicate with you farther on the subject. You are aware that this Board have, on the suggestion of their engineer, resolved to delay any proceeding at the Start Point, in the view of making the light more effective, until they should obtain farther information on the subject, of the best mode of lighting the northern isles of Orkney. They have reason to believe that you, and the other officers of H.M.S. *Mastiff*, have, in the course of your survey, formed decided opinions as to the maritime wants of that line of coast, and they have directed me to request that you would favour them with your own opinion, and that of the other gentlemen engaged in the survey of the Orkneys as to the following points.

1. What is the best position for a light in the north isles of the Orkneys, having in view solely the general interests of navigation, and without reference to the existence of the light at Start Point?

2. Considering the lowness of the Sanda land, and its easterly projection, the set and strength of the tides, and the number of shipwrecks which occur on the Start Point, after the light was exhibited in North Ronaldsha, does any modification of the opinion to be given in answer to the preceding question, appear to be required?

3. If North Ronaldsha should be considered as the most desirable site for the great sea lighthouse, would it be necessary to retain the light on Start Point, as well from a consideration of the reasons which induced the Commissioners to remove the light from North Ronaldsha to that place in 1806, as from the long familiarity of seamen with the present light on Start Point?

4. Would a subsidiary light answer at North Ronaldsha, in conjunction with an improved light at Start Point? This question more particularly implies a consideration of the circumstance, that the present *characteristic* appearance of the Start Point light, with which seamen are familiar, admits of a great increase of power and range without any change of character, so that the light would equally, with one on North Ronaldsha, serve as a distant guide for our sea vessels, while a new subsidiary light on North Ronaldsha, would indicate precisely the mariner's position as to the northern extremity of the Archipelago?

5. Would notices repeated for several years, render any change of the existing light, whether as to its *character*, or its entire cessation, a safe or advisable measure?

6. As several efficient distinctions might be adopted between two lights on that coast, does it appear desirable, or otherwise, to add a second light at North Ronaldsha, which is only 9 miles off from Start Point?

I hope you will excuse me for directing your attention to the preceding questions; and I beg you will not consider that the Commissioners have any desire either to limit your replies by these interrogatories, or

to trouble you to follow them closely; they are, in fact, merely intended to indicate to you the form which the investigation has assumed at this Board.

I am, Sir, &c.,

ALEX. CUNNINGHAM, *Sec.*

Capt. Becher, R.N., H.M.S Mastiff, Kincardine.

H.M.S. Mastiff, Alloa, Frith of Forth, Jan. 28th, 1848.

SIR,—I have the honour to acknowledge the receipt of your letter, of the 10th inst., forwarding to me certain questions on the subject of lighting the northern isles of Orkney; and requesting the opinions of the officers of the *Mastiff*, along with my own, on that subject.

In answering the above questions, for the sake of perspicuity, I will transfer them to this communication, and follow them with the answers, which after due consideration, I have been led to adopt; adding thereto, in conclusion, such other remarks as may appear to suggest themselves; and the letters of Lieut. Thomas, and Mr. Wells, the master of this ship, whose long experience of the navigation of the Orkney Islands, may, probably, render their opinions of more importance than my own.

" 1. What is the best position for a light in the northern isles of Orkney, having in view solely the general interests of navigation, and without reference to the existence of the light at Start Point?"

North Ronaldsha being the northernmost land of Orkney, round which vessels pass and repass, both east and west, appears to me as the most proper place for a good sea-light for the northern isles of Orkney.

" 2. Considering the lowness of the Sanda land, and its easterly projection, the set and strength of the tides, and the number of shipwrecks which occurred on the Start Point, after the light was exhibited on North Ronaldsha; does any modification of the opinion to be given in answer to the preceding question appear to be required?"

The extraordinary low and flat character of the Sanda land, particularly about the Start Point, on which a light now stands, and the peculiar set and great strength of the tides in its vicinity, adding to its danger, are sufficient reasons why it should be avoided by seamen; a good light on North Ronaldsha, would assist them in doing so.

By a register of wrecks which I obtained at Sanda last summer, it appears that since January, 1806, when the Start light was established, there have been—

Wrecked on Sanda . . .	26 vessels.
Ditto on North Ronaldsha . .	21 "
Total . .	47

Since June, 1809, when the light on North Ronaldsha was suppressed, leaving the Start light as the only one on the northern isles of Orkney, there have been—

Wrecked on Sanda . . .	22 vessels.
Ditto on North Ronaldsha . .	20 "
Total . .	42*

From which it does not appear that such diminution of wrecks as might have been expected, has taken place by the removal of the light from North Ronaldsha to the Start; but that the number of wrecks on North Ronaldsha, in proportion to its extent of coast line, is far greater than those of Sanda.

" 3. If North Ronaldsha should be considered as the most desirable site for the great sea light; would it be necessary to retain the light at Start Point; as well as from a consideration of the various reasons which induced the Commissioners to remove the light from North Ronaldsha to that place, in 1806, as from the long familiarity of seamen with the present light on Start Point?"

The familiarity of seamen with the Start light, should secure its continuance, even in case of a light being re-established on North Ronaldsha; and as this is a revolving light, if one is placed on North Ronaldsha, it should be a fixed light, and they could not then be mistaken for each other. With the Start light, and one on Dennis-Ness of North Ronaldsha, by cross bearings, ships could always determine their correct positions, an advantage which, to outward bound ships, for a good departure, would be of immense value, and should go far towards deciding in favour of a light on that island.

" 4. Would a subsidiary light answer at North Ronaldsha, in conjunction with an improved light at Start Point? This question more particularly implies a consideration of the circumstance, that the present characteristic appearance of the Start light, with which seamen are familiar, admits of a great exercise of power and range, without any change of character; so that the light would, equally with the one on North Ronaldsha, serve as a distant guide for over-sea vessels, while a new subsidiary light on North Ronaldsha, would indicate precisely the mariner's position, as to the northern extremity of the Archipelago."

I think it would be injudicious to place a secondary, or subsidiary light on North Ronaldsha, a point which a seaman should have the chance of seeing as soon as possible. The present light on the Start might serve as a subsidiary light. Vessels from the westward must risk too near an approach to the Runabrake, and the western shores of North Ronaldsha, to come within ten miles of the Start light, so that it is of no great service to them. But were a light on North Ronaldsha, vessels might safely run for it, when two or three miles to the northward of its parallel, without danger, and with the certainty of making it. In fact, if two lights be determined on, they should be on Dennis-Ness of North Ronaldsha and the Start Point of Sanda, and that of Dennis-Ness, should be a light of the most superior kind: but if one light only be determined on, that at the Start should remain.

* A list of these wrecks will be found in our April Number, p. 298.—Ed.

"5. Would notices, repeated several years, render any change of the existing light, whether as to its character, or its entire cessation, a safe or advisable measure."

It would certainly be a safer measure, to make no change in the existing light, than to do otherwise, although any ill effect resulting from a change in the establishment, or character of lights, ought to be avoided, by notices of such intended change, being sent throughout the world by every proper channel, and allowing them due time for arrival and circulation.

"6. As several efficient distinctions might be adopted between two lights on that coast, does it appear desirable, or otherwise, to add a second light at North Ronaldsha, which is only nine miles off from Start Point?"

Considering that the Start light should not be disturbed, rather than leave North Ronaldsha without a light, it is desirable there should be two lights, although they would not be seven miles apart from each other.

In conclusion, it may be observed:—

1st.—That the greatest number of wrecks on Sanda, to which I have alluded, have occurred on the northern shores of that island, besides a greater number of wrecks in proportion to its size and extent, still occurring on North Ronaldsha.

2ndly.—That the point of Dennis-Ness, the site of the present beacon on North Ronaldsha, is the easternmost land of Orkney, having been found by the recent survey to bear true N. 0° 40′ 55″ E. of the Start of Sanda, the distance from the Start placing it about 150 yards east of the meridian of the latter.

The whole subject might, no doubt, offer further arguments for reasoning upon; but the foregoing have appeared to me sufficient to arrive at the conclusion, that the best position for the light on the northern isles of Orkney, is on Dennis-Ness of North Ronaldsha; that the present light on the Start, as a sea-light, is deprived of half its value, being of no use to vessels coming from the westward; but from having been long established, it should remain as a revolving light, whether it be determined to have a light on North Ronaldsha or not: and that a light on Dennis-Ness (which should be a fixed light,*) along with the present revolving light on the Start, would be preferable, for the reasons which have been already stated.

I have the honor to be, &c.,

A. B. BECHER,
Commanding H.M.S. Mastiff.

To A. Cunningham, Esq., Northern Light Office.

H.M. Cutter, Woodlark, Alloa, 25th Jan., 1848.

SIR.—Agreeably to your request, I beg to offer the following remarks in reply to some questions proposed for your consideration by the Commissioners of Northern Lighthouses.

* Since determined to be a flashing light, that of Sunburgh Head, of Shetland, being a fixed light, for which *it might be mistaken.*

As a general rule, a lighthouse is most advantageously placed upon the turning points in navigation, and it would at first appear that the northern extremity of North Ronaldsha is the best position for a light; but this is assuming that there is only one angle to be made in the course of those ships that have to pass the Orkneys, or that there is not a point of greater danger to be guarded against. If it can be shown that the Start Point in Sanda is more dangerous to shipping than Dennis-Ness, I presume it to be sufficient reason for retaining it there. The most obvious advantage of a light upon Dennis-Ness is, that ships coming from the open sea would endeavour to get upon its parallel, or a few miles to the northward of it, and steer boldly to the eastward or westward, confident of seeing the light before they could get on shore upon North Ronaldsha; but the necessity for a light upon this place is qualified by the fact, that during daylight the hills of Westra may be seen a distance of 25 miles, by ships approaching from the northward or westward, and in the night time, the Start Point is visible over the low land of Sanda, after passing the Moul Head of Papa Westra, but this is admitted to be an insufficient guide for vessels to clear North Ronaldsha.

Again, vessels coming from the eastward have Fair Island lying in their track, which may be seen a distance of 35 miles, and by night the Start light points out the eastern extremity of Orkney, which is but 7 miles from Dennis-Ness. If it be assumed that the range of vision is limited by the state of the weather to a circle of 3 or 4 miles, and that a ship might run upon North Ronaldsha without seeing the Start, it must be remembered that the converse would apply to a light exhibited upon Dennis-Ness, at that time, and that in fact when the atmosphere is so thick as to prevent lights from being seen, it is of little consequence to the mariner where they are placed.

A light upon North Ronaldsha, is no guide to vessels coming from the westward upon a parallel to the southward of that island.

Now concerning the light upon the Start, it fails altogether in assuring the mariner at what time he is clear of the Orkneys. Nevertheless, it is my opinion, that (there being but one light) it should be retained there in preference to removing it to Dennis-Ness; for the majority of ships, bound to the westward, approach these islands from the southward, and to them a light upon the Start is of more importance than one upon Dennis-Ness.

The eastern extremity of Sanda lying very low, and jutting out into long points, which are scarcely above the level of extraordinary spring-tides, and these points enclosing deep sandy bays from which a vessel has but little chance of escaping with an on-shore wind, renders this island the most dangerous spot in Orkney, and, consequently, the more necessary to be distinguished.

Suppose the light to be placed upon North Ronaldsha, no master of a ship would venture to run for it, knowing it must be made at the distance of 9 miles, and with a long low point, and an extensive reef lying right in his track, and thus one of the most obvious advantages of

a light would be lost; so that after due consideration, I am clearly of opinion, that if there is but one light to be shewn in the North Isles of Orkney, it will be most advisable, (that is it would prevent most shipwrecks,) by being retained upon the Start. But, I hope, from what has been stated, that the necessity will be apparent for another light, in addition, to be placed on Dennis-Ness, for the general interest of navigation; and should that be decided upon, I see no reason why the latter should not be the most conspicuous, and that upon the Start subsidiary.

I have the honour to be, &c.

F. W. L. THOMAS, *Lieut. Com. H.M. Cutter, Woodlark, tender to H.M.S. Mastiff.*

To A. B. Becher, Esq., Com. R.N.

H.M. Surveying Vessel, Mastiff, Alloa, 24th Jan., 1848.

SIR,—In accordance with your orders, requesting me to furnish my opinion, in reply to the questions proposed for your consideration by the Commissioners of Northern Lights, I beg most respectfully to submit the following, viz.:—

1. I consider North Ronaldsha to be the best position for a light, in the North Isles of Orkney, having as stated the general interests of navigation in view; principally from its being the *rounding point* for all vessels, and its making a direct feature, in pointing out one side of the channel, formed by it and Fair Island; also that vessels from the southward, having a much shorter distance from their departures, would not have the same difficulty to contend with, in making a light, as in the case of those from the westward.

2. No modification required. Due notices being issued, would prevent the recurrence of shipwrecks.

3. If the great sea-light were to be erected on North Ronaldsha, a light on the Start would be of great service, as it would enable vessels, with strong north-westerly winds, (if bound northerly,) to ply about under the lee of Sanda, and particularly, in waiting for the flood expending itself.

4. Should a secondary light be deemed necessary, (for the foregoing reasons contained in reply to question 1,) I consider the Start should be the subsidiary one, and a different formed building.

5. Yes.

6. Desirable.

I am, Sir, your's obediently,

J. S. WELLS, *Master.*

To A. B. Becher, Esq., Com. R.N.

I send you some *more reasons*, Mr. Editor, why the light proposed by me on North Ronaldsha, should be established; but I little thought that the correctness of the opinion which I had formed would be so soon

and fearfully verified as it has been. The accompanying letters from gentlemen residing on the islands of North Ronaldsha and Sanda, contain accounts of more wrecks, involving a serious further loss of life and property! But I am happy to say that my efforts have succeeded, as I am informed by the Secretary of the Commissioners of Northern Lights, that the Trinity-House Board has approved of my proposal. Still it appears that the necessary preliminaries are so great that they will occupy all this summer, so that another season must elapse before a stone of the building is laid.

A. B. B.

Wrecks on North Ronaldsha.

North Ronaldsha, 15th April, 1848.

SIR,—It will certainly be a great boon conferred on the shipping interest, if you succeed in having an efficient light erected on Dennis Point. After being here a little longer, it was my intention to attract the notice of the Board to the absolute necessity of it. Any observations proceeding from me might have been considered premature, and have the effect of foiling, rather than from a knowledge of facts, which a longer residence might have supplied and strengthened. I am, therefore, happy that a gentleman of your profession and experience, should have taken up the subject. I cordially wish you all success, but there will be currents of self-interest to be watched and counteracted. Shipwrecks, as you are aware, are a source of profit to certain parties, who have sufficient confidence, boldly to advance views in opposition to any act of humanity.

It is to be hoped that any project of the Board will not have the effect of suppressing the Start light, otherwise, it will just amount to this, that in enabling ships to avoid Charybdis, you send them against Scylla. That point of land is allowed to be equally deceptive with Dennis Point, and many will suspect they have got to the east, during a flood-tide in the night, when they will find themselves suddenly embayed, or on the low lying rocks. Doubtless a very elevated light at Dennis Point might materially assist in avoiding the Start Point, but whether or not, it would be efficient for both points, is a problem which experience, I am afraid, alone can solve. In these observations, I am not speaking my own sentiments, but what I know is pretty generally held. The vessel that came ashore there during the winter, ought never to have been chartered. She was totally unfit for sea, and the event proved that, for she broke up at sea; she was of Sunderland, loaded with wood from the Baltic, and every soul on board perished.

The *Dorothy* was stranded on this island in the beginning of October last; she was of Newcastle, coal-laden, bound for Hong-kong, tonnage about 360. There was at least 20 keels on board. The vessel belonged to Mr. Naters, of Newcastle, and uninsured. She was in all respects well found, for a long voyage. Before leaving port extensive repairs were made on her; still found leaky. The pumps were kept going soon after getting out to sea. After passing the Start light, time was allowed

to have made way much beyond the island, according to the distance marked on the chart. The first mate being on the watch, observed and *took the beacon for a mast of a vessel ahead*, so confident were both he and her captain of having passed the island. He, therefore, gave directions to the steersman, and warned him that a vessel was on the starboard bow. The vessel was immediately inclined to the west, and soon after, was felt scraping in the rocks—they managed to get her round and prevented her being embayed, but when almost clear, she stuck fast on the extreme ledge of rock, of that part of the point which was out to sea, in an easterly direction. The point over which you perceived the water breaking from my house. The depth of water on the ledge might be nine feet. The general opinion is, that she was too deeply loaded for such a long voyage. She was also felt scraping the top of the Riff dike. This alarmed the captain; he ran to his chart, and soon after, what I have narrated took place. All hands were saved. It was flood; the wind S.S.E.; a reefing wind; water smooth; clear starlight. It is reckoned that the flood sweeps round Dennis Point towards the Start light, at the rate of 9 or 10 miles an hour.. In all respects it was a fortunate occurrence for the crew. Three days after she struck she broke up, and from the decayed state of her timbers, it was perfectly evident that she could never have outlived the boisterous weather that followed. Her bottom, with iron tank, &c., was left were she struck.

The other, the *Helena*, of Dundee, stranded the 15th of December last. Cargo: linens, sail-cloth, and machinery, with a few coals; bound to New York. A splendid vessel, both for build and fastenings, sheathed. Complete in every point; no expense had been saved to render her a first-rate vessel. Nine months old; second voyage; tonnage 350; property of Banton, Brothers, and Co., Dundee. The captain had been deceived as to her situation. Wind S.E., a tremendous gale; sea running mountains; flood tide; night cloudy and dark. He informed me, that when her head was turned to the west, he supposed she was nearing the Fair Isle. Struck between Scollagur and Sandback; and soon, if not immediately thereafter, a tremendous sea took and heaved her over, sending boats, and all on deck, into the boiling waters, along with the captain, six seamen, and a young gentleman, passenger. The captain was picked up by the natives, insensible; by warmth and attention, he soon after recovered and returned to the beach, to look out for the seamen. One of them was carried back to the vessel by the return of the waters, and laying hold of the anchor, hanging over the bows, by much exertion made his way over them. The other five, with the passenger, were drowned. Their bodies were recovered during the two succeeding days, being washed ashore. Another passenger, a gentleman who had been accustomed to travel much by sea, told me that he never experienced such a heavy sea, and never expected to reach land. After she struck, he made the best of his way to the shrouds, in order to attenuate his strength, that if escape was impossible, he might expire without agony as soon as he fell into the waters. The stern was soon carried away, and the sea rolled through her. Next day the survivors were rescued,

not without extreme difficulty. Eventually the cargo was saved, but in a damaged state; value £14,000. As soon as weather permitted, a London steamer came from Dundee, and after taking refuge in Otterswick for a few days, managed to take away the most valuable portion of the cargo. I think the agent for the Company said she was hired at £70 a-day, besides being highly insured. As soon as the stranded vessel was emptied, she moved higher up the beach; still not a plank of her deck has started; only a small part of her bottom rubbed away and otherwise chafed by the rocks. It would be impossible to get her off here and have her repaired. I understand men are come to break her up; she sold for £130, at the sale.

The agent of the Company handed me £5, to be laid out for the benefit of the islanders, as a reward for their honesty. The temptation was certainly great; so many small pieces and parcels of lawn, &c., lying about, yet it was admitted that nothing was missing.

The passenger who escaped, told me, and from his intelligence and experience, I should deem he was well qualified to judge, that the loss of the vessel arose simply from a want of knowledge of the tides, and the land lying so low as to be undiscernable until it is impossible to avoid it. J. K.

Capt. A. B. Becher, Mastiff, Alloa.

DEAR Sir,—I had just succeeded in getting my former letter for you dispatched, when next morning, 22nd ult., I was informed that another vessel was on shore. It proved too true. The *Vartrouyan*, from Dantzic, bound from Liverpool, loaded with wood of different kinds, had struck on the S.E. side of the Selky Skerry. She appears to be a vessel of about 400 tons, and between two and three years old. The wind was fair, blowing N.E.; weather hazy, so much so, that the Start lights were invisible; flood tide. The captain, a Prussian, told me that he made the Fair Isle, about 8 P.M., and directed his course westerly, and was not aware of being near land, until the vessel struck. As soon as this occurred she filled with water. The crew took to their boats and sailed round the island in a westerly direction, until they came to the cot on the eminence on the south-west part of it, called Nootes. She seems to have struck on the night of the 21st inst., and on Sabbath the 23rd, the wind was strong from the N.E., and a tremendous sea breaking over her. She moved a good way up the rock, and it was fully anticipated that she would break up. Not so; she held together; but her fore-mast nipped asunder about 5 feet above deck. I went aboard on the Monday evening; indeed, as soon as a boat could get across the Sound. The sea had made dreadful havoc internally.

Mr. Scarth, who is Lloyd's agent for this island, was here at the time that the above happened. In talking over the matter with him, I found that he quite agrees with me, that if the Start light is suppressed, no benefit will be conferred by the erection of a light on Dennis Point. It is a salient point, and low lying, and would prove destructive to vessels navigating these waters if the light were removed. Your state-

ment, in regard to the eddy caused by the flood, is the true cause of vessels being stranded on the south side of Dennis Point. If a vessel keeps in the line of the tide, either flood or ebb, she will avoid both points of land. This was proved by the fact of an abandoned vessel passing the Start and Dennis Point, a few years ago, and went ashore somewhere in Shetland.

J. K.

[We shall return to this subject in another number.—Ed.]

British Merchant Ships.

Sir.—The character of the Merchant Service of this country, with a view to the improvement of the officers belonging to it, has full often formed the subject of remark in your Journal. Since the commencement of it in the early part of 1832, from time to time, as facts came forward, exemplifying the state of our mercantile marine, they have been held up with the hopes that, at least publicity would render them of less frequent occurrence and thereby lead to a cure. I might point out many passages of this nature of which the journal of a ship-master, concluded in your last volume, affords some remarkable instances.

At length, it would appear, that the subject awakens the attention of Government. Assertions, which have been advanced by the merchant captains themselves, have led to an inquiry among British Consuls abroad, and their answers are such as to corroborate fearfully all that has been advanced against them; and that a review of their general behaviour, in comparison with the officers of foreign merchant ships contrasts greatly to their disadvantage. I much fear that the root of this evil must be attributed to a want of good legislation, for while other European States have improved their several mercantile navies, by enacting strigent laws to regulate the conduct of their officers, and ensuring efficiency for their stations, nothing of the kind has been done for ourselves. It is true, that a recent attempt has been made to introduce compulsory examination: but this failed and was abandoned, and left in its stead a voluntary one. The names of those who have undergone this voluntary examination, have from time to time been given in your pages. So far, a beginning has been made, but how short is this of what requires to be done. The art of navigation, or of merely conducting a ship from one place to another, and even that of seamanship, to a certain extent, may be soon acquired; but how far short are such acquirements of those regular habits of temperance, and morality, necessary for the establishment and preservation of discipline in a ship. It has been observed that the masters of vessels, *under* 300 tons are in no manner superior to their men, who are as good seamen, and in many instances, as good navigators! Instances, indeed, have been pointed out in your pages, where their station has been degraded by habits of intemperance. In some degree to account for this, it has been observed, that they receive less pay by a third than masters of foreign vessels of the same class. This goes far, it is true to account for such

a state of things, but I may ask, is it creditable to the character of this country, as the first maritime nation in the world, that it should be allowed to exist? and it does not in those ships belonging to the India and China trade, the commanders of which are gentlemen, in no way inferior to those of any merchant service in the world. But these do not belong to that class of ship owners, who care not how rotten they send their ships to sea, or how ignorant their commanders are of their duties, because they insure their vessels and may gain by their loss! How different are their commanders, from those who are daily improving the charts for their brother seamen; who are communicating their observations to your journal, few numbers of which have appeared without some useful contribution of the kind gathered in the different parts of the world which they have visited. The reports which have been collected by Government, shew the general incompetency of the former class of masters, to which I have alluded, those of vessels under 300 tons especially. But while shipowners are allowed to place whom they like in the command of their vessels, it is much to be feared that the general complaint of incompetency will remain. You have preserved a register of wrecks of British merchant shipping, shewing that a vessel is lost every day, but I believe, that Lloyd's Lists furnish as much as one-and-a-half. In former numbers of your journal, the various causes of such loss have been shown, among the greatest of which stands the incompetency of masters. Who has not heard of a brig, bound to North America, after three months voyage, putting into an Irish port, which was supposed to be New York! Such a proceeding, extraordinary as it may appear, would be expected from such a commander, as he who was represented by a recent correspondent of your's, to have made a voyage from Liverpool to Jamaica; to say nothing of the man who nearly lost his ship in the Sound, on his voyage from St. Petersburgh to Hull. I shall, however, now refer to the reports of our consuls, and first with Mr. Winyard, Consul at Riga:—

"I have no hesitation in affirming broadly, that the merchant seaman's service, as it is now constituted, and especially that part of it visiting the Baltic, is a complete disgrace to the British nation.

* * * * * * * * *

"It is a well-known fact that foreign seamen conduct themselves in a more orderly manner than British seamen in a foreign port. During the shipping season in Riga, the police prisons are crowded with our seamen, confined on charge of drunkenness, violence, or insubordination."

The Consul at Dantzic, Mr. Plaw, says—

"There can be no question but that vast improvement in the condition and character of the shipping of this country, has of late years been progressing; at present it stands upon as respectable a footing as that of any civilized commercial marine, and *I regret to say, far beyond that of Britain*—with reference of course, to that portion usually trading to these shores, consisting chiefly of colliers and coasters in general; I must add, a large share of which *disgrace the flag they bear*. The improvement in Prussian shipping is doubtless chiefly to be attributed to the government navigation school here, of which branches are established, all under one director, at the other seaports.

"I am of opinion that essential improvement cannot possibly be attained,

unless it commences by requiring the commanders of such vessels to be men *with a moderate education*, at least in accordance with what may now-a-days be expected from their rank, and this would probably improve their moral conduct; they will then value the character and behaviour of those they have under their command, and the latter then respect the man placed above them. At present it not unfrequently occurs that captain and crew equally disgrace themselves, I have more than once represented this state of things to British shipowners, when I heard, as reply, 'O, we don't want scholars, but practical seamen—that satisfies us.' As long as such notions prevail, little good can be expected.

"The march of intellect is truly slow among our boasted jolly tars! Only picture, just at this very time I have here, first, an illiterate master, whose mate can neither read nor write; not one on board, save the master, is able to do either; so that if by accident or other cause, the captain is disabled, the ship, and probably a valuable cargo, is exposed to such a crew!"

Mr. Crowe, the Consul-General at Christiania, says—

"Although it can scarcely be said that the character of the British shipping has positively declined, the fact cannot be controverted, that while a sensible, and in many respects striking improvement has been visible in the growth, and a development of the commercial marine of other countries, that has created rivalry which our shipowners are too prone to attribute to relaxations in our navigation laws, rather than to the natural causes irrespective of these enactments, the British commercial marine has, since the peace, remained comparatively stationary.

"Too great a reliance on the protection our navigation laws afford to the shipowner, which, by the security it creates, checks alike a feeling of the necessity to contend with the foreigner, as the adoption of those salutary improvements and systems which have worked so well in the commercial marines of other countries, and to which deference must be paid, if we are in future to compete with any degree of success with them.

"The time is arrived when the shipowner must no longer look for permanent relief to the delusive protection of navigation laws, but to improvement at home. I am convinced that under a natural, free, and liberal system, a reliance upon his own innate powers, a removal of commercial restrictions, which will press upon him, and the moral and intellectual improvement of our mariners, particularly our ship-masters, for with their improvement that of the seamen will follow, not only will our ships regain, but successfully maintain, the proud pre-eminence they have of late years been using.

"One of the arguments frequently urged against the repeal of the navigation laws is, that foreign vessels can be constructed much cheaper than British; that the wages of foreign seamen are much lower, the feeding inferior and less expensive; consequently that they can afford to take lower freights. This may be true as regards a certain class of vessels built for certain trades, but it is positively not so with vessels likely to come in competition with British shipping.

"The vessels that are built cheaper are lumber vessels, intended for certain trades and short voyages, generally constructed with unseasoned materials, carelessly put together, and no expense incurred beyond what is absolutely necessary. These vessels are unfit for long voyages, or to compete with British, which are made for durability, and last one-third longer than foreign vessels."

The report from Nantes, says—

"It is perfectly true, as Mr. Murray has observed, that the education, as well as character and capability, of the masters of vessels in the English merchant service is, in general, inferior to those of several foreign countries, and when compared with those of France, particularly so; and so it will continue, as long as our laws permit the officers of her Majesty's Customs to indorse, as masters, on the registers of vessels, any person who may be appointed thereto by the owners, however incapable they may be for the situation.

"Three such instances have come under my view; one a vessel belonging to Bantry Bay, the master of which was *gardener to the owner, and was totally ignorant of seamanship.* He, with two lads, who also worked on the owner's estate, and an old seaman, who knew a little of navigation, formed the crew. She capsized in the Bay of Biscay. The second was the master of a large brig belonging to London, who was so *deaf that he was insensible of the loudest report close to his ears.* The crew could only communicate with him *by signs*, however great the emergency; unless there was time to do so and it was light, by *writing on a slate, or with chalk on a board.* The third was a vessel lately at this port belonging to Colchester, the master of which had not learned to write his name, and, therefore, was perfectly ignorant of navigation, as also the contents of any documents the mate signed for him respecting his vessel or her cargo."

The Consul at Alicante, Mr. Barrie, says—

"This port is chiefly frequented by British vessels of from 80 to 160 tons burthen, and it may be safely computed, that at least one-third of the shipmasters are men of intemperate habits, proceeding, apparently, in most instances from the want of original education, which leads them to have few scruples in the selection of associates on shore. *The masters of foreign vessels, of the same size, are usually men of greater general information, and more sober habits;* and the subordination on board is greater than in our merchant vessels."

The next is from Trieste:—

"Previous to entering the Mediterranean, whilst taking an observation of the sun, the master *desired me to put down my quadrant, as he did not want any navigators, and could do without the sun.* I replied, that I would put it down if the first mate said he did not want my assistance."

Here is another from Malaga:—

"About two years since, a small British schooner, navigated with a crew of five individuals, having sailed from Gibraltar with a cargo bound for this port, with a favourable wind, actually passed the port, unknowingly, on the morning following, and made further way to the eastward, until the breeze died away to a calm. Entirely ignorant of the position of his vessel, the master sent the mate and two of his seamen, in the boat, to make some inquiries of a fishing craft which appeared in the distance, the vessel in the mean time remaining with only the master and another hand on board. Shortly after the boat had left the schooner's side, the wind rapidly freshened, and the consequence was, that the vessel drove ashore on a reef of rocks, to the eastward of Motril, and soon became a total wreck; and the boat's crew narrowly escaped a watery grave, having, with the utmost difficulty reached the village of Nerja, on the afternoon of the next day, where they were received and succoured by the authorities."

The Consul at Constantinople reports that—

"During the last year sixteen ships have been ashore on one bank alone opposite to Therapia, in the Bosphorus, according to the registers of the Consulate; others are known to have been ashore, although they have not been reported. *The bank is called the English Bank, from the circumstance of English vessels being generally those that go upon it.*

"The cause may sometimes be traced to ignorance, or want of attention, but not unfrequently to neglect arising from drunkenness. It is not an uncommon occurrence for captains to be intoxicated when making the narrow straits of the Bosphorus.

"British men-of-war are sometimes stationed not far from this shoal off Therapia; and I have heard officers, who have asssisted in getting them off, frequently *express their surprise at the total indifference shown by masters on these occasions, to the interests either of the owners of the vessel or cargo.*"

From Mr. Moor, Consul at Amona, we have the following:—

"I have been twenty-one years in continual contact with the merchant ser-

vice in the Mediterranean and Adriatic, and I feel persuaded, that *unless a moral tone be given to the masters, both the general trade of Britain will decay and the qualities of the British sailor deteriorate;* for, at present, *the distinctive attributes of the masters are inebriety, tyranny, and too frequent incompetency,* which, in my humble judgment, can only be averted by adopting the general system of foreign countries, which makes it obligatory on shipmasters *to undergo an examination as to their nautical skill, and to possess a certificate of character.*"

And Mr. Gallway, the Consul at Naples, says—

"I am bound to declare, and I do so with regret, that the class of persons that command British merchant vessels resorting to this port, generally speaking, *are far behindhand in every necessary mental attainment, when compared with shipmasters of this country who command vessels trading to foreign ports.* Several British shipmasters can scarcely write, and their spelling is not better: and they are frequently deficient in personal deportment, and many of them but little superior in their demeanour to the seamen they command. On the other hand, the native shipmasters, who command vessels trading to foreign countries, are necessarily well-educated men, and possess a fair knowledge of navigation, *as they undergo strict examination,* before a competent Board, both as mate in the first place, and preparatory to their taking command of a vessel afterwards."

We have much the same kind of information from Carthagena; Mr. Towns, who says—

"It is painful for an Englishman, in comparing any class of his countrymen with the same class in any foreign nation, to be obliged to confess their inferiority in, perhaps, the most important point. This, however, is the case in a comparison of the masters and officers of our merchant service, to those occupying the same position in the Spanish commercial marine; that there are exceptions it is true, and I am happy to say that I have met with several masters of English vessels fully qualified to discharge, with benefit to their employers and with credit to the character of the marine of their country, the important interests committed to their charge; but *the generality of them are so totally ignorant of all knowledge requisite for the transaction of their business ashore in foreign ports,* that I have no hesitation in saying, were it not for the presence and assistance of her Majesty's Consuls, the majority of them would be wholly at the mercy of a low class of corredors and brokers, who would defraud them of the greater portion of their freights."

Let us now emerge from the Mediterranean, and see what we find from the Atlantic. The first we have is from the Consul at the Cape Verd Islands: he says—

"I think that the character of British shipping, as far as the officers connected with it are concerned, do not claim that high respect which the officers belonging to foreign ships maintain. Of course there are exceptions; but you do not observe in the latter that recklessness of conduct and gross intemperance which, I regret to say, you see too often with the former. I have not the least doubt but that drink is the chief cause of the numerous shipwrecks of British vessels. I have closely watched the conduct of the officers of vessels that have been shipwrecked in these islands, and the result of my observation has been, that at least four out of six were addicted to spirituous liquors.

"I am fully satisfied, that if a system of regular education was adopted, obliging all persons to pursue it before they could be appointed officers in the Commercial Marine, that a change highly satisfactory to the interests concerned would very soon follow. The owner, the insurance office, the underwriter, and, in fact, the crews of vessels, would all find out the great benefit that had been secured to them by such a change; and the character of the officers would then be raised to that state, worthy of the supremacy which Great Britain ought to hold in commercial enterprise."

The Consul at San Juan Porto Rico, declares—

"I have, for many years, have had an opportunity of observing the conduct of captains in the British merchant ships, and it must be evident to all who have been in any way interested in shipping, and I become daily more convinced of it, that a change is required in the system of our commercial navigation; and that *both the captains and mates in general require a more perfect knowledge of their profession than they have at present, and that they ought to pass an examination before they are appointed to a ship*, though the latter not in so strict a manner as the former, to ensure the proper navigation and management of the ship, as well as to preserve, as much as possible, the owners from the heavy responsibility to which they are subject, by being liable for the conduct of the captain, not only in the proper stowage and general charge of the cargo, when the ship has been freighted, but for all his other proceedings."

I shall conclude, for the present, with the opinion of Mr. Consul Ferrier, at Brest, and leave the subject, for the consideration of your readers:—

"The education of young men destined to become shipmasters, is better in France than in England; and the examinations which they must undergo before they can command, ensure to the merchant service efficient and well-informed masters."

B. C.

REPORT TO THE COMMISSIONERS OF THE NORTHERN LIGHTHOUSES, *relative to the Summary Report by the Examining Commissioner on the Harbours of Scotland.*

[Printed in Appendix C. to Second Report by the Commissioners appointed to inquire into Tidal Harbours; laid before Parliament Sess, 1847-48.]

THE Committee, in considering the remarks of the Examining Commissioner as to lighthouses, beacons, and buoys, with the attention due to his practical knowledge and experience, are happy to find that their views as to the lighthouses, beacons, and buoys necessary for the coasts of Scotland, are remarkably confirmed by his statements, inasmuch as it appeared that, without any communication with him, most of the lighthouses, and a great many of the beacons and buoys which he suggests, have been completed, and others are either in the course of execution or have been resolved upon.

Complaints are made in the Summary Report of the insufficient number of lighthouses on the coast of Scotland, of undue delay in erecting them, and of the inadequacy of the beaconage and buoyage. These complaints appear to the Committee to be founded on misconception or inaccurate information with regard to the means at the disposal of the Board, as contrasted with their necessary obligations and the undertakings which they have accomplished, or are now in the course of accomplishing. It is proper, therefore, to give a short explanation on this subject.

The Board was established by Act of Parliament about 60 years ago, for the purpose, at first, of erecting four

Lighthouses.—Summary Report, p. 61.—With reference to another important subject connected with harbours, we are compelled to remark that the coasts of Scotland are not sufficiently lighted; and, at the time of our visit, were very far from being sufficiently buoyed. In order to light the mainland, Orkney, Shetland, the Hebrides, and outlying rocks and islands (an extent, measured roughly, of about 1,200 miles), there are only 26 separate coast-lights maintained by the Commissioners of Northern Lights. It will have been seen, in the course of this report, that on the coast of Caithness, and on the west coast of Sutherland, Ross, and Inverness, there are distances of 60, 70, and 80

lighthouses, but without any funds for doing so, except what might be afterwards derived from the duties imposed by the Act. They were therefore indebted, at the beginning of their operations, to the public spirit of an individual, who advanced £1,200 on the prospective security of these duties. Notwithstanding these difficulties the four lighthouses authorized by the first statute, viz. Kinnairds-head, Scalpa or Island Glass, Mull of Kintyre, and North Ronaldsha (since discontinued), were erected in three years after its enactment.

The powers of the Board were afterwards continued and extended by a number of statutes, and were finally consolidated and regulated by the 6th and 7th Will. 4th, c. 79.

Following the direction of these statutes, and being, in a great measure, guided by the requisitions of the trade and shipping interests as to priority, the Board erected the several lighthouses of Pladda in 1790, Pentland Skerries in 1794, Inchkeith in 1804, and Start Point, in place of that on the north end of North Rondalsha, in 1806.

In the year 1806 an Act was passed for the erection of a lighthouse on the Bell Rock, and authority was granted to the Treasury to advance to the Board £25,000 for that work, to be secured and repaid out of the duties. But the erection of this lighthouse (which was commenced in 1807, and finished in 1811) cost £61,331, which sum, including the advance made by the Treasury, has been long since repaid out of the duties. The necessity of repaying the advance made by the Treasury retarded the operations of the Board for several years.

The execution of this great work necessarily burdened the funds of the Board, so as to prevent for a time their undertaking any new lighthouse. But in 1814, they were empowered to purchase the Coal Light on the Island of May, which had been long exhibited there by the proprietor, and to erect a new and improved light. For this purpose, the statute authorized the Treasury to advance to the Board £30,000, to be secured and paid out

miles without a light. That the Sounds of Mull, Skye, Islay, and Loch Eil (the south-western approach to the Caledonian Canal), are entirely without lights. Also, that the natural harbours of refuge, Stormness, Campbeltown, and Loch Ryan, are in a similar manner, almost unavailable by night. It is fully admitted, that the lights that are placed are brilliant and effective (when not too high), and that the able and zealous engineer to the Board has spared no pains to obtain the best description of lenses and reflectors; but our complaint is, that the lights are two few for the safety of navigation, and especially on the west coast of Scotland, where the mariner has often to contend with rapid tides and stormy seas during a long winter's night, with the knowledge that he has good natural harbours under his lee which he dare not run to from want of a light.

The state of buoyage, at the time of our visit, in September and October 1846, was even more defective, and with less excuse, as buoys and beacons can be placed at a trifling expense. The approach to Inverness and the Caledonian Canal, at that period, had neither buoy nor beacon to mark the channel between seven dangerous shoals on either hand; these, we understand, have since been placed; but Loch Eil, the south-western approach to the canal (which is now open for traffic), is to this day equally without lights, buoys, or beacons, and requires, probably, a similar number to fit it for the trade that is expected to take advantage of the Caledonian Canal.

The light dues on coasting vessels in Scotland have been lowered 50 per cent. during the past year; but the sum of £47,895, which the gross income of the Board of Northern Lights during the year 1846, would surely entitle the mariner to demand the expenditure of a few hundred pounds, in order to place the necessary buoys and beacons around the coasts of Scotland.

of the duties, as therein mentioned. This sum, with the exception of £14,000 of principal and postponed interest, has been repaid. But the purchase of the island, and of the right to levy duty for the Coal Light cost £60,000, besides the expense of erecting the new lighthouse. The duty leviable for the old light was 1½*d.* per ton on Scotch vessels, and 3*d.* per ton on all other vessels navigating between St. Abb's Head and the Red Head, which includes the shipping of the Firths of Forth and Tay; and from a calculation which the committee have made on the amount of that shipping, they find that the old rate of duty would have yielded, for the year 1846, nearly £25,000, while the actual revenue of the lighthouse, in the same year, was only £3,825.

The statute last mentioned likewise points out for the erection of various other lighthouses, and in particular "a lighthouse upon the dangerous rocks of Skerryvore, near the Islands of Tyree and Mull, in Argyllshire, in the direct track of vessels coasting along the western coast of Scotland, and also dangerous to ships making the western shores of Scotland and Ireland from the Atlantic Ocean."

Although the Board completed the lighthouse on the Isle of May in 1816, and although they were fully aware of the necessity of husbanding their resources for the great and expensive work of erecting the lighthouse at Skerryvore, yet in consequence of the requisitions of the trading and shipping interests, they erected Corsewall Lighthouse in 1817, the three lighthouses in the Isle of Man (authorized by special statute) in 1818, Sumburghhead in 1821, Rhinns of Islay in 1825, Buchaness in 1827, Cape Wrath in 1828, Tarbetness in 1830, Dunnethead in 1831, Barrahead, Lismore, and Girdleness, in 1833. The support of these lighthouses increased the annual expenditure of the Board, while they added nothing to the returns, as the rule of levying separate duties for each lighthouse was not established till the year 1836.

The Board having for several years refrained from erecting any lighthouses, conceived that their funds were in a state to enable them to begin the erection of the lighthouse at Skerryvore, which they did in 1838, and it was completed and lighted in January 1844, at an expense of £93,000 this expenditure includes the building of the pier and construction of a small tide basin for the attending vessel in the adjacent island of Tyree, works which, from the exposed nature of the locality, required to be of the most substantial materials; besides buildings for the lightkeepers' families, and the crew of the attending vessel.

In connexion with Skerryvore lighthouse, (the first in Europe in which catadioptric zones of the first order were employed), it is proper to notice, that the Commissioners have lately expended about £12,000 in procuring apparatus of this kind for the improvement of existing lights.

Till the three great works, viz. the Bell Rock, the purchase and lighting

Skerryvore.—Summary Report, p. 43.—About 12 miles to the southwestward of the island of Tyree, is the dangerous reef of Skerryvore, on which a lighthouse has recently been erected. The foundation-stone of the building was laid in July 1840, and the light first exhibited in October 1845. It is intermittent, and stands at 150 feet above the sea. At Hynish Point, in Tyree, it was found necessary to construct a small pier in connexion with the workyard established for the building of this lighthouse. Since the completion of the works, a small tide-dock, with boom-gates and a scouring basin, have been constructed here for the use of the tender which furnishes the lighthouse with supplies. The erection of this lighthouse in this important yet very exposed situation, is highly creditable to the public spirit and liberality of the Commissioners of Northern Lights, and especially so to the skill of Mr. Alan Stevenson, engineer to the Board.

of the Isle of May, and the erection of the lighthouse and relative establishment at Skerryvore were accomplished, it was impossible for this Board to apply their funds in erecting more lighthouses than have been mentioned, and particularly in erecting those of a secondary class. But as soon as, from the progress of the works at Skerryvore, the Board felt themselves warranted in proceeding with the other lighthouses, they erected, in 1843, one at Little Ross, which, while it answered the purpose of a sea-light, was also intended to open up Kirkcudbright Bay, in the Solway Firth, being the first of a series of lights for harbours of refuge which the Board undertook. These had indeed been often applied for, but the Board thought that, as they were subordinate to the great sea-lights, they ought to be deferred until this stage of their proceedings.

Since that time the Board have erected an additional leading light (for avoiding the Carr Rock) on the Isle of May, in 1844; and in 1845-46, three lights in the Moray Firth, viz. Covesea Skerries, Chanonry Point, and Cromarty Point, whereby the Moray and Cromarty Friths, and the entrance to Inverness and the Caledonian Canal are completely opened. The erection of a lighthouse at Covesea was deferred for several years, in consequence of a discussion as to its proper position.

Inverness.—Summary Reports, p. 37.—With reference to the lighting and buoying of this part of the coast, it appeared in evidence that heavy, and, we are compelled to add, well-founded complaints were made of the utter want of buoys and beacons, in the approaches to this port, and that while the Caledonian Canal had been open for traffic for a quarter of a century, yet until the 11th May 1846, no light had been placed as a guide into the entrance of Inverness, although repeated wrecks had occurred; and that at the time of our visit, when the Caledonian Canal was about to be re-opened, and a far more extended traffic was expected, there was not a single buoy or beacon to mark seven dangerous shoals which line the channel on either side.*

Avoch. or Auch.—Summary Report, p. 38—Chanonry Point, a dangerous spit of shingle projecting almost a mile from the shore, on which many a vessel has been beached, is now marked by a fixed light, first shown on the 15th May, 1846.

Cromarty.—Summary Report, p. 38.—The small tidal harbour of Cromarty, just within the entrance on the south side, is formed by two piers and a detached breakwater, built at the joint expense of Government and the proprietors in 1785. The revenue last year was £65, the debt £1,100. Here are 50 fishing-boats, employing 200 men and buoys. Steamers from Leith and Inverness call here during the summer. The arrivals in 1846 were 115 vessels, of 7,401 tons, exclusive of 600 vessels which sought shelter in the Frith, where occasionally may be seen from 50 to 70 vessels at a time, showing the value of this secure anchorage in the heavy easterly gales to which this coast is so much exposed. A light was first exhibited here in May 1846; it is red, and fixed.

Dornoch Firth.—Summary Report, p. 38.—Dornoch Firth, or the Firth of Tain, is a shallow barred estuary, encumbered with sands, the most noted of which, called the Gizzing Briggs, dries three miles off shore, and its outer edge is steep too. The bar as from nine to twelve feet over it at low water springs, with a thirteen feet rise of tide; but unfortunately for the mariner, the leading mark for crossing it are so far off that they cannot be readily dis-

* These buoys and beacons have since been placed.

tinguished, and the use of buoys to mark out a channel does not yet appear to have reached this remote district.*

Loch Ryan.—Summary Report, p. 57.—Loch Ryan, a deep inlet, ten miles in extent, accessible at all times, and one in which vessels may ride in security with all winds, is well known to the mariner frequenting this part of the coast of Scotland as a capacious natural harbour of refuge, as many as 360 vessels having sought shelter there during one winter. It has hitherto, however, been rendered comparatively useless by night, from want of a small harbour light on the Cairn Point, in the immediate vicinity of the best anchorage in the loch, as well as a conspicious beacon to mark the Scar Spit.†

The Commissioners, in 1845, converted the beacon in Lock Ryan into a lighthouse, and 3rd March 1847, five months previous to the date of the summary report (1st August), exhibited a light therefrom.

A great source of the expense, difficulty, and delay which have attended the erection of almost every lighthouse in Scotland has been the necessity for considerable preliminary works in the formation of landing piers and roads. The stations of Cape Wrath, Mull of Kintyre, Mull of Galloway, Nosshead, Sumburghhead, Barrahead, Skerryvore, and Ardnamurchan, may be mentioned. At several of them roads, varying in length from two to twelve miles, and landing piers, costing from £800 to £10,000, have been necessary.

While these works have been accomplished, the duties on lighthouses, from the free surplus of which alone new lighthouses could be erected, were, on the suggestion of the Board, reduced to the coasting trade; first in the year 1845, to the amount of nearly one-eighth; and, lastly, in the year 1846, tothe extent of one-half, or 50 per cent.

PUMPS AT SEA *worked by means of Sails like those of a Windmil.*- The American ship *Hamilton*, from Manila bound to Boston, arrived at St. Helena 25th August. Having occasion to use her pumps, it occurred to the commander, Capt. Allen, that he might save his men considerable labour if he could construct some means, however rough, whereby he might set the pump in motion by the wind. He, therefore, raised two spars perpendicularly, and parallel with, and lashed with ropes to the barrel of the capstan, about 14 feet in length, and across the top he put a piece of a small spar about 5 feet long, let horizontally into the ends of the uprights, which piece is the spindle or axis. On the one end of this spindle are the two cross pieces to which the sails are attached. On the opposite end is fastened a wooden crank, which is connected with the pump-brake by a rod, so that when the sails act, the whole are set in motion. By the superstructure being placed on and attached to the capstan, whichever way the wind may blow, the capstan is turned so as to meet it.

The contrivance is very ingenious, yet simple, and for which Capt. Allen deserves great credit. It would be well, perhaps, for masters of vessels to to give the subject consideration, and to adopt the plan, particularly in leaky vessels, which would save the men a great deal of laborious and unwelcome work. How important would this be in vessels short-handed, or with a sickly crew, while almost all the time might be taken up in keeping the ship

* A fairway buoy and two channel buoys have recently been placed.

† The Cairn Point has since been lighted, and the beacon on the Scar Spit is to be placed.

from foundering. Many a vessel and cargo, with numberless valuable lives, no doubt might have been saved, if the plan now noticed had been used.

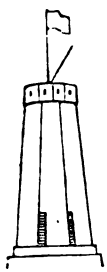
Capt. Allen has got the machinery strengthened and made more secure, by adding some strong blacksmith work to it at this port; and he seems to be very sanguine that a very small portion of his crew's exertions will be required at the pump, apart from this contrivance, between St. Helena and Boston.—*Hong-Kong Register.*

Nautical Notices.

Directions for Vessels bound for Maroim, Cotinquiba River, *on the Coast of Brazil.*

The bar of Cotinguiba river is in lat. 10° 58′, or, 10° 59′ S., and vessels making the port should keep well to the north of the bar, as during the shipping season from October to April there is a very strong N.E. current down the coast. Vessels may close with the land until within soundings of 5 or 6 fathoms when they will be from two to three miles distance from the bar; and they should then hoist a signal at the fore for a pilot, who will proceed on board as soon as the tide turns for the ebb.

When in sight of the signal post from the ship, the signals should be observed, as they are intended for a guide to vessels entering the port; and of their purport the following is an explanation.



1st.—The upper flag hoisted alone, is the signal that the vessel is seen from the shore.

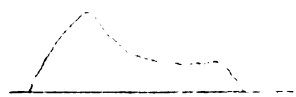
2nd.—The lower flag, which is hoisted upon a moveable staff, denotes that the vessel should tack, either to the north or to the south, as indicated by the direction of the sloping flag-staff.

3rd.—Both flags being hoisted on the central flag staff, one above the other, signifies that the vessel is in the right position off the bar, and that the tide is favourable for entering. The vessel should then steer direct for the signal-post on the beach, and the signals will remain flying even after the vessel has passed the bar.

4th.—If either one or both of the flags be hoisted and lowered again, it implies that the vessel should stand off.

If the master of a ship has never been in the port before, he should not attempt to enter without a pilot, and should avail himself of the telegraph only, in case of absolute necessity.

Long before the signal post is visible, there is a chain of mountains that may be seen in clear weather, it is called La Itabayana, and is so denominated in the English charts. Its southermost point is named from its similarity in shape, the Cardinal's Hat, and bears from the bar W.N.W. ½ W.



Coming from the northward there may be seen a distant and solitary hill, called Aracaju, at the entrance of the river, which when the vessel is about two or three miles E.S.E. of the bar, bears W.N.W. ½ N.

Coming from the southward the bearings will be nearly the same, but great care must be taken not to enter the river Vazabarris, where the signals are very similar, and which is only 14 or 15 miles to the S.W. of the Cotinguiba bar. The bearings of the Cardinal's Hat from the Vazabarris are N.W ½ N., and the Aracaju is not visible.

There is good anchorage to the nortward of the bar, in 6 or 7 fathoms hard firm sand; but vessels should, if possible, always remain under way, and though they make the port too late for the pilot to come off that night, still they should hoist the signal at the fore, and stand out to sea, keeping well to the northward, where they will be sure to meet the pilot outside in the morning.

Vessels coming either from foreign or Brazilian ports should be very particular in being provided with all papers required by the authorities in any Brazilian port, as the custom-house is very strict, and in default of such, the usual fine will inevitably be levied according to the custom-house regulations.

The pilot boat is a fore and aft schooner.

The depth of water in the channel on the bar is about 16 feet at spring tides, but as vessels cannot get under way from the anchorage before the ebb begins, and as a good deal of time may be lost before they reach the bar, they ought not to draw more than 11 feet.

Maroim, 7th March, 1858. (Signed) AFCHRAMM & Co.

Trinity House, London, 5th May, 1848.

BUNT HEAD, IN THE GULL STREAM.—It having been ascertained that the Bunt Head, in the Gull Stream, has grown up considerably in a W.S.W. direction:—Notice is hereby given, That the Bunt Head buoy has been moved about 100 fathoms to the W.S.W. of its former station, and now lies in 4 fathoms at low water spring tides, with the following marks and compass bearings, viz.—

St. Lawrence Church in line with the north side of Ramsgate Mill	N. ¾ W.
Waldershare Tower, in line with the south end of the New Terrace at Deal	W. ½ S.
North Foreland Light House	N.b.E.
Gull Stream Light Vessel	N.N.E. ¼ E.
Fork Buoy	S. ½ W.
South Sand Head Light Vessel	S.S.W.
Extreme Point of South Foreland	S.W. ¼ W.
South Brake Buoy	W.

By Order, J. HERBERT, *Secretary*.

Trinity House, London, 8th May, 1848.

CARDIFF GROUNDS, BRISTOL CHANNEL.—The western end of the Sand in the Bristol Channel, called the Cardiff Grounds, having grown up in a S S E. direction:—Notice is hereby given, That the West Cardiff Buoy has been moved about one half-mile to the southward of its former position, and now lies in 4¼ fathoms, at low water spring tides, with the following marks and compass bearings, viz.:—

Monkstone Beacon, in line with the New Church at Clevedon E.b.S.
The eastern side of the Steep Holms Island, just open westward of the high water mark at the Flat Holms, the light house thereon bearing . . . . . S b.E.
Penarth Church . . . . . N.

By Order, J. HERBERT, *Secretary*.

Trinity House, London, 18th May, 1848.

Notice is hereby given, That the Town Council of Dartmouth have for the present, abandoned their intention to discontinue the Harbour Light at that place, as notified in the Advertisement from this House, dated 1st March last.

By Order, J. HERBERT, *Secretary*.

CURRENTS OF THE OCEAN.

JAMAICA, *March 23rd*.—A bottle, in which was a slip of paper containing the following words, was picked up on the 6th inst, off the east end of this island about 200 yards S.E. of the Morant Bay Light-house, and is sent to us for publication:—"Thrown overboard from the ship *Dunbarton*, in lat. 18° 04′ N, long 74° 43′ W., J. G. Pendleton, Feb. 26, 1845."—*Shipping and Mercantile Gazette*.

STEAM BETWEEN *St. Thomas New York and Bermuda*.—This route is to commence on the 7th of May next, between New York and Bermuda, and from the latter to St. Thomas, returning to New York via Bermuda, so as to arrive at the former city on the 11th, and to leave again on the 12th, so as to be back on the 18th of every month at Bermuda. The extension of the steam route to New York will no doubt greatly facilitate intercourse, and be convenient to passengers, who may be desirous of visiting the United States via Bermuda leaving this place on the 30th of each month. They will arrive at Bermuda on the 4th of the following month, and leave Bermuda again on the 7th, and arriving at New York on the 11th. The table of a new route has also been received to be established in place of one of previous date; this table which takes in the arrangement between New York and Bermuda, states:—

"That the steamers are to leave Bermuda on the 7th of every month at 6 P.M., arrive at New York on the 11th at 6 P.M., leave again on the 12th, be back to Bermuda on the 18th, and leave on the same day for St. Thomas.

Quarantine in the St. Lawrence.—An extract of the Official Gazette contains a royal proclamation for the regulation of the Quarantine establishment at Grosse Isle, during the ensuing year. The orders are most stringent. Every vessel having more than thirteen passengers on board is to anchor at the Quarantine ground; if there has been any disease on board during the voyage, or if the vessel has sailed from any port where infectious disease prevailed, the vessel is to undergo a thorough purification, and the dirty emigrants are to be landed on the island, and they and their clothing, and baggage to undergo a compulsory scrubbing The island is placed under the authority of a military commandant. It is stated that the new legal enactments respecting emigration will increase the passage money from Ireland to America to £5, at least per head.

SHIPS BOATS: *with Copper or Zinc Cylinders.*

The attention of ship-masters is directed to the following communication from the harbour-master at Auckland, in New Zealand:—

Auckland, New Zealand, 15th Dec., 1847.

SIR,—I beg to trouble you with a few remarks, which may possibly be of service to some readers of the *Nautical Magazine.*

Several ships have lately arrived here from England, each having a boat fitted with copper or zinc cylinders, or air vessels, upon which the commanders and officers seemed to place great reliance. Being desirous of having so simple a method of ensuring safety adopted in this colony, I tried the boats belonging to most of the vessels which conveyed the Corps of Fencibles to this country, and much to my surprise, I found in every case, that being filled over the gunwales, as a sea would fill them, they were little more buoyant than ordinary boats. In one instance, a plank was knocked out to permit the water to escape, but notwithstanding, the boat would not rise to the bearing of the air-vessels, whilst the men remained in her.

I make this statement with considerable hesitation, being sensible that in this distant colony, we are without much information that one ought to have, in forming an opinion on such matters. Judging only from the trials I have made, I consider that although the plan is excellent, the air-vessels provided for such boats as have come under my notice, are not proportionately capacious; they bear up the boat, but not with the weight of the crew. I would, therefore, through your valuable publication, earnestly recommend commanders to see their so-called *life-boats*, fairly tried before leaving England, or, at least, before trusting to them in cases of emergency.

I remain, Sir, &c.,

To the Editor N.M. DAVID ROUGH, *Harbour Master.*

THE PORTUGUESE NAVY.—The following list of ships, forming the Royal Navy of Portugal, has been published in the Portuguese official newspaper:—

In Commission in the Tagus—Vasco de Gama, 80; Rainha, 42; Iris, 20; Joao I., 20; Oito de Julho, 20; Villa Flor, 14; Conde do Tojal, 6; Tejo, 2; Santa Isabel, 2; Andorinna, 2. Steamers—Mindello, 6; Infante D. Luiz, 4; Conde do Tojal, 2; Terceira, 2.

In Commission on Foreign Service.—Infante Regente, 20, India; Relampago, 20, Angola; Don Joao de Castro, 16, Mozambique; Mondego, 14, Angola; Tejo, 14, Mozambique; Douro, 12, Madeira; Nimpha, 6, Angola; Boa Vista, 6, Angola; Constituaiço, 6, Angola; Principe Real, 6, Angola; Meteoro, 4, St. Thomas's; Cabo Verde, 4, Cape Verdes; Duke de Terceira, 4, Cape Verdes; Conde de Thomar, 2, Coast of Algarve; Mindello, 2, Coast of Algarve; Serra do Pilar, 2, Coast of Algarve; Inveja, 2, Coast of Algarve; S. Miguel, 2, Bissan.

Not in Commission.—The following are either dismantled in the Tagus, require repairs, in course of construction, or are unserviceable hulks:—

D. Joao VI, 78, requires repair; D. Fernando, 58, new and advanced; Cabo de S. Vincente, 56, condemned; Diana, 54, requires large repair; D. Maria, 52, ready for armament; Duqueza de Braganza, 48, requires large repair; D. Pedro, 46, ditto; Porto, 20, new, and advanced for service, in the Douro; Urania, 20, requires large repair; Isabel Maria, 20 ditto; Damao, 20, ditto; Vonga, 16, under repair; Don Pedro, 16, unfit for service; Serra do Pilar, 14, requires repair; Boo Ventura, 10, unfit for service; Tamega, 6, requires repair; Faial, 6, revenue vessel; Princeza Real, requires large repair; Maia Cardosa, unfit for service.

Building.—A corvette, at Goa, to be named the Goa; a corvette, at Damao, to be named the Damao; the brig Audaz, 14 guns, far advanced towards completion.

Examination of Masters and Mates.

A List of all the Masters and Mates in the Merchant Service, who have voluntarily passed an Examination, and obtained Certificates of Qualification for the Class against each assigned, under the Regulations issued by the Board of Trade, between the 28th February, and the 29th April.

Name of Party who has received the Certificate	Class of Certificate	Age	Present or last previous Service	No. of Register Ticket	Where Exam.	When.
Thomas Austen	2nd	44	Eclipse, 540 tons	.....	London	Feb. 28th
John Lyall	2nd	25	Commodore, 182 tons (*as mate*)	98716	Dundee	March 1st
E. T. Braily	3rd	32	Cybele, 334 tons ..... (*as mate*)	104698	London	— 2nd
W. Lillico	2nd	27	Aimwell, 192 tons..... (*as mate*)	107912	S Shields	— 3rd
William Rosse	2nd	25	Thetis, 184 tons ..... (*as mate*)	10234	S Shields	— 3rd
John Will	1st	33	Ellangowan, 207 tons.....		Dundee	— 3rd
Anthony Van Dam Nooth	1st extr	30	Marlborough, 1498 tns (*as 2nd officer*)	.....	Plymouth	— 3rd
Daniel Charles Ol. Slaughter	1st	29	H.M.S. Queen 3000 tons (*as midshipman*)	.....	Plymouth	— 3rd
Wllm. Manners Duck	1st	28	City of Palaces, 430 tons (*as mate*)	390771	London	— 3rd
Elias Philip Esnouf	2nd	28	Midas, 674 tons..... (*as seaman*)	323779	London	— 3rd
George Cross	2nd	30	Index, 147 tons.....	.....	London	— 7th
E. J. Allen	1st	29	W. Botsford, 553 tons	.....	Liverpool	— 7th
Thomas Tinley	1st	34	Nith, 643 tons	.....	Liverpool	— 7th
F. T. Davies	2nd	32	Duke of Roxburgh, 500 tons (*as mate*)	30875	London	— 8th
F. Parker	2nd	35	Fortescue, 303 tons... (*as mate*)	28610	London	— 8th
J. Middleton	2nd	57	Lord Petre, 639 tons	.....	London	— 9th
John Hodgson	2nd	25	Cumberland, 284 tons (*as mate*)	69654	S Shields	— 9th
R. H. Barnett	3rd	38	Medora, 235 tons	.....	London	— 10th
Henry Hamer	1st	37	Sea Bird, 160 tons.....	344472	London	— 10th
Henry Newbolt	2nd	39	Novelty, 328 tons	.....	London	— 10th
Robert Graves	2nd	29	Lee, 120 tons.....	385391	London	— 11th
William Lane Tooker	2nd	41	Preussischer Adler, 560 tons	.....	Plymouth	— 11th
Thomas Lyall	2nd	31	Preussischer Adler, 560 tons (*as mate*)	42899	Plymouth	... 11th
J. H. Hall	2nd	30	Tiger, 400 tons.....	.....	Plymouth	— 11th
Thomas Brinkworth	3rd	23	Royal Consort, 650 tons (*as mate*)	391688	London	— 11th
James Lorby	2nd	36	St. Andrew, 514 tons	.....	London	— 13th
L. Thomas	2nd	31	Commodore, 147 tons (*as mate*)	31036	London	— 13th
George Silke	1st	30	Mary Ann Webb, 338 tons.....	.....	Liverpool	— 14th
R. Davison	2nd	29	Isabella, 303 tons	99641	Dundee	— 14th
Arthur Smith	2nd	23	Medora, 253 tons ..... (*as mate*)	43215	London	— 14th
W. Houston ...	1st	28	Borneo, 253 tons	.....	Shields	— 15th

A. Cameron	2nd	29	Hugh Walker, 496 tns	.....	London	Mar. 16th
J. Bennett	3rd	28	Countess of Yarborough, 437 tons	.....	London	— 16th
T. M. Temple	2nd	24	H.M. Brig Espoir, 250 tns (*as master's assistant*)	.....	Plymouth	— 17th
M. Rimington	2nd	26	Senator, 394 tons ..... (*as mate*)	18976	London	— 17th
A. Cliff	2nd	31	Brigand, 130 tons	.....	London	— 18th
W. L. Heyward	2nd	32	Morning Star, 245 tns.	.....	London	— 18th
J. Harris	2nd	29	Rajasthan, 450 tons ...	.....	London	— 20th
M. O. Jarvis	2nd	31	Surge, 546 tons ..... (*as mate*)	20896	London	— 23rd
W. Beerling	2nd	25	Trusty, 400 tons ..... (*as mate*)	32273	London	— 23rd
J. Dale	2nd	37	Alonzo, 246 tons ..... (*as mate*)	140524	S. Shields	— 24th
A. Oliver	2nd	33	Jane Avery, 258 tons	.....	S. Shields	— 24th
J. T. Lelean	2nd	34	Bilton, 413 tons.....	262332	London	— 24th
C. Renaut	2nd	44	Blundell, 573 tons.....	.....	London	— 25th
J. Dobson	2nd	27	Renown, 311 tons ..... (*as mate*)	328641	London	— 25th
C. Fache	2nd	22	Tory, 512 tons ..... (*as mate*)	7601	London	— 27th
W. Leslie	2nd	31	Eleanor Russell, 306 tons (*as mate*)	189894	Dundee	— 28th
W. G. Sparke	2nd	26	Princess Royal, 543 tons (*as mate*)	1327	London	— 28th
J. W. Miller	3rd	26	Samuel Enderby, 422 tons.....	327677	London	— 30th
G. Marshall	2nd	42	Rein Deer, 215 tons ... (*as mate*)	272995	London	— 30th
E. C. Williams	3rd	34	Sons of Commerce, 431 tons	.....	London London	— 30th — 31st
W. Rands	2nd	35	South Stockton, 308 tons.....	.....	London	— 31st
A. Tudor	1st	41	Eagle, 99 tons..... (*as mate*)	.....	London	— 31st
G. G. Purchase	2nd	39	Surge, 543 tons.....	26887	London	— 31st
J. Middleton	2nd	23	Stratford, 394 tons ... (*as mate*)	.....	London	— 31st
S. S. Moulds	2nd	44	Ajax, 591 tons	.....	Plymouth	— 31st
Albert Agustus de Philipsthal	2nd	32	Briton, 240 tons..... (*as mate*)	12302	London	— 31st
F. D Butler	2nd	37	May Queen, 407 tons .	.....	London	April 1st
William Davis	2nd	32	Fairlie, 755 tons	.....	London	— 1st
T. Wycherley	2nd	33	Morning Star, 245 tons (*as mate*)	325039	London London	— 3rd
J. Hughes	2nd	42	Elizabeth Moore, 241 tons	.....	London	— 3rd
J. G. Bisset	2nd	35	Georgiana, 145 tons...	.....		— 3rd
D. Service	2nd	28	Isabella, 406 tons ..... (*as mate*)	21622	London London	— 4th
J. Bruce	3rd	50	Coquette, 195 tons ...	.....		— 4th
W. J. M. Dayment	3rd	29	Cleopatra, 269 tons ...	124617	Plymouth	— 4th
J. T. Copeland	2nd	23	Tory, 512 tons ..... (*as second mate*)	326079	Plymouth	— 4th
T. Gorddard	2nd	24	Alicia, 427 tons.....	261640	Plymouth	— 4th

H. Clouston	1st	25	James Freeman 246 tons (*as mate,*)	24639	Leith	April 5th
J. Couch	2nd	30	Cornwall, 900 tons..... (*as mate*)	32308	London	— 6th
R. S. Stuart	2nd	34	Sir R. Seppings, 628 tons	.....	London	— 6th
J. H. Walker	2nd	36	Pomona, 120 tons	.....	London	— 7th
W. Soutter	1st	38	Bidston, 481 tons	.....	Liverpool	— 7th
W. T. Parkin	2nd	26	Hebe, 197 tons ..... (*as mate*)	25222	London	— 7th
D. Anderson	2nd	30	Agricola, 464 tons... (*as mate*)	22709	London	— 7th
W. J. Robertson	2nd	26	Jane Morison, 537 tns	.....	London	— 7th
James Collens	2nd	22	Stebonheath, 1013 tns (*as mate*)	327623	London	— 7th
Job Keen	2nd	21	Helme, 157 tons..... (*as mate*)	393451	London	— 7th
J. Scott	2nd	44	Kate, 270 tons	.....	London	— 8th
F. C. Kreeft	2nd	30	Regina, 243 tons	.....	London	— 8th
B. E King	2nd	33	Lord Petre, 639 tons... (*as mate*)	30846	London	— 8th
J. Partridge	2nd	31	Isabella, 321 tons ..... (*as mate*)	227942	London	— 8th
T. Mitchell	2nd	25	Liffey, 144 tons ..... (*as mate*)	159643	London	— 10th
J. Hussey	2nd	24	Julindur, 530 tons..... (*as mate*)	352750	London	— 10th
G. S. Harding	2nd	23	Cornwall, 950 tons..... (*as mate*)	33819	London	— 10th
F. Bradley	2nd	43	Anne Armstrong, 889 (*as mate*)	90078	London	— 11th
David Muir	1st	36	Elizabeth, 570 tons ...	17314	Glasgow	— 12th
D. M'Alpin	2nd	47	Aberfoyle, 416 tons ...	.....	London	— 13th
J. Storey	2nd	25	Wansbeck, 223 tons... (*as mate*)	128913	S. Shields	— 13th
N. Hill	1st	27	Anonyma, 257 tons ... (*as mate*)	391368	Leith	— 13th
J. Baker	3rd	61	Castle Eden, 930 tons		London	— 14th
W. C. Lakeman	3rd	34	Earl Grey, 571 tons ... (*as mate*)	1170	London	— 14th
J. Davidson	1st	30	Borneo, 275 tons	.....	Newcastle	— 14th
C. J. Pcharell	2nd	29	Agrippina, 258 tons... (*as mate*)	13964	London	— 15th
G. Maxted	2nd	52	Beaufort, 403 tons.....	.....	London	— 15th
J. Leith	3rd	26	Edmondsbury, 525 tons (*as mate*)	387009	London	— 15th
W. Brown	2nd	40	Rawlins, 348 tons	324911	London	— 17th
W. B. Bradford	1st	35	Etheldred, 421 tons ...	.....	London	— 18th
S. C. Richmond	1st	25	James, 100 tons.....	.....	Yarmouth	— 18th
R. Dyer	2nd	24	Mary Ann, 470 tons... (*as mate*)	23091	London	— 19th
J. L. Clutterbuck	2nd	23	Sir R. Seppings, 638 tons (*as mate*)	19591	London	— 20th
C. J. Dalton	3rd	27	Town of Dundee, 130 tons (*as mate*)	20803	London	— 20th
M. Todd	2nd	54	Union, 327 tons.....	.....	London	— 20th
H. Houston	1st	33	Arun, 310 tons	.....	Glasgow	— 25th
F. Green	2nd	33	Racer, 116 tons	24695	London	— 25th

D Lewis	2nd	36	Cheapside, 621 tons ...	.....	London	April 25th
S. Thompson	2nd	44	Matchless, 188 tons ...	22482	London	— 26th
J. G. Maxton	2nd	25	Queen, 442 tons..... (*as mate*)	326496	London	— 26th
W. Maybank	2nd	25	Sir C. Napier, 595 tns (*as mate*)	1139	London	— 26th
T. J. Duggan	2nd	25	Worcester, 636 tons ... (*as mate*)	27105	London	— 26th
W. Stewart	3rd	32	Aberfoyle, 416 tons ... (*as mate*)	203801	London	— 26th
T. Buckland	3rd	39	Harpley, 574 tons	.....	London	— 26th
A. James	2nd	23	Jem, 169 tons ..... (*as mate*)	148663	Dundee	— 26th
J. Falconer	2nd	66	Ealing Grove, 351 tns	.....	London	— 27th
J. Johnston	2nd	88	Pomona, 283 tons	.....	S. Shields	— 27th
R. Leeds	2nd	...	Orion, 261 tons.....	.....	S. Shields	— 27th
J. Reed	2nd	33	Bernard, 298 tons.....	.....	London	— 27th
John Brown	3rd	48	Vigilant, 404 tons.....	.....	London	— 27th
N. S. Parker	3rd	52	Sabrina, 450 tons	.....	London	— 28th
J. Duigan	2nd	37	Harpley, 574 tons..... (*as mate*)	28385	London	— 29th
H. D. Dale	2nd	24	Sarah Scott, 382 tons (*as mate*)	326602	London	— 29th
G. Newbury	2nd	40	London, 414 tons	21621	London	— 29th

MATES.

G. Button	3rd	21	Sir I. Lyon Goldsmid, 304 tons (*as seaman*)	329998	London	Mar. 3rd
D. Millar	1st	22	Harbinger, 325 tons...	259972	Leith	— 4th
W. T. Lacy	2nd	25	Pilgrim, 310 tons ..... (*as steward*)	21391	London	— 8th
C. Samson	3rd	19	Claudine, 480 tons..... (*as apprentice*)	23041	London	— 13th
L. Lamb	2nd	26	D. of Roxburgh, 495 tons	267688	London	— 14th
J. Husband	3rd	24	Glen Huntley, 505 tns (*as A. B.*)	57623	London	— 17th
M. S. B. Carmichael	1st	22	Adam Smith, 220 tons	27991	Leith	— 18th
R. Watson	2nd	36	Platina, 303 tons	26690	London	— 25th
J. H. Borcherds	3rd	20	City of Palaces, 430 tons	390733	London	— 30th
H. O'Reilly	1st	24	Ocean, 300 tons.....	274439	Glasgow	April 3rd
J. Crouch	2nd	22	Alicia, 427 tons.....	152584	Plymouth	— 4th
W. H. Taw	3rd	26	Elizabeth, 133 tons ...	.....	Plymouth	— 4th
A. Cottier	2nd	23	Lady Valliant, 727 tns	17051	London	— 11th
A. Monro	3rd	57	Coquett, 195 tons	118275	London	— 20th
W. Jamieson	2nd	21	Nile, 379 tons.....	88513	London	— 28th

THE MOON.—The moon, when closely examined by powerful telescopes, has the aspect of a dislocated and shattered world; and that part of the terrestrial globe, from which Darwin supposes it to have been projected, abounds more than any part with tremendous volcanoes, and has, even of compara-

tively late years, been subject to the action of earthquakes, which have raised considerably above its former level, an extensive line of coast. The condition of the moon has been completely laid open to us by the telescope of Lord Rosse, which renders perfectly visible every object of the height of a hundred feet. Edifices, therefore, of the size of York Minster (says Dr. Scoreby), or even of the ruins of Whitby Abbey, might be easily perceived, if they existed. But there is no appearance of that nature. Neither is there any indication of the existence of water or an atmosphere. There is a vast number of extinct volcanoes, several miles in breadth; through one of them there is a line, in continuance of one about one hundred and fifty miles in length, which runs in a straight direction, like a railway. The general appearance, however, is like one vast ruin of nature; and many of the pieces of rock, driven out of the volcanoes, appear to be laid at various distances. Rocks and masses of stone are almost innumerable. From these circumstances, and especially from the want of an atmosphere, it seems impossible that any form of life analogous to those on earth could subsist there. But, on the supposition that the moon has inhabitants, the earth must present to them the appearance of an immense moon, exhibiting the same phases which we witness in their orb, but almost immovably fixed in their sky, while the stars must seem to pass slowly beside and behind it. Our earth to them will appear clouded with variable spots, and belted with equatorial and tropical zones, corresponding with our trade winds, and it may be doubted whether, in the perpetual change of these, the outlines of continents and seas could ever be clearly discerned.—*Wonders of Astronomy.*

Ice in a Crater.—The main crater is about five hundred feet deep at this time (so say the guides); but I think this must be measured down the slope of the funnel. I could not, however, see to the bottom, owing to volleys of sulphureous smoke whirling up ever and anon, accompanied by a rumbling noise, and occasionally by a slight vibration in the ground under foot. Here I found, amidst warm ashes, on the slope of the crater within, heavy crystals of ice set all at one angle, and curved like shark's teeth. I picked up one bit, as big as a walnut, and asked the guide if he could account for its presence. Far be it from him to give a "rationale" of any thing of the sort; it would derogate from the dignity of Etna. It reminded me of a chemical experiment played off by a French *savant* at one of the late "Scienziati" meetings. He made water freeze in a red hot cup. The silver, or platina, being brought to a red heat, a few drops of water are thrown in, which do not evaporate, but jump about. Sulphuric acid is now poured in, which in the act of boiling, produces so intense a cold by the disengagement of its latent heat, that the drop of water at once turns to ice. I opine the chemical process here to be the same, only on Nature's grand scale. The morning mists supply the moisture, and within the crater there is no lack of sulphureous mixture, boiling as in a retort; hence, as hot fumes ascend, the crystals of ice are precipitated. If any one reject this solution of mine, let them find a better, remembering that they are to account for pieces of ice forming on a bed of warm ashes. This principle of "disengagement of latent heat," may also help to account for the severity of the cold felt on Etna, which is far greater than is due to its elevation.—*Francis's Notes in Italy and Sicily.*

The following will be read with profound sympathy, not only from the melancholy fate of two excellent young officers of great promise, but from the high respect universally entertained here, for Admiral Dacres, on whose family this irreparable calamity has fallen. His excellency, Sir Harry Smith, hap-

pened to be at Simon's Bay, when this afflicting intelligence reached the admiral; and the generous feelings of the one, with the noble firmness of the bereaved father, are mentioned as being the most affecting sight ever witnessed. We have just received the following most painful intelligence:—Admiral Dacres' only son, Com. James Richard Dacres, of H.M.S. *Nimrod*, and Lieut. George J. Lock, of the same vessel, went lately on shore at Quillimane, in the Mozambique, where they unfortunately remained during the night, sleeping with the windows of their bed-room open. The following morning they returned on board, apparently quite well, but 12 hours afterwards were both seized with that dangerous malady, the "coast fever" which, in the course of a few days terminated fatally.—*Cape Paper.*

New Books.

The Naval Officer's Manual.—*By the late Capt. W. N. Glasscock, R.N.* London: Parker & Co., Whitehall.

Several, we had almost said, many years have elapsed since we noticed in this journal, the first edition of the work before us; one which, next to navigation, we consider to be the most valuable that can be placed in the hands of the young naval *aspirant*. We do not give these words of commendation merely on account of the sound principles of seamanship that it inculcates, acknowledged as they long have been by the naval service at large; but we would desire particularly to point out that spirit of prompt obedience and energy of action, that it impresses on the youthful mind of the future naval officer; calling into exercise, if such he has in his physical or mental composition, that readiness of expedient, and soundness of measures, which is, or is not, to make him an ornament to his profession. He will find the seeds of all this in the pages of Capt. Glasscock's book, and we recommend him to nourish them. That the book contains something more than a dry routine of the seaman's business we shall, for the present shew, by the following interesting passage in it, promising to return to it in some future numbers:—

"The following account is explanatory of the novel method employed in extricating Her Majesty's ship *Magnificent*, from an extremely perilous position, situated in the midst of rocks, with yards and top-masts struck, and on a lee shore of the enemy, on the 17th December, 1812:—

"'On the evening of the 16th of December, 1812, the *Magnificent*, of seventy-four guns, being one of a squadron under the orders of Rear-Admiral Sir Philip Durham, was by that officer directed to take up a position and anchor between Chasseron and Isle of Rhe, in the neighbourhood of Basque Roads. Previously to furling the sails, the sky being dark and cloudy, a reef was taken-in in the courses, and the top-sails were close reefed. At 8h. 30m. the wind increasing, the top-gallant yards were got down upon deck. At 8h. 50m., 'cable was veered' to a cable-and-a half on the best bower-anchor by which the ship was riding in sixteen fathoms water. At 9h. 40m. it was discovered that the anchor had *broken*; the small bower was, therefore, let go, which brought the ship up in ten fathoms water. The yards and top-mast were immediately struck. The wind from S.W. continued to increase, accompanied by rain. The night was dark, but the lumination from the heavy *sea*, breaking on the Isle of Rhe reef (the length only of two cables from the ship), was sufficient to afford an awful view of her dangerous position. The best bower was now unspliced, and the inner cable bent to the spare anchor. The slack of the best bower was then hove in to about

two-thirds of a cable, when the anchor or its stock, entangled by the rocks, assisted in holding the ship; it was, therefore, bitted and secured. The ship was now riding by the best and small bower anchors, with two-thirds of a cable on the former, and a cable-and-a-half on the latter, while the sheet, and spare anchors at the bows, were perfectly ready to let go at the shortest notice. A steady leadsman was placed in the larboard chains to get a cast of the lead every five minutes, and a careful quarter-master stood at the starboard gangway attending the deep-sea-lead. The man in the chains soon discovered a large rock, rising three fathoms from the bottom, directly under him; and others were afterwards found, by the lead striking upon them, varying in height from one to two-and-a-half fathoms. This, situated as the ship was, so *near* to the reef, and *without* chain cables, was a terrible discovery; for in such a position, the hempen cables could not possibly hold her many hours longer, more particularly as the rocks caused a most irregular cross sea, giving to the ship a violent jerking motion; so much so, that the oars were occasionally jerked out of the barge on the booms.

"'When every preparation had been made,—the officers and men in their respective stations, ready to act on the shortest notice,—the captain (Hays) placed himself in a chair at the larboard gangway, to watch the heaving of the hand-lead. The intense anxiety kept up by the soundings, varying from one to three fathoms, may be imagined, but cannot be described. The gale, accompanied by rain, continued with unabated force, and the heavy sea breaking upon the reef astern produced frightful flashes, which, in the darkness of the night, rolling over the rocks, might have been likened to moving masses of liquid fire.

"'The day had scarce dawned, when the quarter-master, attending to the deep-sea-lead, declared the ship to be driving. The spare anchor was instantly let go, which providentially brought her up again; nevertheless, it was but too certain that the ship could not be held much longer by cables which had been chafing so many hours on sharp and rugged rocks. The wind was now at West, St. Marie church, on Isle Rhe, bore East. The gale increased; but the favourable change in the wind was counterpoised by a strong lee current, and a heavy cross sea on the off-shore bow. The sun had already reached the meridian, unaccompanied by any indication of a favourable change in the weather; and the captain, feeling it impossible to sustain through another long night the intense anxiety of that of the preceding, thus addressed the French pilot:—"Pilot, can you save the ship?" "*By Gare no!*" was the desponding reply of the foreigner. Orders were then given to sway up the lower yards to three-fourths of their *usual height*—to secure the top-masts close down, leaving the top-sail yards to work on the caps—to pass the largest hawser through the starboard quarter-port, and to bend it to the cable on the spare anchor, for the purpose of acting as a spring in canting the ship to port, previously to cutting the cables; but, at the instant of bending the hawser, the cable *parted*, and it was ultimately bent to the small bower cable.

"'The courses and top-sails were secured in three or four places, on their respective yards, with stops of spun-yarn, so as to be cut on the instant; the gaskets had been previously cast off; the head and main-yards were braced-up for the starboard tack, and the other yards kept square, dividing the men (who would otherwise have been required at the braces) between the fore tack, and fore, and fore-top-sail-sheets.

"'It will be seen, that in the event of the spring casting the ship, the head-yards would require no alteration, and it would only be necessary to guard against setting their sails *too soon*. On the other hand, if the spring (which was every way probable) broke, the yards could not be better placed for

producing the stern board, which would, in that case, be necessary to clear the reef.

" 'Whilst preparations were being made on board of the ship, the enemy was not idle on the land; but busily occupied in placing a number of horses and carts along the coast, to carry off all that might prove worth taking from the *expected* wreck.

" 'The captain now saw the necessity of making an appeal to the ship's company, and thus addressed the anxious crew:—

" 'My men, you must, by this time, be sensible that our situation is one which calls for the utmost exertions of all; it is in fact, one of *life or death*. The orders you are about to receive of me are *new*, and may, perhaps, appear *extraordinary*. You must, nevertheless, execute them on the instant, without a moment's hesitation; in which case, I trust in God, I may be able to bring the ship into a safe position in a few minutes after the cables are cut. On the other hand, should you unfortunately *hesitate*, or become unsteady, and keep fast sails ordered to be let fall, or let fall those directed to be kept fast, or, in short, not exert yourselves to the utmost in the execution of the orders you will receive, *life* cannot be ours beyond five minutes.'

" 'After this address, the spring was hove-in to a tolerable strain. The master was directed to attend at the bits, and see that the carpenters cut the cables the instant the word was given. All being ready, and the greater number of those on board being in the expectation of a watery grave, the cables were cut. The heavy sea on the larboard-bow acting against the spring, caused it to snap; it was immediately cut by the axe, provided for that purpose, to prevent retarding the ship's stern-way; the helm was put hard to starboard—the fore-stay-sail hoisted—the fore-top-sail let fall, and sheeted home—the fore sail let fall—the tack hauled on board, and the sheet roused aft. All the sail was flat aback, and *set in less than half a minute*. The ship's head paid round quickly towards the reef. When the wind became abaft the beam, the mizen top-sail was let fall and sheeted home, and the helm shifted. When the wind came right aft, the main-top-sail was let fall, and sheeted home; the main-sail was next loosed, the tack hauled on board, the sheet roused aft, and the mizen-top-sail cross-jack, and main-top-sail-yards braced up for the starboard tack. This canvass being set on the vessel, the captain exclaimed, '*The ship's saved!*'

" 'This manœuvre, from the cutting of the spring till the requisite sails were set, did not exceed *two minutes*. At the moment that the ship's head was in the direction of the rocks, and then only in five fathoms water, the vessel made a desperate plunge, and in hauling to the wind, the send of the sea did not leave, by the soundings, more than a single foot of water under the keel.

" 'The ship was shortly afterwards safely anchored in Basque Roads.' "

The Illanon Pirates.

The following account of the Illanon Pirates, is given by Sir Edward Belcher in his account of the *Samarang's* voyage noticed in our last.

The Illanons, commonly termed by the Spaniards *Lanoons* and *los Moros*, are a distinct race, inhabiting the great Bay of Illanon, on the southern part of Mageendanao, or Mindanao, having for its capital the city of Mindanao, where the sultan resides, and where, even in the pirate's nest, Europeans and other traders, meet with hospitable reception and protection. The shores of this immense bay, the eastern arm of which forms a peninsula with a very narrow neck, is closely wooded with mangroves, running out, in most instances, into six or nine feet water, and affording sudden shelter, or con-

cealment, to vessels drawing about six feet water. These trees, springing from roots which firmly support their main trunks at a height of seven or eight feet above the flow of high water, cover the swampy ground which intervenes between them and a spacious lagoon. It is this lagoon which is the stronghold of the Lanoon pirates, and gives them the appellation of "*Los Illanos de la Laguna*," where, it is highly probable, they submit to their own pirate chief, and who, acknowledging the supremacy of the sultan of Mindanao, shields the latter from blame by this semblance of independence; it is well known, however, that any matters referred to the sultan of Mindanao, respecting the acts of the Lanoons, especially upon questions of ransom, are speedily and effectually arranged by the sultan.

But to return to *La Laguna;* throughout the vast range of the bay connected with this lagoon, the Illanons have constructed numerous substantial escapes, being ways of timber, which permit of their hauling their vessels into the lagoon upon any sudden emergency, and so amazingly expert are they in this manœuvre, that when in hot chase, my informants have pressed them close, and considered their escape impossible, they have seen them dash suddenly into one of these escapes, and before their *feluccas* (or launches) could reach the spot of entry, they had been hauled out of sight, and upon presenting themselves at the opening, were saluted by a discharge of round and grape, from heavy brass guns placed in a battery, and so far within this dangerous jungle, that attack was impossible. It is a well-known fact, also, that the whole line of the bay is rigidly watched by *vigias*, or small look-out houses, built in lofty trees, and immediately on the alarm being given, ropes are instantly led to the point of entry, and the home population in readiness to aid in hauling them through the mangroves, as well as to defend them from further attack. The method of constructing these escapes is very simple; strong mangrove trees are driven at opposite angles, obliquely, into the mud, and their upper ends securely lashed to the growing, standing, mangrove trees, forming a V-shaped bed at an angle of 120 degrees. These trees, being stripped of their bark, are kept very smooth, and when wet, spontaneously exude a kind of mucillage, which renders them very slippery. The outer entrance of this angular bed is carried into deep water, and at so gradual an inclination, that the original impetus given by the oars, forces them at once, "high and dry," and by the ropes there attached, they are instantly drawn by their allies into the interior, at a rate, probably, equal to that at which they were impelled by oars.

The vessels of the Illanons are very sharp, of great beam, and exceed ninety feet in length; they are furnished with double tiers of oars, and the largest generally carry about one hundred rowers, who are slaves, and not expected to fight unless hard pressed. The "fighting-men," (or chiefs,) as they are termed, amounting to thirty or forty, occupy the upper platform, and use the guns as well as small seilas or swivels. The whole of the main interior, occupying about two-thirds of the beam, and three-fifths of the length of the vessel, is fitted as a cabin; it extends from one-fifth from forward to one-fifth from aft, and, at the bow is solidly built out to the whole beam of the vessel, with hard wood bulks of timber, calculated to withstand a six-pounder shot; a very small embrasure admits the muzzle of the gun, which varies from the six to a twenty-four-pounder, generally of brass; independent of numerous swivels, of various calibre, mounted in solid uprights, secured about the sides and upper works of the vessel. Above the cabin is the fighting deck, upon which their heroes are placed, and upon any chance of action, they dress themselves in scarlet, and are equipped very much in the style of the armour furnished for the stage property of our theatres, varying from steel plate to ring chain, or mail shirt. Their personal arms

are generally the kris and spear, but they have, also, a huge sword, well-known as the "Lanoon sword," which has a handle sufficiently large to be weilded with two hands. In place of a mast they have sheers, capable of being raised or depressed suddenly, upon which a large sail is hoisted.

The fitting of these sheers is as follows:—On the fore-part of the fighting deck is a small pair of bitts, each bitt-head being placed about three feet on each side the centre line; through the head of these bitts a piece runs, windlass fashion, its outer ends being rounded, which pass through the lower ends of the sheers in holes, this arrangement completes a triangle, having this windlass base of six feet. The heads of the sheers are joined by a solid piece of wood, perforated as a sheave hole for the halliards, by which the sail is hoisted; a third spar is attached, which, taken aft as a prop, instantly turns this mast, upon its windlass motion, to its vertical, and, almost, as by magic, we find the sail expanded, or reduced spontaneously.

The slaves who have escaped from these pirates assert, that within the lagoon they have extensive building establishments, and the means of repelling any attack which may be made upon them. The old prahus are used instead of houses, and in them they have their wives, families, or treasure, in readiness for removal to any part of the lagoon, upon any sudden emergency. In this respect they resemble the Tauka boats of China; an isolated and distinct community, subject alone to the rule of their admirals, under whom they proceed to sea in divisions, and which divisions occasionally unite for special purposes, amounting, at times, to as many as four hundred sail.

The limits of their cruizes are not confined to the neighbourhood of the Sooloo or Mindoro Archipelago. They have been traced entirely round the island of New Guinea, on the east; throughout the straits, and continuous to Java, and its southern side; along the coast of Sumatra, and as far up the Bay of Bengal as Rangoon; throughout the Malay Peninsula and islands adjacent, and along the entire range of the Philippines. Their attacks are not confined to small vessels, for we have instances, as late as 1843, of their molesting the Dutch cruizers off Java. They, however, generally act with great caution in their approach to square-rigged vessels, and can readily distinguish the difference between merchantmen and vessels of war, by the colour of their canvas. Along the entire coasts of the Philippines, they attack villages, and carry off boys and girls for slaves, and, in some instances, do not hesitate in kidnapping a *Padre*, for whom they demand heavy ransom (as upon a late affair they obtained upwards of one thousand dollars.) Upon one occasion they ventured as far into the Bay of Manilla as Cavite, and captured two boys who were in a fishing-boat. They had also, in this bay, within the Corregidor, where there is a gun boat establishment, a very severe action with this force, commanded, I believe, by a Lieut. Elliot, an Englishman in the service of Spain. The result of this encounter was the crippling of the Spanish force, so severely, that only the commander himself, although wounded, remained to serve his gun, and was not displeased to notice the enemy draw off; had they attempted to close with him, he had no further means of resistance. They also made a very determined attack upon one of the villages in a bay on the eastern side of Luban, and took many captives. They are particularly careful, in their habits of plunder, not to incommode themselves with any but articles of value, seeking gold, silver, arms, or ammunition, and cautiously avoiding any objects which might be recognized so as to bring them under the fang of the law; and it is to this extraordinary cunning that, although frequently captured by the Spaniards, it is difficult to attach to them any fact of piratical complexion.

At Samboanga, the Spaniards have a large force of *feluccas*, commanded generally by one of their most expert officers, and promotion usually follows

success. It is seldom, however, that they are fortunate either in coming up with, or in capturing, these Illanons, who, by the measures before alluded to, not only elude pursuit, but also compel them to haul off in (discomforture?) discomfiture, upon reaching their ambuscade.

Upon finding themselves too closely watched at the mouth of the Bay of Illana, they have been known to drag their vessels over the isthmus, and get to sea by the eastern coast of Mindanao, and maintaining the *ruse* by keeping up sufficient excitement to amuse the Spanish force collected in the Bay of Illana, commit, without restraint, the most bare-faced acts of piracy upon the shores of the Philippines, thus left exposed by the assemblage of the Spanish force to the southward.

These are the famed Illanons; but we have another notorious station in sight of Sooloo, upon the island of Balliznini, or Bangure of the charts, which may be considered a branch of the Illanons. Their island affords them, at present, as much security as La Laguna does at Mindanao. It is not approachable within distance of attack by reason of the reefs which environ it, and there is not anchorage near the edge of the reef. It is a lagoon island and the entrance is so narrow that it is staked precisely similar to the *ways* alluded to at Illanon, only admitting one vessel at a time, and that by preserving her keel exactly in the centre; consequently, the Spanish feluccas cannot enter, and if they did, they would be met by batteries within, mounting above one hundred guns, all laid with great precision to this very point of entrance. There are seasons (probably May or June) when they quit the lagoon, to join their allies on their extended cruizes, when only the females, old men and cripples, are left their property; and I was informed that two feluccas entered the lagoon on one of these occasions, by surprise, but hesitated to follow up the advantage, by retiring, without any act of hostility on either side.

ACCOUNT OF THE SKERRYVORE LIGHTHOUSE: *with Notes on the illumination of Lighthouses.—By Alan Stevenson, L.S.B., F.R.S.E., &c., Engineer to the Northern Lighthouse Board.*—A. and C. Black, Edinburgh; Longman and Co., London. 1848.

If there be one subject more interesting to seamen than another, one that also comes home to his almost every-day observation, it is that of light-houses. They are his especial friends by night or day, standing usefully in their solitude, the silent monitors of danger. And yet, of their history, their construction, their establishment, or the expense of preserving them, with how little of all this, is the mariner acquainted! The work before us, from the talented Engineer of the Northern Light-houses, Mr. Alan Stevenson, contains a highly interesting account of the erection of the Skerryvore light-house, certainly the most magnificent structure of the kind that is to be found on the shores of this country.

We must, however, reluctantly lay it aside for our next number, our limits denying us more space, at present, than the mere announcement of its appearance. We shall then take care to preserve for our readers, some interesting extracts from its pages.

NEW CHARTS.

(Published and Corrected at the Hydrographic Office, Admiralty, during the month of May, 1848.—Sold by R. B. Bate, 21, Poultry, London.)

New.

ANCHORAGE WITHIN PIEDRAS, MONO AND MONILLO CAYS, (*Cuba,*) *West Indies, Spanish Survey*, Price 3d.

KING ROAD, *Bristol Channel, Capt. F. W. Beechey, R.N.*, 1847, Price 1s.
AFRICA, (WEST COAST,) *Sheets, Nos.* 15, 16, 17, *and* 18, *Capt. Denham, R.N.*, 1846, Price (each) 2s.
KASTRO, *Lemnos Island, Archipelago, Com. Copeland*, 1835, Price 1s.
PORT MOUDROS *Ditto* *Ditto* 1835, Price 1s.
POURNEA BAY *Ditto* *Ditto* 1835, Price 1s.

Corrected.

SICILY ISLAND, *corrected to* 1833, *Capt. W. H. Smyth, R.N.*, Price 3s.

New.

FRENCH, SPANISH, AND PORTUGUESE LIGHTS *on the North and West Coasts, corrected to* 1848, Price 6d.
AFRICAN LIGHTS *to* 1848, Price 2d.

Books.

MAKING AND ENTERING THE RIVER TAGUS, *by Mr. G. Biddlecombe, Master, R.N.*, 1848, Price 3d.
SOUTH AMERICA, *Part II., La Plata, Patagonia, Falkland and Staten Islands, Chile, Bolivia, and Peru, Capt. Fitzroy, R.N.*, 1836, Price 2s.
TOWSON'S (Second Edition) GREAT CIRCLE SAILING, *and Lineur Index*, Price 1s.

THE NAVIGATION LAWS.—The principal alteration in these laws as explained by Mr. Labouchere are.—1st. to remove all restrictions having reference to the importation of produce of Asia, Africa, and America from European Ports, either in British or Foreign bottoms, leaving to the Queen the power of imposing countervailing duties, on the ships of any Foreign nation which might treat British Shipping with injustice.—2nd. to do away with limiting British Registry, to British built ships, that ships built abroad, but owned by Englishmen, should be entitled to British Register.—3rd. with regard to manning, no alteration will be made in the law requiring two thirds of the crew to be British seaman, but on board ships in Foreign trade, Lascars are to be considered as such, and with regard to apprentices the present law compelling shipowners to employ them would be altered, leaving them to employ men or boys as they chose.—4th the coasting trade of the Colonies, it was proposed to reserve to British shipping, but to allow each colony to frame its own laws, subject to the approval of the Queen and to throw open its coasting trade to foreign countries if considered desirable.

BIRTHS, MARRIAGES, AND DEATHS.

BIRTHS.

April 24, at Park Place, Southampton, the wife of Capt. G. Wilson, R.N., of a son.

— 25, at Woolwich, the wife of Capt. Congdon, R.M., of a son.

— 26, in the Thicket, Grove Road, Southsea, the wife of Lieut. Spalding, R.M., of a son.

— 26, the wife of Com. Herbert Schomberg, R.N., of a daughter.

— 27, at Allandale House, Wimborne, Dorset, the wife of Capt. Douglas Curry, R.N., of a daughter.

— 30, at Craig, Windermere, the wife of Capt. Sir T. S. Pasley, Bart., R.N., of a daughter.

May 4, at Torpoint, the wife of Mr. John Hall, R.N., of a son.

— 12, at Binfield, Berks, the wife of Capt. Wright, R.N., of a daughter.

— 13, in Bedford Square, the wife of Com. J. E. Frere, R.N., of a daughter.

MARRIAGES.

April 24, at Kingston Church, Portsea, Mr. E. Payne, gunner, of H.M.S. *Excellent*, to Jane, daughter of Mr. R. Everett, of Great Charlotte Street, Landport, Portsmouth.

— 25, at Walcot Church, Bath, by the Rev. J. Sproule, Com. J. Alymer Paynter, of H.M.S. *Gorgon*, to Frances,

relict of the late Col. Slade, and daughter of H. Chapman Mac Veagh, of Burlington Street, Bath.

April 26, at Chudleigh, by the Rev. J. P. Keigwin, James Gest, Esq., of Modbury, to Martha Escott Richardson, daughter of the late Capt. Arscott, R.N., of Chudleigh.

— 27, at Trinity Church, Upper Chelsea, by the Rev. John Wilson, M.A., Lieut. Henry Temple, R.N., of St. Margaret's, Kent, to Fanny, second daughter of W. Bayly, Esq., of Sloane Street.

— 27, at Claygate, Esher, Surrey, Henry H. Corbould, Esq., of Islington, to Ann, second daughter of the late Lieut. Ker, R.N.

— 29, at Withycombe Raleigh, by the Rev. J. Lee, Mr. R. Webber, jun., to Anna Frances, youngest daughter of Capt. D. Miller, R.N.

May 4, at Chiswick, the Rev. T. H. Coward, M.A., to Olivia Maria, second daughter of Capt. Lewis, R.N., of the Mall, Chiswick.

— 4, at Stoke Church, Mr. William Young, Paymaster and Purser, R.N., to Miss Thain, daughter of Mr. James Thain, Paymaster and Purser, R.N.

— 9, at Hove Church, Brighton, by the Rev. J. Anderson, M.A., Com. H. A. Story, R.N., to Constantia Catherine Anne, only daughter of J. Round, Esq., of Brighton.

— 9, at Kingston Church, by the Rev. J. Stewart, Com. F. Kemble, R.N., to Georgina Eliza, daughter of Lieut.-General Sir D. Ximenes, of Southsea.

— 9, at St George's, Hanover Sq., Frederick Mellersh, Esq., of Godalming, Surrey, to Fanny, only surviving daughter of the late James Little, Esq., R.N.

— 10, at St. Mary's, Islington, by the Rev. J. Hambleton, Bryan Wm. Morris, Esq., son of Rear-Admiral Morris, of the Gores, to Mary Whitting Lever, neice of Wm. Whitting, Esq., of Thorney Abbey.

— 11, at St. Paul's, Hammersmith, John Anderson, jun., Esq., of Tenby, Pembrokeshire, to Maria Haslam, only daughter of the late John W. Waterhouse, Esq, R.N., of Chiswick Hall and Kingston, Surrey.

— 11, at Newbold-upon-Avon, Com. Charles Evelyn Rowley, R.N., eldest son of Sir Charles Rowley, Bart., to Grace Anna, daughter of J. W. Boughton Leigh, Esq., of Brownsover Hall, Warwickshire.

At Kingston, Hants, by the Rev. C. Stewart, Frederick Wm. Browne, third son of the late Lieut. Browne, R.N., to Sophia Regina Juliana Smith, daughter of the late Lieut. Wm. Murray Smith, R.N.

DEATHS.

March 13, at Alipore, Mrs. Emblyn Rogers, lady of Capt. T. E. Rogers, Indian Navy, and Superintendent of Marine, aged 25.

April 8, at Montreal, Capt. Phipps John Hornby, Royal Engineers, eldest son of Rear-Admiral Phipps Hornby, aged 27.

— 24, T. C. Heathcote, Esq., eldest son of the late Capt. Gilbert Heathcote, R.N.

— 25, at his residence, Marine View, Southsea, William Jackson, Esq., R.N., aged 70.

— 26, at Ramornie, James Heriot, Esq., second son of the late Capt. the Hon. Fred. Lewis Maitland, R.N.

— 27, at Liverpool, Mr. Edward Gilling, Master, R.N., aged 63.

May 1, at Malta, Ernest A. Lethbridge, of H.M.S. *Trafalgar*, third son of J. H. Lethbridge, Esq., aged 16.

— 2, at Garden Street, Morice Town, Mr. John Light, gunner, R.N., aged 54.

— 4, Com. James Hodgson, R.N., aged 86.

— 6, in Marlborough Row, Portsea, Mr. George Gray, R.N., aged 76.

— 7, at Charlotte Street, Fitzroy Square, Capt. W. S. Pascall, of the H.E.I.C. late Maritime Service, aged 73.

— 8, at Tehidy Terrace, Falmouth, Henry Nation Esq., M.D., R.N., aged 52.

— 9, at Park Green, Isle of Wight, Lieut. Edward Cannes, R.N., eldest son of the late Capt. E. J. Cannes, R.N., aged 54.

— 9, Mrs Sulivan, mother of Capt. Sulivan, R.N., of Barrack Row, Portsmouth, aged 78.

— 9, at St. Peter's, Bedford, Edward Symons Ommanney, Esq., brother of Vice-Admiral Sir J. A. Ommanney, in his 68th year.

— 9, at Croom's Hill, Greenwich, Frances Elizabeth Ann, mother of Com. J. M. R. Ince, R.N.

— 10, at Landport Terrace, Southsea, Hants, Elizabeth, wife of Dr. T. Galloway, R.N.

May 11, at Weymouth, Rebecca Mary, relict of the late Capt, T. Curtis, R.N.

— 13, at Lake Lane, Landport, Jas. John, son of Mr. R. S. Godden, Master, R.N., aged 16 months.

— 16, at the residence of E Castleman, Esq., Allandale House, Wimborne, Mary Anne, the infant daughter of Capt. Curry, R.N.

Com. Thomas Townshend, R.N., on the retired list.

At Auckland, New Zealand, Lieut. Robert Snow, R.N., together with his wife and child, barbarously murdered.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory From the 21st of April to the 20th of May, 1848.

Month Day.	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade				Wind. Quarter		Strength		Weather.	
		9 A.M	3 P. M.	9 A.M	3 P.M.	Min	Max	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
		In Dec	In Dec										
21	F.	29 45	29·50	47	50	45	51	N	NW	2	3	o	or 3) 4)
22	S.	29 48	29 48	47	49	45	50	N	N	4	6	or (2	qo
23	Su.	29·66	29·69	52	50	45	53	N	N	1	1	o	o
24	M.	30·62	29 68	47	47	44	48	NE	NE	1	4	ogd 2)	o
25	Tu.	29 81	29·82	42	43	38	44	N	N	4	4	or 1)	opd (3)
26	W.	29 85	29·88	43	47	34	49	N	N	3	2	bc	bcp (3
27	Th.	29·89	29 85	43	52	31	43	SW	SW	2	2	bc	bc
28	F.	29·68	29·69	40	47	38	58	NW	NW	1	1	ogr (2)·	bc
29	S.	29·99	30·00	44	51	34	52	NE	NE	1	1	o	bcm
30	Su.	30 10	30·15	46	53	34	54	NE	NE	1	1	bcm	bcm
1	M.	30·14	30·12	48	53	33	55	E	E	3	5	b	qb
2	Tu.	30·10	30·10	51	56	37	57	E	E	4	4	b	b
3	W.	30·10	30·10	52	65	39	67	NE	NE	2	2	b	b
4	Th.	30 18	30·20	54	64	41	66	E	E	2	4	b	b
5	F.	30·21	30·21	56	65	44	68	E	SE	2	3	b	b
6	S.	30·15	30·14	58	70	43	73	S	SW	1	3	b	b
7	Su.	30·10	30·06	60	72	47	73	SW	SW	1	2	b	b
8	M.	39·08	30·10	60	70	47	72	SW	W	4	3	b	b
9	Tu	30·21	30·23	58	68	45	69	NE	E	2	3	b	b
10	W.	30 32	30 33	58	68	46	72	E	NE	2	3	b	b
11	Th.	30·36	30·35	61	73	45	75	E	SE	2	2	b	b
12	F.	30·27	30·25	63	74	49	75	SW	NE	1	1	bcm	bm
13	S.	30·22	33·22	64	74	50	76	NE	E	1	2	b	b
14	Su.	30·19	30·16	64	74	40	75	NE	E	2	4	b	b
15	M.	30 02	29·92	62	72	51	78	NE	SW	3	3	b	bc
16	Tu.	29 70	29·62	67	76	55	77	E	SW	4	4	b	bc
17	W.	29 44	29 39	56	71	50	72	SE	SW	2	1	bc	bc
18	Th.	29·42	27·53	57	62	53	63	SW	SW	6	4	qbc	bc
19	F	29·75	29·73	58	57	47	61	S	S	6	6	qbc	qo
20	S.	29·91	30·03	57	61	49	62	NW	NW	2	4	o	bc

April, 1848.—Mean height of Barometer=29·725 inches; Mean Temperature=47·0 degrees; depth of rain fallen=3·46 inches.

TO CORRESPONDENTS.

The length to which some of our papers have run, has obliged us to reserve several articles for our next: the letter of our friend "Stormy Jack" among them.

Capt. Routh (N. Z.) will find his very important letter in this number.

We have received the concluding numbers of *Berghaus's Physical Atlas*, but too late for our present number. We shall take future opportunities of going into this useful work.

Hunt, Printer, 3, New Church Street, Edgware Road.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

That future pilgrims of the wave may be
Secure from doubt, from every danger free.

JULY 1848.

Pacific Navigation,—*From Valparaiso to the Island of Tahiti. Extract from the remarks of Mr. H. Thompson, late Master of H.M.S. Talbot.*

Her Majesty's Ship *Talbot*, left Valparaiso for the island of Tahiti, on the 4th of January, 1845. She was steered about N.W.b.W., till below the 20th degree of south latitude, when a direct course was shaped, for the Disappointment Islands.

The first three days after leaving Valparaiso, we had a fresh breeze from S.b.W., South, and S.S.E.; but as we left the coast, the wind gradually drew to the eastward, and varied in strength from No. 3 to 6.

On the 4th of February, at one o'clock P.M., the easternmost of the Disappointment Islands, was seen from the top-sail yard, being then distant about 13 miles, and an hour afterwards it was visible from the deck, at the distance of 8 miles. This island appears to be made up of a chain of small ones, surrounding a lagoon, and connected by a reef, it is very low and well wooded with cocoa-nut and other trees.

On approaching it from the eastward, its appearance when first visible above the horizon, resembles the notched edge of a large saw, its eastern extremity is in latitude 14° 06′ 00″ S. and longitude 141° 10′ 00″ West of Greenwich. We approached it to within two and a half miles, when we were nearly becalmed, and being warned off by the squally appearance of the approaching night, added to the threatening aspect under our lee, of an extensive reef on which the sea was breaking violently, we hauled up N.b.W. to enable us to weather the westernmost

island, now in sight; darkness accompanied by a squally night prevented our seeing much of the latter, but its position deduced from a compass bearing, is nearly in latitude 14° 02′ 00″ S., and longitude 141° 21′ 00″ West of Greenwich. It appeared to be rather higher than the former. We saw neither habitation nor inhabitants upon either, but a small column of smoke which rose from the easternmost one, demonstrated sufficiently their being occupied by some of the human species.

Island of Lazaroff.—On the 8th of February, passing the island of Lazaroff. This island in all the old charts, is placed about forty miles of longitude too far to the westward, and as it lies in the track of vessels from the northward to Tahiti, it would be an essential improvement, if the error was corrected. The island is well wooded, but very low, about five miles in length east and west, and from three to four miles in breadth. Its east end is in latitude 14° 53′ 30″ S., and longitude 148° 39′ 30″ W. West end latitude 14° 54′ 00″ S., longitude 148° 44′ 30″ W. Longitude measured from British Consulate, Papiete Harbour, Tahiti, by three chronometers three days (1ˢ): longitude of Consulate assumed 149° 32′ 45″ west of Greenwich.

On the 10th of February, anchored in Papiete Harbour, Island of Tahiti, and sailed again on the 15th, for the Sandwich Islands. Two days after leaving Tahiti we passed at the distance of about eight miles from the island of Matia, it appeared to be about seven or eight miles in length east and west, and about 700 feet high; I made its eastern end in latitude 15° 46′ 00″ S., and longitude 148° 12′ 30″ W.

On the 15th of March, we anchored in Honolulu Harbour, Island of Wohahoo, after a passage of twenty-eight days.

Sandwich Islands.—From my own experience, which is also borne out by the opinion of the pilots, I consider it better for all vessels bound to the port of Honolulu from the southward, to pass to windward, that is on the N.E. side of the island of Owhyhee, and through the channel formed by the islands of Morotoi and Wohahoo, by which means they will generally ensure carrying the trade wind right down to the bar of Honolulu Harbour. Whereas if a vessel should attempt to gain that port by passing to leeward, that is to the S.W. of Owhyhee, in all probability several days will be lost in calms under the lofty mountains of that island. Moreover there exists at all times a westerly current in that vicinity, on some occasions running at the rate of one and a half miles an hour, which would probably drift a vessel so far to leeward during the interval of calm, as to cause her a dead beat to windward, when the regular trade winds reaches her, ere she could gain her destination.

Port Honolulu.—Honolulu is the principal port of the Sandwich Islands, it is situated on the south side of the island of Wohahoo, and consists of a basin formed by the surrounding coral reefs, which stretch off from the shore in a semi-circular form converging to seaward so as to leave but a narrow entrance. The basin or anchorage inside is capable of containing between seventy and eighty ships, well protected in all weather in from three to five fathoms water, but the bar which stretches

across the entrance will not allow a vessel drawing more than eighteen feet to pass.

Outer Anchorage.—Just without the reef, and at a short distance to the eastward of the entrance to the harbour, there is a space of ground which affords a fair anchorage in from twelve to thirty fathoms water, during the period that the north-east winds blow steadily, viz: March to October, the remaining months being more subject to irregular winds. Those most feared are from the southward, which frequently during the irregular season blow very strong, and at the same time send in a heavy swell; therefore vessels lying there should put to sea immediately on the appearance of wind from that quarter.

The holding ground is indifferent, consisting of hard sand and coral, and the surface very uneven. The marks for the best anchorage are as follows, viz. the flag-staff of Fort Honolulu, N.b.E; the outer buoy of the harbour, which is simply a pole made to float perpendicular, and has a red vane at the top from N.W.b.N. to N.N.W., and the summit of a round topped hill, just visible over the inner part of the neck of land which connects Diamond hill with the other part of the island, bearing about E.bN.; this hill is the only one visible in that direction. A buoy has been recently laid down to point out this anchorage with the above marks nearly.

Pilots.—There are at present two pilots for this port, natives of the United States; they reside at Honolulu, are exceedingly watchful, and generally get off to ships in the offing in good time. They are men who formerly commanded merchant ships, and in my opinion perfectly up to their business both as pilots and seamen.

Water.—Ships may supply themselves with abundance of good water free of charge, from the river, by attending to the tides. It may also be procured from the pumps in the town at the rate of three cents for thirty gallons.

Wood.—This article is sold at about nine dollars the stack, which is equivalent to about a cord and a half English.

Market.—The market is situated on the beach near the landing-place, where supplies of every description may be obtained in great abundance, at very moderate prices. The following is a list of the prices of the articles therein enumerated, as sold at Honolulu (1845):—Beef, very good, from six to eight cents per lb.; mutton, fair, from ten to twelve cents per lb.; pork—the pigs are generally sold alive, at from four to five cents per lb.; turkeys, large, one dollar each, small, half a dollar each; ducks six dollars a dozen; fowls, three dollars a dozen; eggs, a quarter of a dollar a dozen; Irish potatoes, three dollars a barrel, very good; milk from twenty to thirty bottles for a dollar; fruits of many kinds very moderate.

Vessels requiring repairs may have them well done by Messrs. Robinson and Co., shipwrights, who have an excellent wharf where every facility will be found for clearing out, heaving down, &c.

Custom-House Duties.—The only import duty at the port of Honolulu is five per cent., *ad valorem*, on all description of goods; but an

alteration is about to be made relative to wine and spirits. It is expected that the duty on wine will be about 7 per cent., and that on spirits, it will almost amount to a prohibition.

There is no export duty on any of the productions of the island.

There being no appraisers or custom-house guards, every thing is left to the honour of the importer, who is required to declare on oath the value and quantity of goods on which duty is to be charged.

Port Charges.—All ships which come to the port of Honolulu for the purpose of trade are required to pay twenty cents per ton; two dollars for the use of the buoys; one dollar for certificate of clearance; and one dollar per foot for piloting the vessel in or out; but those vessels which call here solely for the purpose of obtaining refreshments, or for repairs, are required to pay only six cents per ton, and the other charges as above.

Honolulu to Hilo, or Byron Bay.—After a passage of eight days we arrived off Byron Bay, Island of Owhyhee, on the 24th of June, where we took on board a pilot, about eight miles off shore. This person is a native of Wales, by name John Ale; he is a rough specimen of an old seaman, about fifty years of age; he has been a resident at Byron Bay for upwards of twenty years, and appears to be a very good pilot; but he is rather timid, and liable to swerve from his own opinion in a case of difficulty, when interfered with by his superiors.

The sea breeze gradually fell light as we entered within the limits of the bay, and continued to blow, but very feebly, just sufficient to give the ship steerage-way; but the swell assisted the vessel in, when we anchored in 5 fathoms water, and afterwards moored with 70 fathoms on best bower to the N.E., and 40 fathoms on small bower to the S.W., with the following bearings, namely Cocoa-nut Point E.b.N. $\frac{1}{4}$ N., the thatched native chapel on with the north side of Green hill (an extinct volcano) bearing S.W., and Red Cliff point N. $\frac{1}{4}$ W.; bearings all by compass.

Anchorage in Byron Bay.—The anchorage in Byron bay is open to the winds from N. to E.b.N., being only sheltered in that direction by an extensive sunken reef, on which the depth of water varies from nine feet to 6 fathoms, and which sufficiently breaks the sea, to render a ship comparatively safe behind it. The pilot told me that during his residence here he has seen some very strong gales from the N.E., but had never known any vessel to suffer by them, yet, I am of opinion that on such occasions a vessel would find it very heavy riding, and should be provided with good ground tackle.

A ship of any size may anchor here in from 4 to 9 fathoms water.

There is seldom any difficulty experienced in entering this bay, as the sea breeze blows right in, and should it be ever so light, with the assistance of the swell astern, and boats towing if necessary, the anchorage will be gained in safety; but the egress is not so easy, it is often attended with difficulty, and sometimes with risk. The channel between the reef and the shore is narrow, rather too much so to allow a square-rigged

vessel to work through, unless she be a small one, and then it should be only with a commanding breeze.

To sail out of Byron Bay a vessel should start with the first of the land breeze, which generally comes off soon after midnight, so as to get a good offing before it ceases, otherwise if daylight is waited for, the land wind will seldom hold long enough to take a vessel sufficiently off shore, to leave her in a safe position. Should the sea breeze fail to blow home to the coast during the day, which not unfrequently happens, thereby leaving her exposed, helpless, to a heavy swell setting directly towards the reef, against which, a vessels own boats towing would have but little effect. There is a deep water anchorage outside the reef, and there is also anchorage in the channel in 10 or 12 fathoms, but these anchorages are both unsafe when blowing fresh.

The similarity of the coast and the want of remarkable objects in the vicinity of this bay prevents me from describing any conspicuous marks, that would guide a vessel to or from the anchorage, other than some private ones that would not be understood by a stranger. The general rule for approaching the anchorage is to close the land a little to the northward, and run down along shore rather within the distance of half a mile, which will lead a vessel a little inside the north extremity of the reef which forms the channel; this reef may be seen from a slight elevation above the deck. There is a long gulley running up the land in a southerly direction from Cocoa-nut cove, which forms a good object to steer for, when once made out, as it leads close to the entrance of the channel. It appears like a dark mark in the land, and there is nothing in that vicinity that resembles it.

Water.—The water at this place is excellent, and may be procured with great facility, free of charge, from a cove close to the anchorage, except when the wind is blowing hard from the north-east, the rocky bar crossing the entrance to the watering creek then becomes dangerous for boats to pass.

Wood.—This article may be purchased in any quantity at a moderate rate; it may also be had at present from a forest situated about five miles from the beach, merely for the trouble of cutting and fetching down. There are also some large trees of the Koa-wood to be had at the same place, which answers admirably for many purposes on board a ship. It is usual to ask permission of the governor to cut them.

Supplies.—Beef, poultry of all kinds, and vegetables may be had in great abundance at very moderate prices. Among the latter is included the Irish potato which is excellent and keeps well; very good sugar and arrow-root are among the productions of the island, and are sold at a cheap rate, various kinds of fruit are also plentiful.

A great drawback to this port is the great quantity of rain that falls. I am told that the rainy season averages eight or nine months in the year.

Climate.—The climate of the Sandwich Islands is generally healthy, not oppressively hot, owing probably to their open situation, so much so that it not only throws no obstacles in the way of white men working at

their respective trades, but it allows of their engaging in the labours of agriculture; neither fever, ague, cholera, nor any of the intertropical diseases are known on these islands.

Natives.—The natives of these islands are quite peaceable, friendly, and hospitable; they are of a genius shrewd and quick, and when their passions are excited they are hot and resentful. Most of their former customs are now abolished, and they conform generally speaking to European manners and customs. The chiefs and all those who can afford the means, dress in the European fashion, but the lower sort of the Kanakas from their poverty, still adhere to their original costume, namely a "Maro," which is a long and narrow strip of cloth folded round the loins, passed down between the legs and up again, in the form of a bandage. The females wear a sort of loose gown reaching from the neck to the ankles, and generally have their heads covered when in full dress, with an immense straw bonnet, which certainly on them looks very ridiculous; more particularly as you will not unfrequently see a poor native female without either shoes or stockings, trudging along in a loose gown, and her head adorned with one of these formidable coal scuttles, garnished with a collection of streamers flying from it, composed of all the odds and ends of ribbons they can get hold of. The women are of the middle stature, with regular features, face rather round than oval, eyes dark and sprightly; the nose is not flat, yet it spreads rather too much to be interesting; teeth beautiful and regular, and their general appearance is sprightly and intelligent; their hair is generally straight, but in some it has a natural and beautiful curl; when worn straight they turn it all back from the forehead and temple, and tie round the head a black piece of ribbon or handkerchief. Their hair is rather coarse, and owing to the frequent washings in salt water, and the absence of comb and brush, looks rough, and has not that gloss which results from the use of Rowland's Macassar, and the various little *ceteras* of an English lady's toilet. The generality of the females are well formed, their hands and feet are small; and some of them are extremely graceful in their figures; their skin is naturally clear and smooth, but owing to their frequent immersions in salt water, their mode of living and various exposures they are subject to cuticular affection, which frequently shows in rough patches, blotches, and sores. In short their personal attractions are not above the ordinary cast, and those graces which most adorn the female character, modesty, and delicacy are almost unknown to them. They still appear to take much pride in tatooing their persons, although on a much smaller scale than formerly; some of the women are much ornamented about the body, but not on the face.

[We must reserve the remainder of Mr. Thompson's very creditable remarks for our next.—Ed.]

Remarkable proofs of the necessity of Fixing a Light on the Great Basses.

Madras, April 12th, 1848.

Mr. Editor.—Adverting to my letter of the 4th of November 1847, shewing the urgent necessity of fixing a light on the Great Basses, I now beg leave, through the medium of your journal, to call general attention to further remarkable proofs of the danger to be apprehended if that important measure is not speedily attended to.

2. The P. & O. S. N. Company's steam-ship *Hindostan*, Capt. Moresby, from Suez to Calcutta, left Point de Galle at noon, the 26th December, 1844, and steaming at the rate of nearly nine knots per hour, and making allowance of an ordinary current to the westward, Capt. Moresby considered that he had passed the Little Basses a considerable distance at 4h. P.M. on the 27th. He then left the deck in charge of his chief officer, Mr. Powell, who now commands the *Precursor*, directing him to steer E.N.E. until daylight, when he was desired to edge away to N.E. These orders were obeyed, and so soon as the *Hindostan* was steady at the latter course, Mr. Powell went on the forecastle about 6h. A.M. (and it was only then broad daylight) to look well round himself, when he was startled by observing the Elephant hill, one of the leading marks by day for the Little Basses, on a very different bearing from what he expected, and immediately discovered breakers right ahead. Without saying one word which could excite alarm, he ran aft and altered the course to due east, and then went below and reported these circumstances to Capt. Moresby, who would scarcely give credit to the report; but was soon convinced by looking through the gangway port on the port side, whence he clearly saw the sea breaking on the Little Basses, within the distance of a mile. The log was then worked, and as the *Hindostan* had steamed about 160 miles, and the distance from Galle to the Little Basses is 99 miles, she must have experienced a current to the westward of 61 miles in the space of eighteen hours; therefore, another hour of darkness might have been fatal to this splendid steamer and all on board, and there cannot be a doubt, that a light on the Great Basses would have prevented so great a surprise, and such a perilous position.

3. The P. & O. S. N. Company's ship *Pekin*, Captain Harris, from Trincomalee to Point de Galle in July 1847, shaped such a course as would under every allowance of all known currents, have cleared the Basses about midnight, and Capt. Harris felt confident with due attention to lead and look-out, that he had given both those ledges of rock a wide berth. However, to make sure, he stopped the engines about 1h. 30m. A.M., and was astonished when soundings of 18 fathoms were gained, another cast under his own hand, gave the same result, when the *Pekin* hauled off to the southward, until she was in 50 fathoms.

4. H.M. ship *Melampus*, Capt. Campbell, C.B., from the Pacific, and bound to Trincomalee in September 1847, was running in for the coast

of Ceylon, and making allowance for a current, and the possibility of being ahead of her reckoning, she was rounded to and got a cast of the deep-sea lead, between 3 and 4 A.M., when to the utter astonishment of the captain and master, she gained soundings in 14 fathoms, which placed H.M. ship within the Basses; however, most fortunately, she hauled out and cleared those dangers. Assuredly a light would have prevented this occurrence.

5. The last remarkable instance of recent escapes is the Honourable Company's steam-frigate *Mozuffer*, having on board the Right Hon. the Governor-General and his Lordship's staff. The *Mozuffer* left Point de Galle at 5h. P.M., on the 1st of January 1848; the weather throughout the night and till between 10 and 11 A.M., on the 2nd, was thick, dark, and squally, accompanied with rain. Every attention was paid to soundings and look-out, and steaming at the rate of 9 knots per hour, such a course was shaped that Capt. Ethersey felt confident he should pass well clear of the Basses before 8h. A.M. But great was his surprise on the weather clearing up at about 10h. 30m. A.M., when the look-out man at the mast-head gave warning that breakers were visible nearly right-ahead, and which were immediately afterwards discernable from the deck. It is however, very remarkable in this instance that the soundings (32 fathoms) indicated a much more southerly position. The *Mozuffer* sheered off; and here I may observe that this steam-ship and the *Hindostan*, were commanded by officers of well tried experience, who were deceived by the extraordinary force and direction of the current at the same season of the year; and occupying in the distances run, as nearly as possible the same time between Galle and the Basses.

These occurrences afford a convincing proof of the velocity and uncertain set of the current round the south-east coast of Ceylon, and shew the danger to be apprehended when approaching the Basses, and it cannot be doubted that all these cases establish the fact that the most able and experienced navigator is liable to encounter such great and imminent risk as may (under changes of wind and weather) baffle his utmost care and caution.

6. With reference to my former remarks and suggestions, it has been asserted that an improved system of navigation, and the accuracy and extended use of chronometers within the last fifty years, afford sufficient means of prevention and precaution, and render the expediency and utility of fixing a light on the Basses as very doubtful, and of no material consequence. But, Mr. Editor, let us bear in mind that when a correct departure from a port within 30 leagues of a well-known danger, and without any means, occasionally, of checking the reckoning within so short a time and space as is occupied by a steamer from the one position to the other, and when the force and set of the current, either off Point de Galle or Dondra Head is no guide as an average rate, because off either of those headlands it may run at the rate of only 2 knots, whilst off the Basses it may suddenly increase to upwards of 4 knots an hour, and we must be convinced that such irregularities, and the frequent occasions when no opportunity for sights or observations, for the chronometer can

intervene,* when these circumstances are considered with the foregoing escapes, they demonstrate beyond all doubt that an improved system of navigation under the most skilful and vigilant guidance cannot at all times guard against extreme danger.

7. A well defined system, which shall enjoin a strict attention to soundings, a cautious look-out, and a due regard to that serious warning so forcibly indicated by past experience, is undoubtedly the best means of ensuring safety, which under present circumstances can be adopted; but why should the most obvious means of averting mischance and peril through the medium of a light be neglected? Such a safeguard judiciously placed, and efficiently established, would not only remedy an evil that has been attended with disastrous consequences, and may yet lead to other fatal results, but it would also prevent that anxious and circuitous route which steamers and sailing ships now resort to. And above all a lighthouse, as a beacon by day and night, would give confidence and security on a track which is now involved in perfect perplexity, delay, and danger.

Being determined to promote this important object by every possible means, I submitted a full report of disastrous occurrences on the Basses, and fortunate escapes from those rocks, to the late Rear Admiral Inglefield, C.B., and the following reply from that lamented officer's Secretary, shews that his Excellency gave the project his best support.

H. M. S. Vernon, Trincomalee, January 16, 1848.

"In return to your note of the 11th instant, I have now, by desire of His Excellency the Commander-in Chief, to acquaint you that the papers you forwarded to me on the subject of a lighthouse on the Great Basses, have been forwarded by the Admiral to the Governor of Ceylon, (the subject having reference to the Colonial department of H.M's Government) with a strong opinion as to the necessity of the light you propose, and a recommendation that the matter should be given every consideration, it will of course require a reference to England."

My suggestions on the subject have also I am glad to say, attracted such notice in England,† that I feel very confident the project will be powerfully advocated there, and by following it up with those further instances of escape from danger which I have now brought forward, I hope and trust that 'ere very long, a lighthouse will be erected on the Great Basses, and certainly it will be one of the greatest sources of advantage and security to navigation and commerce which the legislature of our common country can confer.

I am, Sir, &c.,

CHRIS. BIDEN, *Master Attendant.*

To the Editor N.M.

A report of Captains Bremer and Dawson, says, "The Great Basses on the S.E. coast of Ceylon, consists of two small fields of red granite,

* For instance the *Mozuffer* had no means of correcting her reckoning, as neither sun, moon, nor stars were visible.

† Through the publication of my letter in the Overland *Athenæum* last November.

each of 60 to 70 feet in breadth, and 120 or 130 feet long, the utmost rise of which above the level of the sea is 9 to 10 feet.

"There is a considerable under-water connection between the two, and breakers extending to N.E. and S.W., about 800 yards in all of broken water.

"The sea particularly from the southward is broken at 50 yards distance. The easternmost or outermost of these rocks is in 81° 39′ 28″ E., and 6° 11′ 48″ N., about eight miles from the main land, having a clear passage all round them, and a depth of never less than 3½ fathoms, with 15 or 20 yards inside, and 50 yards outside them.

"Recommend a beacon on the outer rock.

"The Little Basses in 6° 25′ 53″ N., and 81° 58′ 25″ E., are far more dangerous in their nature, the shoal water extending beyond them fully three miles, and in a manner and to an extent not laid down in any chart, or mentioned in any account of them. At that distance a spot was found with only 4¾ fathoms on it, and much broken ground with 5 to 6½ fathoms when the soundings are laid down as 19.

"A point bearing N. 60½° W. from the Little Basses, also recommended as the site of a lighthouse, and about six miles to the westward of the Kombochan river barred at its mouth, or a floating light inside the reef.

"A lighthouse recommended on Flag-staff Point:—Sir John Gore considers Foul Point better adapted for one."

Description of the Madeira Islands.—*By Capt. Alex. T. E. Vidal, R.N., of H.M.S. Styx.**

(Continued from p. 289.)

The time employed on the survey of the islands, their triangulation, the detailed delineations of their coasts, and all the soundings, not exceeding 4 months and 10 days, and those divided over one spring, and broken portions of two winters, it is not in our power to offer many original observations on the winds and temperature; but we give the following as communicated by a gentleman of intelligence and observation, thoroughly acquainted with the island during a residence of many years.

* Capt. Vidal having alluded in the commencement of this paper, to the tradition of the original discovery of the island by Robert Macham, as forming a popular belief among the islanders, we introduce it here as preserved by Washington Irving in his "Life of Columbus," as a variety which may interest our young readers. A version of the same is preserved in Bowdich's "Excursions in Madeira" (1845), but we give the preference to Washington Irving.

"During the reign of Edward III. of England, a young man of great courage and talent, named Robert Macham, fell in love with a young lady of rare

Prevailing winds, 1843, January, used to be a very boisterous month with winds from the S.W., but for some years past N.E. winds have prevailed. Rain is frequent on the north side of the island, while in the Bay of Funchal it is fine and clear.

February had also a prevalence of southerly winds; but for the last seven or eight years they have been northerly, shifting at times suddenly to E. and E.S.E., so that no dependance can be placed upon them. These sudden shifts of wind are frequently followed by gales of short duration, accompanied by thunder and heavy rains.

In March the winds generally prevail from the N.W., and at times blow very hard, not dangerous to vessels at anchor in the bay; but occasioning a high surf on the beach, which renders the shipment and landing of goods very difficult.—Sometimes in this month there are heavy falls of snow on the mountains.

April has often windy weather, extending into the middle of the month, (though it is more usually fine from its commencement,) and the heights are occasionally capped with snow.

May, June, and July have generally clear nights and cloudy days; with regular land and sea breezes.

August and part of September, are clear hot months, subject to L'Este, or Siroc winds, which blow from the east sometimes in considerable strength, for 6 to 9 days consecutively; and while they blow there is a peculiarly dry and cloudless atmosphere.

In October, towards the middle of the month, the periodical rains may be expected, which continue generally about fourteen days. They

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beauty, of the name of Anne Dorset. She was his superior in birth, and of a proud and aristocratic family; but the merit of Macham gained him the preference over all his rivals. The family of the young lady, to prevent her from making an inferior alliance, obtained an order from the king to have Macham arrested and confined, until, by arbitrary means, they married his mistress to a man of quality. As soon as the nuptials were celebrated, the nobleman conducted his beautiful and afflicted bride to his seat near Bristol. Macham was now restored to liberty. Indignant at the wrongs he had suffered, and certain of the affections of his mistress, he prevailed upon several friends to assist him in a project for the gratification of his love and his revenge. They followed hard on the traces of the new-married couple to Bristol; one of the friends obtained an introduction into the family of the nobleman in quality of a groom; he found the young bride full of tender recollections of her lover, and of dislike to the husband thus forced upon her. Through the means of this friend, Macham had several communications with her, and concerted means for their escape to France, where they might enjoy their mutual love unmolested.

"When all things were prepared, the young lady rode out one day, accompanied only by the fictitious groom, under pretence of taking the air. No sooner were they out of sight of the house than they galloped to an appointed place on the shore of the channel, where a boat awaited them. They were conveyed on board a vessel which lay with anchor a-trip and sails unfurled, ready to put to sea. Here the lovers were once more united. Fearful of

frequently commence with strong S.E. winds, which veer to the S.W., and round to N.W.; when it clears up and becomes fine. St. Martin's summer succeeds to these, and extends usually over the same period of time, accompanied by N.E. winds. There is, however, much irregularity about this St. Martin's summer, for it is sometimes delayed to December.

The N.E. trade wind sets in about the middle of April, and continues until the end of September.

So far as we could learn from enquiry, no gales occur here from the middle of April to near the close of September; and they are principally to be apprehended in November and December, commencing a few points on either side of south, then gradually veering round to the westward, and terminating in the N.W. During summer, when the land and sea breezes prevail, it requires the exercise of some judgment to get to the anchorage; and the time of day must be borne in mind.

The sea breeze from S.W. to W.S.W., sometimes yet more westerly, sets in generally from 9 to 10 in the morning, and towards evening it gradually dies away. About 9 or 10 at night a gentle land wind springs up, which in its turn subsides towards the morning; leaving between them intervals of 4 to 5 hours calm.

At the season of the year above referred to, the N.E. wind blows fresh up to Cape Garajao, and continues on that direction past the Cape; leaving Funchal Bay, and a large space to the westward of it in calms, or baffling, or light land winds.

If then a vessel reach Cape Garajao too late to avail herself of the

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pursuit, the ship immediately weighed anchor; they made their way rapidly along the coast of Cornwall, and Macham anticipated the triumph of soon landing with his beautiful prize on the shores of gay and gallant France. Unfortunately, an adverse and stormy wind arose in the night; at day-break they found themselves out of sight of land; the mariners were ignorant and inexperienced; they knew nothing of the compass, and it was a time when men were unaccustomed to traverse the high seas. For thirteen days the lovers were driven about on the tempestuous ocean, at the mercy of wind and waves. The fugitive bride was filled with terror and remorse, and looked upon this uproar of the elements as the anger of heaven directed against her. All the efforts of her lover could not remove from her mind a dismal presage of some approaching catastrophe.

"At length the tempest subsided. On the fourteenth day, at dawn, the mariners perceived what appeared to be a tuft of wood rising out of the sea; they joyfully steered for it, supposing it to be an island; they were not mistaken. As they drew near, the rising sun shone upon noble forests, the trees of which were of a kind unknown to them; flights of birds also came hovering round the ship, and perched upon the yards and rigging without any signs of fear.

"The boat was sent on shore to reconnoitre, and soon returned with such accounts of the beauty of the country, that Macham determined to take his drooping companion to the land, in hopes her health and spirits might be restored by refreshment and repose. They were accompanied on shore by the

land wind, and too near the time when the sea breeze may be expected, she should give the Cape an offing of two or three miles, and keep to the westward in the stream of the N.E. wind, until she brings Funchal to bear about north. She may then haul in for it, and will soon pass into calm, and shortly after the sea breeze springing up, will carry her under studding sails to the anchorage.

If she reaches Cape Garajao when the sea breeze is nearly over, she may keep near the head for the advantage of the coming land wind; and may often derive great assistance from her boats: men-of-war especially may tow into the anchorage during the calms, or land winds, of the night and very early morning.

The land wind comes off usually earlier, and continues longer after rains; and the sea breeze sets in earlier and more steadily during a continuance of fine dry weather, even a few partial showers sensibly affect this.

When the vessels can be seen at anchor in the bay, an intelligent commander may derive some advantage from observing the way they are tending.

The best time to leave the Bay of Funchal is, with the first coming of the evening land breeze.

It need scarcely be observed that when vessels pass Point Lourenço, with winds from north round to the westward, they should be prepared for strong gusts from the Ravines.

During the winter months every care should be taken to watch the indications of the weather, the swell into the bay, the drift of the clouds,

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faithful friends who had assisted in their flight; the mariners remained on board to guard the ship.

"The country was indeed delightful; the forests were stately and magnificent; there were trees laden with excellent fruits, others with aromatic flowers; the waters were cool and limpid; the sky serene; and there was a balmy sweetness in the air. The animals that they meet with showed no signs of alarm or ferocity; from which they concluded that the island was uninhabited. On penetrating a little distance they found a beautiful sheltered meadow, the green bosom of which was bordered by laurels, and refreshed by a mountain brook which ran sparkling over pebbles; in the centre was a majestic tree, the wild branches of which afforded shade from the rays of the sun. Here Macham had bowers constructed, and determined to pass a few days, hoping that the sweetness of the country, and the serene tranquillity of this delightful solitude, would recruit the drooping health and spirits of his companion.

"Three days, however, had scarcely passed, when a violent storm arose from the north-east, and raged all night over the island. On the succeeding morning Macham repaired to the sea side, but nothing of his ship was to be seen and he concluded that it had foundered in the tempest.

"Consternation fell upon the little band thus left in an uninhabited island in the midst of the ocean. The blow fell most severely on the timid and repentant bride. She had reproached herself with being the cause of all their misfortunes, and from the first had been haunted by dismal forebodings.

&c., and it will be advisable if these are unfavorable to quit the anchorage before real difficulties arise; for, when they do, they are quick and violent.

The tidal wave strikes these islands nearly at the same time as the Azores; the flood running N. 30° E., at about one mile and a half per hour on springs: and between the narrow channels of the islets, and off Point Lourenço it is sometimes two miles per hour.

The following details of temperature are derived from published information furnished by various writers:—The mean annual temperature of Funchal is 64·5°, of the spring months 62·2°, the summer 69·3°, the autumn 67·2°, and the three winter months 59·5°. The month of February has the lowest mean temperature 58·5°, and August the highest 73·0°.

Approaching Madeira from the eastward the first land we near is the Ilheo de Fora, an islet lying close to Ponta de San Lourenço, the eastern extremity of the island. This islet is four-tenths of a mile from N.E. to S.W., and a little exceeds one-tenth of a mile in breadth. Its coasts are every where rocky cliffs, except at its S.E. side, where it slopes to the sea, and offers the easiest landing. On the west side is a little rocky cove. A sugar-loaf rock marks its south extremity, and three or four low rocks lie close to its S.E. shore nearly midway between its extreme points. The surface of the islet is of very uneven outline, and covered with a light and stoney soil and sand. Near its north end is a peak 352 feet above the sea in latitude 32° 03′ 14″ N., longitude 16° 39′ 30″ W.

The channel which separates the islet from San Lourenço Point is 200

She now considered them about to be accomplished, and her horror was so great as to deprive her of speech; she expired in three days, without uttering a word.

"Macham was struck with despair at beholding the tragical end of this tender and beautiful being. He upbraided himself, in the transports of his grief, with tearing her from her home, her country, and her friends, to perish upon a savage coast; all the efforts of his companions to console him were in vain; he died within five days, broken hearted, begging, as a last request, that his body might be interred beside that of his mistress, at the foot of a rustic altar which they had erected under the great tree. They set up a large wooden cross on the spot, on which was placed an inscription written by Macham himself, relating, in a few words, his piteous adventures, and praying any Christians who might arrive there to build a chapel in the place, dedicated to Jesus the Saviour.

"After the death of their commander, his followers consulted about the means of escape from the island. The ship's boat remained on the shore; they repaired it, and put it in a state to bear a voyage, and then made sail, intending to return to England. Ignorant of their situation, and carried away by the winds, they were cast upon the coast of Morocco, where, their boat being shattered upon the rocks, they were captured by the Moors and thrown into prison. Here they understood that their ship had shared the same fate, having been driven from her anchorage in the tempest, and carried to the same inhospitable coast, where all her crew were made prisoners.

yards wide, and the depth in it at low water is from 3 to 4 fathoms over a very rocky bottom; but a swell or strong breeze with opposing tide occasions so great a turmoil in it, that it is frequently unsafe for boats to pass through.

Fora is steep to in all directions, except its S.E. side, off which are dangerous rocky patches surrounded by deep water. The outer one, which lies S. 43° E. 0′ $\frac{38}{100}$th of a mile from the Islet Peak, is a small rock with 4 fathoms on it, and 13 and 26 fathoms close to it. The inner patch is more extensive, bearing from the peak S. 34° E., three-tenths of a mile; and upon this are several rocks, some with fifteen, others with only 4½ feet over them.

Between the outer and inner patches the least water is 10 fathoms, and between the inner patch and the islet is a narrow channel, the depth of which ranges from 9 to 16 fathoms. Both patches have deep water close up to them, from 15 to 25 fathoms.

Their distance from the shore is so inconsiderable that sailing vessels would scarcely venture near them; but steam vessels should be cautious not to round the point too closely.

At Fora the extreme land seen to the westward is the low point of Oliveira, bearing S. 58° 36′ W., distant 10·46 miles; but the bold head of Cabo Garajao, or Brazen Head, being much higher than Ponta Oliveira, is seen over it, and thus appears to be the west extreme point.

Vessels bound for Funchal shape their course for these points; but between Fora and Oliveira there is a considerable bay, and the coast presents a variety of outline which it is necessary to describe.

"The prisons of Morocco were in those days filled with captives of all nations taken by their cruizers. Here the English prisoners met with an experienced pilot, a Spaniard of Seville, named Juan de Morales; he listened to their story with great interest, inquired into the situation and description of the island they had discovered, and subsequently, on his redemption from prison, communicated the circumstances, it is said, to Prince Henry of Portugal.

"There is a difficulty in the above narrative of Alcaforado in reconciling dates. The voyage is said to have taken place during the reign of Edward III. which commenced in 1327, and ended in 1378. Morales, to whom the English communicated their voyage, is said to have been in the service of the Portuguese in the second discovery of Madeira in 1418 and 1420. Even if the voyage and imprisonment had taken place in the last year of king Edward's reign, this leaves a space of forty years.

"Hakluyt gives an account of the same voyage, taken from Antonio Galvano; he varies in certain particulars. 'It happened,' 'he says, in the year 1344, in the time of Peter IV. of Arragon. Macham anchored in a bay since called after him Machico. The lady being ill, he took her on shore, accompanied by some of his friends, and the ship sailed without them. After the death of the lady, Macham made a canoe out of a tree, and ventured to sea in it with his companions; they were cast upon the coast of Africa, where the Moors considering it as a kind of miracle, carried them to the king of their country who sent him to the king of Castile. In consequence of the traditional accounts remaining of this voyage, Henry II. of Castile sent people, in 1395 to rediscover the island.'"

Ponta de San Lourenço is formed by a rocky bluff of small elevation: the coast beyond it trends to the N.W., and is a rocky shore. For the first mile and a half it is composed of cliffs and small points with rocks lying out a few yards from them; and above the cliffs is a narrow ridge of hills, of which the most elevated is 348 feet above the sea. A narrow beach of shingle then succeeds, with masses of rock upon it, running out to the N.E. Between these, in two or three places, the seas on the north and south sides of the point meet at high water, and make them islets; and it is probable, that in a few years more, they will be actually broken up, and become such permanently. This beach terminates at Ponta Furada, a bold basaltic point, through which the sea occasioned by S.E. gales has broken a fine lofty arch. A barren hill 550 feet high stands immediately above the point, and from its summit there is a commanding view of the surrounding shores.

On the west of Ponta Furada is a small bay with a fine sandy bottom, in which there is smooth water anchorage with the wind from N.W. and N.E., and tolerably easy landing. The bay is about a mile across, and six-tenths of a mile deep; but it is only available for steam vessels. Half a mile beyond the western point of it is the Ponta de Piedade crowned by a rocky hill, 376 feet above the sea, with a chapel on it, dedicated to Nossa Senhora de Piedade. The building though small is a very conspicuous object, being white-washed, and roofed with bright red tiles. This chapel in line with the Sugar-loaf Rock at the south point of Fora leads a few yards clear to the southward of the rocky shoals off that islet. In front of the point is a large flat ledge of rock (having almost the appearance of a fine artificial quay,) on which there was found convenient landing.

From the north side of Piedade hill, quite across the narrow neck of land to the opposite, or N.E. coast, occur those curious fields of fossils mentioned by several travellers who have visited Madeira, and which are similar to those described as existing at Porto Santo. It is believed they are not to be found in any other parts of these islands. Immediately on the west of Piedade point is a little bay with a fine sandy beach.

S. 74° W., 1·3 mile from Piedade Point is the village and Point of Caniçal. The coast between them is much lower than that previously described; but broken in like manner into numerous small points, and the land rises from it in a gradual slope to the top of the cliffs on the north shore. There is a little sandy beach east of Caniçal Point on which the fishing boats of the place are kept. At the west end of the beach is a ledge of dry rocks. The bank of soundings follows the coast to the westward: the edge of it passing one mile south of Fora, Piedade, and Caniçal.

From Caniçal Point the coast runs S. 43° W., 1·45 mile to the north point of Machico Bay. Between them the cliffs are high and bold, and there are two projecting points. The southern one is a rocky bluff very steep to; and half a mile inland of it is a peak 1969 feet above the sea.

North of Machico Point is a telegraph on a hill 1080 feet high. One-

tenth of a mile to the N.E. of the point are several rocks which run out from the shore S. 22° E., about 250 yards; and in the same direction is an isolated breaking rock standing in 15 fathoms water. At the rock Machico north point bears N. 48° W., and is distant two-tenths of a mile. Close to it on the east are 27 fathoms.

The Bay of Machico is 700 yards wide, and a stony beach with some little mixture of sand forms its shore. On the north point of it is a small stone fort, and near its centre is a little battery built at the outlet of a mountain stream, which originates in the high lands of the interior five or six miles distant, and drains the whole valley of Machico. The village is situated near the shore of the Bay, and is celebrated in the traditions of the island as the place where its first discoverer Robert Machim landed with Anna d'Arfet. Its little church is reputed to contain a portion of the cedar cross that marked their grave. The village possesses a considerable number of fishing boats, and a few of larger dimensions for trade with Funchal.*

From Machico the coast runs S.S.E., half a mile to Ponta Queimada, a rocky cliff with some flat rocks at its base, and from thence S. 32° W., one mile $1\frac{15}{100}$ths to the rock off Ponta de Santa Catarina. This rock is 36 feet high, and stands close to the point. The whole coast between it and Queimada is composed of rocky cliffs; and both they and the land behind them are of much less elevation than near Queimada. There are no outlying dangers but deep water close up to the shore.

From Rocha De Santa Catarina, the next point is Guindante bearing S. 43° W., $2\frac{1}{4}$ miles, the coast between them falls back into a bay half

* Bowdich speaks in raptures of the Bay of Machico. He says, "As we sail past the cliffs and rocks which follow, we shudder at the sight of peasantry crawling down to cultivate a niche scarcely accessible, and on the very brink of eternity; whilst the fishermen let themselves down by ropes to some favorite point regardless of the rude crosses which, erected on the lofty craigs, record the sad fate of many who have preceded them. Approaching Machico the basalt becomes of a deeper duller red, loses all traces of columnar form, is full of horizontal fissures, and presents vast caverns near the sea, sometimes divided by rude shafts, and sometimes blocked up by huge fragments, recalling the cave of Caens. Of all formations, the basaltic presents the most sublime scenery, and suggests the grandest natural catastrophes to the poet. We cannot wonder at the pleasing gloom of Ossian when we recollect that he sang amongst its vast columnar caves and frowning peaks. The bay of Machico seems to have been formed by a great slip of the Eastern cliffs, and is so inviting that it is not surprising that our countryman Machim should have directed his shattered back to its shelter, rather than explore any further.

"With longing eyes observing to survey
Some smooth ascent or safe sequestered bay.
Between the parting rocks at length he spied
A falling stream with gentle water glide,
Where to the seas the shelving shore declined
And formed a bay impervious to the wind.

"The fragments of basalt washed down by the river or torrent of Machico abound in olivine, (sometimes presenting the regular crystalization of chrysolite,) pyrites and lime; the latter generally botryoidal and lining small cells.—*Excursions in Madeira.*"

a mile in depth. Near the north end of it is the village of Santa Cruz, and two large water courses or ribeiras.

In front of the village is a stony beach with a rocky point at each end of it, crowned with a redoubt, and the water shoals gradually to the beach. Eastward of Santa Cruz, the coast and land is rather low. To the southward of the village the cliffs again increase in height, and have deep water quite up to them.

S. 40° W. 0·9 of a mile from Ponta Guindante is Ponta de Atalaya. The village of Porto Novo is situated close round Guindante in a small shingle bay where a considerable ribeira has its outlet.

From the ribeira to Atalaya point, the cliffs are high and steep. The point of Atalaya is itself formed by a few large stones at the base of the cliffs, but there is a singular small pointed peak on the cliff close to it which marks its position well.

From this point Ponta Oliveira bears S. 51° W., one mile. Between them the coast has a slight bend in it; there are two small beaches; and in front of the first one named Portinha are some detached flat rocks; behind which some fishing boats are hauled up: a small redoubt commands it. At the south side of the second beach is a very large ribeira; and on the top of its southern bank, a short distance from the edge of the cliff a fort.

From Ponta Oliveira, Cabo Garajao (the Brazen Head,) bears S. 75° W., distant one mile. The former is a clean rocky point steep to, upon which you can land, and the ascent from it is easy. The latter is a bold rocky headland jutting out about 350 yards at right angles with the line of coast to the eastward of it. It is faced by perpendicular cliffs of reddish yellow Tufa, and above them is a narrow hilly ridge of land crowned by a rocky knob or knowl, 420 feet above the sea, which particularly distinguishes the head when seen from the westward. Upon the top of the head a little above the rocky knowl is a telegraph which commands an extensive view to the eastward, and reports all vessels in in that quarter to the telegraph on the Loo rock. The Cape is steep to, there being 7½ fathoms within 20 feet of the cliffs, 38 fathoms, a quarter mile off, at half a mile 75 fathoms, and at six-tenths of a mile off there will be found 200 fathoms: the edge of the bank of soundings between Caniçal and this head follows the general direction of the coast, at distances varying from six-tenths of a mile to one mile.

On the east side of Garajao the coast is formed by high cliffs on the west, adjoining it is a small shingle beach, and thence westward the coast line presents a series of rocky cliffs and small stony points to Santiago fort.

From Cabo Garajao the next extreme point seen to the westward is Ponta da Cruz, bearing from it S. 87° 40′ W., distant 4·92 miles. The fort of Santiago lies seven-tenths of a mile within this line of bearing, and exactly midway between Garajao and the point. Beyond it a shingle beach extends seven-tenths of a mile to the westward in front of Funchal, and terminates at Fort St. Lazarus.

The shore then becomes rocky, and rises into a bold basaltic bluff,

opposite the Loo rock. A little beyond which the bluff turns abruptly inland, and disappears, and the shore slopes to the peninsula of the Pontinha.

The Pontinha is an artificial embankment carried out in a south-easterly direction from the land to a small islet which is crowned by the fort of San Jose. The work affords some shelter from south-west winds; and on its eastern side is the most convenient landing place, there being on the inner side of the islet a flight of steps which lead from the sea to the fort, and to the top of the embankment which joins the road to the city. It also affords considerable protection to the vessels which occasionally seek shelter behind the Loo rock.

The nearest distance from the east extreme of the Pontinha to the west extremity of the Loo is about 110 yards: and from the nearest point of the Loo to the beach of large stones at the base of the basaltic bluff, opposite to it is 175 yards nearly.

The Loo is a steep rock 70 feet above the sea, rendered by art quite inaccessible excepted by steps built up that side of which is opposite to the land. Its extreme length is about 100 yards and breadth 35.

The whole summit of the rock is formed into a fort to command the anchorage, containing barracks, store-house, magazine, and chapel. It mounts 14 guns, and is always garrisoned. A telegraph has been erected on the top of the highest building which communicates with others on the heights, east and west of it, and with the city, this telegraph is in latitude 32° 37′ 45″ N., longitude 16° 55′ 20″ W.

Vessels sheltered under the Loo are moored with their heads towards it by several cables, secured to the rocks by large ring bolts, or through holes cut in the lower part of it expressly for that purpose. The stern-fasts are secured to the shore opposite.

The depth of water in this little port, if port it may be called, varies from 3 to 5 fathoms, and the bottom is generally rocky.

The Navigation Laws.

June 12th, 1848.

Sir.—Upon such a momentous question, the political economist who makes himself master of the subject, who traces back the effects arising from the changes which from time to time have taken place in those laws, the arithmetical calculations of which are made from official documents, and who has a thorough knowledge of the present state of commercial affairs at home and abroad, can alone as an individual, be considered competent to pronounce upon the propriety, or otherwise, of altering, or altogether rescinding the main clauses embraced in those laws. Yet, it is not improbable that some of those persons who speak and write for and against the proposed alterations are not sufficiently informed on the general subject.

The abstract idea that trade should be free and unfettered may be admitted as just. But it is contended that in a country insulated from the rest of the world, as Great Britain is, and has therefore, to place her dependence on her ships of war, and her supply of seamen, principally, for her safety from foreign aggression, the consideration of the subject must be extended.

Trade, both home and foreign, in a great measure, produces the means for national support, and of course our mercantile marine is the instrument which enables the portion of those means drawn from the interchange of commodities abroad, to find its way into the exchequer. It then becomes a main point for consideration whether the protection (so imagined at least) hitherto afforded to the shipping interest, if removed, would be detrimental to it. Next, it is essentially necessary to understand clearly whether, or not, our merchants and shipowners, and also our shipbuilders are capable of competing with foreigners occupying similar positions. This appears to be the pivot point, to which the timber duties are correlative. The third point relates to the supply of seamen from the merchant service to the royal navy, and on this alone I shall venture a remark or two.

Time brings about most unexpected changes, even to a complete reversal of circumstances, although these, in past years seemed fixed and immutable! Indeed, some mutations occur so gradually that the mind is not cognizant of the fact until, from computation, it is made sensible that illusion has no share in the wonder. Is the merchant service now really the "nursery" for seamen for the royal navy? Does any one suspect that the term is nearly absolute in point of fact? Figures demonstrate that it is fast becoming so, and the apprenticing of boys on board of vessels of war will, in a few years, probably, make it completely so: the navy will become the nursery for the merchant service; and that point once gained, there will be no necessity, in all human probability, of resorting to impressment; and the captain of the merchant ship will have his account in that change, for the seamen will be well trained in subordination; and, if properly treated, will make his care less onerous.

If that view be correct as an inference, of course the fears which have been entertained by some persons, of detriment to the navy, from the contemplated abrogation of the apprentice clause, with reference to the merchant service, will not be realized. It will rest with the shipowner and captain to employ lads as hitherto, or not; the compulsion being removed, relieves the owner's pocket of the ten shillings per week, he was bound to pay to the apprentice when in harbour at home.

But, the point most important to consider under this head is:—should the shipowner prefer employing men instead of boys, (in certain proportion to the crew,) what effect would that (supposing it general) have on the aggregate supply of lads into the entire sea-service? Is the total number annually received into the royal navy much greater than the total number of apprentices hitherto bound yearly to the merchant captains?

To make the change work well, must you not be prepared (under the

the above point, if occurring,) to enter into the navy a certain number of boys, numerically equal to the amount of apprentices annually entered (when compulsory) on the books of merchant vessels, and over and above what are required for the men-of-war themselves, with a view of not only keeping up the supply of seamen, but of bringing them up for the merchant service; and will it not be necessary also, to make those lads familiar with hold stowing?

There is another consideration; if the apprenticeship is entirely done away with, how are youths to be brought up for ultimate command of ships? That will rest entirely with the owner, who, perhaps, may be induced to follow the plan adopted in the East India ships, and enter lads of respectability, whose parents can afford to pay a certain sum for the station of sea-cadet. In the course of a short time, however, many of the youths transferred from the royal navy to the merchant service, having been well instructed during their probation, would be fit either for the station of mate or master; and if such should prove the case, the shipowner would not, perhaps, find reason to regret the change.

That the lads received on board of men-of-war, should not all be exclusively, natives of the royal navy sea-ports. Tenders, no doubt, will be sent to all the other ports of the United Kingdom; this will relieve the parents in humble life, who hitherto have had the merchant service open to them for the reception of their sons, of a considerable degree of anxiety, which the abrogation of the apprentice clause would occasion, and be the means of still fostering the love of a nautical life, which the lads of our sea-coasts imbibe from their familiarity with seamen and the sight of shipping.

It is not questionable that the government is fully informed on all points connected with so important a matter: certainly, with the command of all official documents which bear on each and all of the points, and the information derived from the labours of Committees, it at least ought to be more completely so than an individual could be expected to be on the general question.

ARGONAUT.

To the Editor N.M.

THE BOARD OF COMMISSIONERS OF NORTHERN LIGHTHOUSES.

THE trade of Scotland had begun to increase very soon after the settlement of the civil war in 1745; but it was not till the year 1784 that the general establishment of sea lights upon the coast appears to have been brought under the notice of the legislature. In that year the subject was first mentioned at a meeting of the Convention of the Royal Burghs of Scotland, by Mr. Dempster of Dunichen, M.P., Provost of the Burgh of Forfar; and in the year 1786, that gentleman brought a bill into Parliament, and an act was obtained establishing the present Board of Northern Lights.

This act sets forth "That it would conduce greatly to the security of navigation and the fisheries, if four lighthouses were erected in the nothern parts of Great Britain, one on Kinnaird's Head, Aberdeenshire, one in the North Isles of Orkney, one on the point of Scalpa, in the Island of Harris, and a fourth on the Mull of Kintyre, Argyllshire:" and it accordingly authorises the erection of those four lighthouses; the Commissioners appointed for carrying this act into execution were the Lord Advocate and Solicitor-General of Scotland, the Lord Provost and first Bailie of Edinburgh, the Lord Provost and first Bailie of Glasgow, the Provosts of Aberdeen, Inverness, and Cambelton, the Sheriffs of the Counties of Edinburgh, Lanark, Renfrew, Bute, Argyll, Inverness, Ross, Orkney and Zetland, Caithness, and Aberdeen. An act was subsequently passed, which authorised the Commissioners, when any new lighthouse was established on any part of the Coast of Scotland, to add to their number the Provost or Chief Magistrate of the nearest Royal Burgh, and also the Sheriff-Depute of the nearest county; and, by the exercise of this power of assumption, the Board now includes the Sheriffs of the counties of Ayr, Fife, Forfar, Wigtown, Sutherland, Kincardine, and Kirkcudbright.

To enable the Board to carry on the intended works, and to provide the means of maintaining the lights, those acts gave power to the Commissioners to levy a duty of 1*d.* per ton on British vessels, and 2*d.* per ton on foreign vessels: and liability to pay this duty was incurred by all vessels passing any of the lighthouses in the course of a voyage; but this single payment freed them from any further exaction, although they should pass more than one lighthouse in the course of the voyage.

The Board held its first meeting at Edinburgh on the 1st of August, 1786. A secretary and engineer were appointed, and a resolution was adopted to borrow £1200. For this sum the magistrates of the five Royal Burghs named in the act interposed their security, and, at the same time assigned, in farther security, the duties under the Act of Parliament. After appointing a committee to prepare matters for a general meeting, they adjourned till the 23rd of January, 1787. Some inconvenience having been felt in conducting the business of the Board, particularly in holding of stock, and other property by reason of its not being an incorporated body, an Act was obtained for erecting the Commissioners into a body politic, by the name of the "Commissioners of the Northern Lighthouses." Several acts have been subsequently passed, in order to facilitate the erection of particular lighthouses, and for the purpose of granting duties for their support. All those duties, however, are now abolished, and others have been substituted, the collection of which is regulated by an Act, 6th and 7th Will. 4th., cap. 79, intituled "An act for vesting lighthouses, lights, and sea-marks on the coast of England, in the Corporation of Trinity-house of Deptford Strond, and for making provisions respecting lighthouses, lights, buoys, beacons, and sea-marks, and the tolls and duties payable in respect thereof." This act declares "that from the first day of January, one thousand eight hundred and thirty-seven, the tolls now payable by or in respect of vessels for or towards

the maintenance of the several lighthouses at present under the management of the Commissioners of Northern Lighthouses shall cease to be payable, and that in lieu thereof, there shall henceforth for ever be paid to the said Commissioners of the Northern Lighthouses, for every vessel belonging to the United Kingdom of Great Britain and Ireland, (the same not belonging to his Majesty, his heirs, or successors, or being navigated wholly in ballast,) and for every foreign vessel which, by any Act of Parliament, order in council, convention, or treaty, shall be privileged to enter the ports of the said kingdom, upon paying the same duties of tonnage as are paid by British vessels (the same not being vessels navigated wholly in ballast,) which shall pass any of the said lighthouses, or derive benefit thereby, the toll of one halfpenny per ton of the burden of every such vessel for each time of passing every such lighthouse, or deriving benefit thereby, a toll of one penny per ton for each time of passing the Bell Rock lighthouse, and double the said tolls for every foreign vessel not so privileged."

And with regard to any new lighthouses to be hereafter erected it is provided, that there "shall be paid to the commissioners by the owner, or other person having the command of any vessel not belonging to his Majesty, which shall pass such lighthouse, or derive benefit thereby, such reasonable toll as shall have been first approved in that behalf by his Majesty in council."

Before the passing of this act, the Commissioners had been uncontrolled in the selection of stations for lighthouses, or in choosing the characteristic appearance for the lights; but it being considered desirable to have a systematic arrangement in the three kingdoms, the Irish Lighthouse Board, as well as the Commissioners are now required to give notice to the Corporation of the Trinity-House of Deptford Strond, before altering the character of any light, or erecting any new lighthouse: and that Corporation must, within the period of six months after receiving such notice signify their opinion as to the propriety of the change, or the utility of any new lighthouses submitted for their consideration. The act, however, provides, that, if the Commissioners are dissatisfied with the opinion of the Trinity-House, they may appeal to the Privy Council, whose determination is final. By this Act, also, an important power is given to the Commissioners to control the exhibition of all harbour and local lights, or other sea-marks, and to prevent the exhibition of any lights or fires on the sea coast which might be mistaken for the regular lights exhibited by the Board.

In the Appendix I have given a copy of the annual statement of the income and expenditure of the Board for the year 1846, prepared by Mr. Alexander Cuningham, the Secretary to the Commissioners.

Lights established since 1821.

Since the Sumburghead lighthouse, in Zetland, was lights in the year 1821, with a notice of which the accounts of the Bell Rock lighthouse concludes, the Commissioners have been engaged in the establishment of seventeen new lighthouses, and the remodelling of several old

ones; and they have more particularly effected important changes in the mode of illumination, and have begun to place beacons and buoys on the coast. They have besides executed several considerable improvements for the purpose of facilitating the communication with the lighthouses at Kintyre in Argyllshire, Cape Wrath in Sunderlandshire, and Dunnit-head in the county of Caithness, by the establishment of landing-piers, and the formation of roads, varying in length from three to ten miles, in connection with those stations.—*Stevenson's Skerryvore.*

Nautical Sketches.

(Continued from page, 256.)

Among the ameliorations mentioned by one of the writers I have quoted, "was also a careful attention to the sick and convalescent, that had never before been known in the service. Sour crout (*i.e.* pickled cabbage,) the essence of malt, (considered an anti-scorbutic,) and molasses, greatly contributed to keep the men in health; and latterly, instead of rancid butter and rotten cheese, the men were served with cocoa and sugar."

He adds, in a note, that, "The seamen in the West Indies were obliged to Sir Samuel Hood, (afterwards Lord Hood,) for this salutary change in their diet; he having obtained the sanction of the Admiralty, that they should be served with as much cocoa and sugar as could be purchased for the price of their allowance of butter and cheese; and which was indeed more than sufficient."

In speaking of the greater efficiency of the ships, from the seamen being in much better health, in the West Indies, in his day, than they were formerly, he states the pleasing fact that, "during a period of the war, (probably about 1782,) there was an instance when in twenty-two sail of the line, there were not twenty-two men who could not come to their quarters."

No doubt a more careful attention to ventilation and cleanliness, to the supply of better food, and to the minor comforts of the men, our ships' crews may have been more healthy than in preceding times, when such essential points were less attended to. But the endemic diseases of the West Indies are not to be entirely warded off by any means which human sagacity and care can devise. The yellow fever, for instance, there is no antidote against, at present known; whether contagious, or merely infectious, it will take its course in defiance of the most careful precautions; and the only certain method for arresting its spread, or lessening its severity, seems to be to run from the locality, and proceed to the northward into the cooler latitudes.

The smaller size frigate-built ship should not be employed in tropical climates; corvettes are the healthiest vessels on such stations. In some ships, the watch on deck brought their hammocks up, by which

plan there was a freer circulation below; and as many of the men as could find room, slept under the half-deck and forecastle. But, a main point is, to keep the spirits of the men buoyant by every possible indulgence consistent with the discipline of the ship; for, depress a man, in the clime we are speaking of, and you pre-dispose him to disease.

Our author speaks of the efficiency of the navy during the first American war, in these words, "There is no doubt that the internal discipline of his Majesty's ships was in general brought to as great a degree of perfection, almost as it is capable of receiving. I say, in general. There were indeed exceptions; but, in captains bigotted to old customs, and whose ships might always be distinguished by their awkwardness and inactivity, and the indifferent figure they cut in action, though commanded with bravery."

Had the officer, above quoted, lived to this time, he would have found that the naval service had not nearly reached to the perfection it was capable of, in the American war; it has greatly improved since, and probably will yet be further improved.

The difficulty of procuring seamen was, it appears, as great as it has been since; he remarks, "Surrounded by enemies, all the seamen we could muster were scarcely equal to the nation's defence." It is probable we shall find a similar cause for complaint in any future war, unless some plan be adopted for ensuring a routine of servitude in the Royal Navy; and Nautical schools be introduced in the principal seaports.

The number of our seamen have no doubt, greatly increased since 1776, proportionately to the increase of the mercantile marine, but it must be recollected that the empire has also increased; which circumstance demands an augmentation of ships of war for its protection, and, of course, the number of seamen required for public service, will far exceed what was necessary formerly. A regular system is therefore, a desideratum, in lieu of impressment: routine service alternately in both services seems to be the best mode to be adopted, though that may be attended with difficulties.

When there is not a superabundance of seamen, one circumstance arises, which, as much as anything harrasses and depresses the crews of men-of-war. Our author has alluded to it:—"They no sooner returned from an attack in one ship, than they were put on board another ready for sea, and were deprived of that repose and recreation which they had experienced in former wars. This was indeed to be lamented; for such are the fatigues of the sea service, that it would prove absolutely intolerable, if there were not periods of relaxation and repose. * * * * But, if he (the seaman) is never to hope for indulgence, you may compel him to tug at the oar like a galley-slave, but you will destroy the energy of his health and spirits."

The same deplorable circumstance occurred during the revolutionary war, from a want of foresight and system. The insufficiency of able-seamen and sailors, compelled the Admiralty not only to draft the crew from one vessel to another, but, in repeated cases, to break up altogether that unity of spirit and brotherhood which it is so desirable to cherish,

by distributing the men in lots to different vessels bound to very different parts of the world. Thus the ties of friendship, and assuetude of close association, which emulate a crew to excel were broken.

The feeling which bind seamen to one another, and to their floating home, is almost as powerful as that which unites a family, and the love of home; and it becomes an incentive to emulation. Not to be outdone in action with the enemy, or in smartness by other ships, is as much the pride of the seaman as it is of the captain and officers. Hence it may be seen how essential it is for the good of the Service, that, during a war, whenever necessity does not compel to a contrary course, a ship's company should not be disunited. The *Shannon's* crew had been four years together, and under the mild but firm rule of a gallant and experienced commander, performed an action scarcely second to any which occurred during the war.

The idea that discipline cannot be maintained without the use of the "cat", I, for one, think fallacious. It can be maintained without its use,—nay, more it has been. The number of lashes which may be inflicted, being reduced and fixed is the commencement of a profitable end; it will gradually die away altogether, and whenever that glorious time shall arrive, men will wonder how it was possible for an enlightened mind to have entertained such a barbarous idea, and put it into practice.

The Arctic Expeditions.

Arctic America may be well called the field of British adventure. From the early days of the Cabots, even down to the present time, our seamen with undaunted perseverance have gradually pushed forward the limits of discovery until at length the whole shore of the continent, washed by the Polar Sea, has been explored.

In former volumes of this work we have recorded many of the particulars of these expeditions;* the last that of Sir John Franklin in 1845, is now the object of the deepest solicitude and anxiety. Our readers are aware that in May 1845, Sir John Franklin in command of the *Erebus*, (Commander now) Capt. Fitz-James, and Capt. F. Crozier in the *Terror* left this country, to penetrate from Baffins Bay into the Pacific Ocean by Bhering Strait. They were accompanied as far as the Orkneys by two steam vessels, and as far as the Whalefish Islands in Baffins Bay by the *Barretto Junior*, transport, Lieut. Griffiths, with stores and provisions, and were last seen on the 26th of July of that year by the *Prince of Wales* Whaler in lat. 74° 48′, and long, 66° 13′. Both ships then had a full supply of provisions for three years, since which time no further accounts have been received of them.†

The present expedition is, therefore, sent in search of them, under the

* See vols for 1834 also 1845.

† We must refer our readers to our volume for 1845 in which many particulars of them will be found, and also to a little map of North America in our vol. for 1833, which will assist in tracing the progress of the parties at present em-

guidance of Captain Sir James Ross, who sailed in May, and passed the Pentland Firth, on the 19th of that month. The ships that have sailed on this important and interesting service, are the *Enterprize*, commanded by Sir James Ross, and the *Investigator*, commanded by Captain Bird, both ships having been purchased and specially fitted by Messrs. Wigram and Green for the purpose, as recommended by Sir James Ross. It is gratifying to know that in the opinions of those who are best qualified to judge on the subject, Sir John Franklin and his party are yet safe, his provisions being ample with care, to last him untill the summer of 1849; and although, after so long an interval there is much room for speculation, yet there is no good reason for doubting the safety of the *Erebus* and *Terror*, when the usual precautions against the dangers of ice navigation are adopted. We must now refer the reader to the little map of the North Polar Regions in our volume for 1834, to assist him in reading the following general outlines of instructions to the commanders of the expeditions now gone in search of them.

Outline of the Instructions to Sir James Ross.

To proceed up Baffins Bay, into Lancaster Sound, and Barrow's Strait, carefully searching both their shores for any notices that may have been deposited there, or, for any indications of their having been visited by Sir John Franklin's ships.

Should the season admit of it, to extend a similar examination to the shores of the Wellington Channel, opening to the northward from the northern shore of Barrow Strait, about 250 miles inside the entrance.

Then carefully to examine the several intervals of coast between Capes Clarence and Walker, by aid of the steam launches and boats with which the ships have been supplied.

These researches, it is to be hoped may be made before the ice compels them to secure their ships for the winter months. When that period has arrived the *Investigator*, (Capt. Bird), is ordered to be placed in some port near Cape Rennell situated in latitude 74·1° N., longitude 93·2° W., on the south side of Barrow Strait, from whence in the spring parties are to be sent across the ice to look into the creeks along the western coast of Bothia, so far as Cape Nicolai, in latitude 70·8° N. and longitude 97° W., as well as to the southward, to ascertain whether the blank space shown in the chart consists of an open sea, through which Sir John Franklin may have passed, or a chain of islands among which he may be still blocked up.

On the opening of the ice this *eastern* vessel is to detach her steam launch to Lancaster Sound, in order to meet the whale ships in Baffins Bay, by whom Sir James Ross will receive further instructions, and is to send home accounts of his proceedings.

The *Enterprize* having pressed forward to the *westward*; is ordered

ployed. But those who desire to follow every step that has been adopted concerning this expedition, as well as to possess the different charts of the parts in question published by the Admiralty on a large scale, should obtain a copy of the return to an address of the House of Commons relating to the Arctic Expedition, moved for by Sir Robert Inglis, on 21st March this year.

to use every endeavour to reach Winter Harbour, in Melville Island, or Banks Land, and exploring parties are to be sent out in the spring. One party to pursue the coast, in whatever direction it may seem likely to have been followed by Sir John Franklin, and to determine the general shape of the western face of Banks Land. This party is to proceed direct to Cape Bathurst, or Cape Parry, on the main land, at which places Sir John Richardson is to leave provisions, and thence to advance to Fort Good Hope, and up the Mackenzie, so as to return to England by the usual route of the trades.

Another party is to explore the eastern coast of Banks Land, and thence to Cape Kruzenstern, or Cape Hearne, there to join Sir John Richardson, and to assist him in examining the shores of Victoria and Wollaston Islands, and finally return to England by whatever route he may deem advisable.

Outline of Instructions to Commander Moore of the Plover, and Capt Kellett of the Herald.

To make the best of his way to Bherings Straits, where he will be joined by the *Herald*, Capt. Kellett, and to proceed along the American coast as far as possible, consistent with the certainty of preventing the ships being beset by the ice. Four whale boats are to be dispatched along the coast to look for a harbour in which to secure the *Plover* for the winter, and having found one, two of the boats are to conduct the *Plover* to the harbour, while the other two are to proceed along the coast in search of Sir John Franklin; and to communicate, if possible, with Sir John Richardson's party, which is to descend the Mackenzie.

These boats are to return to the *Plover*, if possible, before the winter sets in; if not, they are to proceed up the Mackenzie to Fort Good Hope.

The *Herald* having seen the *Plover* housed in, &c., will return to the southward, giving intelligence of the spot where she left the *Plover*. In the spring boat expeditions are again to be dispatched towards the Mackenzie.

In July, 1849, the *Herald* will rejoin the *Plover*, to re-equip the latter vessel for a second winter, if necessary; and for repeating the above operations for the search after Sir John Franklin.

Outline of Instructions to Sir John Richardson.

To proceed on an overland expedition, and down the Mackenzie to the shores of the Arctic Seas, and to examine the coast between the Mackenzie and Coppermine rivers, and to coast, as much as possible, the western and southern shores of Wollaston Land, ascending the Coppermine to some convenient spot for Winter quarters, or else the Mackenzie to Fort Good Hope. He is to leave deposits of provisions for Sir James Ross's parties at Point Separation, and Capes Bathurst, Parry, and Kruzenstern.

Should it be necessary to continue the search a second summer (1849), he is to examine the passage between Wollaston and Banks and Victoria Lands, so as to cross the route of Sir James Ross's detached parties,

and to return to Great Bear Lake in September, 1849, and to withdraw the whole party from thence, to winter on Great Slave Lake; and in the breaking up of the weather in the spring of 1850, to return to England.

Offers of Rewards to Whale Ships for tracing Sir John Franklin's Expedition.

The Admiralty has offered a reward of one hundred guineas to any whale ship which may give authentic intelligence of the progress of the *Erebus* and *Terror* into Lancaster Sound, and Lady Franklin has offered a reward of two thousand pounds to be distributed as stated in the following document.

Reward offered by Lady Franklin, of Two Thousand Pounds to Whalers.

With the view of inducing any of the whaling ships which resort to Davis Strait and Baffins Bay, to make efforts in search of the expedition under the command of Sir John Franklin, in those parts which are not within the scope of the expeditions about to be sent out by Government, I hereby offer one thousand pounds (£1,000,) to be divided as follows: to the owner, captain, officers, and crew of any ship which shall depart so far from the usual fishing grounds as to explore Prince Regent Inlet, Admiralty Inlet, Jones Sound, or Smith Sound, provided such ship, finding the above expedition in distress, shall communicate with, and afford it effectual relief.

To the owner, two-tenths, or . .	£200
Captain, one-tenth, or . . .	100
Chief mate, one-twentieth, or . .	50
Next two officers, one-fortieth, or £25 each	50
The remaining six-tenths, or . .	600

to be divided among the rest of the ship's company.

And further, I hereby offer an additional sum of one thousand pounds (£1000) to be distributed in the same proportions to the owner, officers, and crew of any vessel which shall at an early period of the season make extraordinary exertions for the above object; and, if required, bring Sir John Franklin and his party to England.

The whole, or part of this last £1000, will be granted according to the decision of Sir John Franklin, or the commanding officer of the expedition relieved. In other respects, the decision of the following gentlemen, who have kindly consented to act as referees in awarding the above £2,000 is to be final, viz. Admiral Beaufort, Captain Sir W. E. Parry, R.N., and Thomas Ward, Esq., of Hull.

JANE FRANKLIN.

20, *Bedford Place, London, March, 20th* 1848.

Accounts have been received from Dr. Richardson which state that, he arrived at the Sault St. Marie, (foot of Lake Superior,) on the evening of the 29th of April, and having made his arrangements respecting canoes, was to proceed onwards on the 2nd of May. He says "Lake Superior was three days ago partially open for boat naviga-

tion; but, is at present, closed by drift ice accumulated in the narrows at Point aux Pins. It is, however, my intention to set out with the canoes to-morrow afternoon, and to encamp at the Point named, if necessary, to wait for the first favorable opportunity of pushing through."

More reeently accounts have also been received of the *Plover* having been spoken in lat. 1° N., and long. 16° W., on the 18th of March. She left Plymouth on the 31st, January, having been prevented leaving on the 1st of that month as intended, by a leak which it was necessary should be stopped.

In conclusion, we may briefly observe that, to us the present expeditions, as a series of efforts to regain Sir John Franklin's ships, appears on every account the most proper that could be adopted, as being the most likely to be attended with success. Sir James Ross in the *Enterprize and Investigator* follow the same course as that of Sir John Franklin to the commencement of Barrow Strait from Lancaster Sound, and there especially will the shores be swept by the anxiously scrutinizing telescopes of Sir James Ross and his party, for any and every symptom of a beacon left by Sir John Franklin.

From this kind of search especially, we entertain the opinion that the first notices of him and his party will be obtained. Should even one of these beacons be found, it may be anticipated that such records will then be discovered beneath it, as would throw light not only on his former proceedings, but also his future intentions. Thence a clue would at once be obtained to the track he would follow, and to the place where it is most likely he would be found. Considering this part of the present expedition as the most likely to be rewarded with success, we may next look to Sir John Richardson. When at the mouth of the Mackenzie river, this officer will be in the most likely position to obtain some tidings of Sir John Franklin, should he have penetrated to the westward and southward of North Somerset; and again, should Sir John Franklin have penetrated further west, Capt. Kellett and Commander Moore in the *Herald and Plover*, will be found in the vicinity of Bhering Strait, ready to assist in extricating the ships from the Polar Sea.

Such a scheme of operations has resulted from the experience of those who were consulted, as being the persons best acquainted, (from experience with the whole subject,) with the locality in question, and the difficulties attending its navigation. That success may attend it is the prayer of many an anxious heart. It has been wisely planned, its execution is confided to the most able officers which the country can produce, and the result remains with that Providence which "knoweth all things," and "ordereth all things."

SKERRYVORE LIGHTHOUSE.

THOSE of our Nautical readers who have frequented the North Channel of Ireland, well know the dangerous group of rocks off the island of Tyree, South of the Hebrides, and have rejoiced on seeing the magnifi-

cent tower which now adorns those formidable dangers. An account published by Mr. Stevenson of the construction of this building, the largest of the kind on the shores of this country, we had occasion to notice in our last number. It is a volume not only replete with interest to the engineer, giving him a faithful record of the work to its completion, and thence a model to follow, but also particularly interesting to the seaman, for besides shewing him the dangers to be overcome in their construction, Mr. Stevenson adds a brief history of lighthouses in general, up to the original Pharos itself. Hence it particularly concerns them, and we shall take opportunities of returning to it hereafter.

For the present we find in a contemporary journal* well known for the ability with which it is conducted, sentiments so completely our own that we at once adopt them.

Skerryvore will withstand for hundreds of years the storms and blasts which burst upon it, and those who look at it will see, with wonder, its strength and its bulk, and acknowledge its builder has done his work. A rock of stone is raised upon the crags of Skerryvore, but the even seams hide all the work within: each layer buries from sight the cunning handiwork beneath it. The very finish stands as it were in witness against the hardihood of the builder; and there is nothing scarcely to show his skill,—nothing to show the care, the sweat, the peril spent in putting stone on stone, among threatening waves and sweeping winds, which shook the narrow dwelling of the workmen, ready to dash them into the troubled sea which yawned beneath them. There is greater heroism in fighting against such risks, than in shedding blood in every field of Scinde, or in warring against the bold highlanders of Cabul. Nor can the sailor even claim the perils of the ocean for himself; but the engineer shares them with him. Great as are the risks which our seamen have to meet, they are not greater than Mr. Stevenson and his workmen underwent on the rock of Skerryvore. The first shelter they raised was wrecked in a winter's storm, and they dwelt for months in a barrack upon the rock, which they could not but believe was threatened with the same end. Cranes, windlasses, forges, and anvils, were tossed about the rock by the storm, as freely as pebbles, dashing timbers to pieces, and helping to tear away the works which were laid down. No tool could be left for a day without being lashed to ring-bolts, and even these were sometimes snapped off. The surf dashed in sheets against Mr. Stevenson's window, fifty feet above the sea; and one night, he tells us the barrack reeled so with the shock of the waters, that all the men leaped from their hammocks with a fearful wail, believing that their doom was come, and that they should be swept into the seething waters.

Here were they sometimes laid up for days, unable to stand upon the slippery rock, or to face the sweeping storm; and lying in their hammocks day and night, for shelter against the bitter cold. Sometimes they were left almost without food, for the steamer could not always keep the sea; and once their stock was brought down to the wants of

* *The Civil Engineers and Architects' Journal.*

one day only. At all times it was hard to land, or to get the stones out of the lighters; and often they were hauled back by the steamer after snapping every warp. The rock was as smooth as glass, and so narrow that the workmen had hardly room to work. In blasting for the foundations, there was no shelter under which the men could lie down; so that Mr. Stevenson had to cover the rock with matting when blasting was going on. On this spot, they worked under the broiling sun while daylight lasted, snatching only hasty meals; and their nights they spent the first year, in an uneasy ship, which often made them sea-sick; and afterwards in the barrack, whence the storm might have in one moment hurled them from sleep to death.

The few words which Mr. Stevenson gives to these risks he and his fellow-workmen underwent, have all the charm of romance, and may well be put side by side with any tale of the sea. They are most pleasing, however, as a record of true courage, successfully exerted in a useful undertaking. Had we not this record, we should know but little of what Mr. Stevenson has done, or how to rate him at his true worth; indeed, half of his merit would be lost, for the mere workmanship is the least which he can boast of; and others could match him even in that. The skill, the foresight, the battle with the hardships of every kind, which beset this undertaking, tasked his powers to the utmost; but he answered to the call.

Professional gallantry in meeting danger is, we are happy to say, far from rare. The engineer is ever ready to share with the workmen in every work of risk, and there are few great works which have not some tale of gallantry to tell. The lighthouses of the Eddystone, the Bell-rock, and Skerryvore, were beset with peril; in the tunnels under the Thames, Trevithick, Sir Mark Brunel, and Mr. Gravatt, risked themselves; and daily, wherever a new locomotive is tried, a new boiler is set up, a new mine opened, or a new engine built, some engineer puts his life at stake. Courage is not the virtue of a blue coat, or of a red one: the medical man who meets typhus in the abodes of the poor, is a greater hero than he who boards another's bulwarks, or who storms a breach; because he has no hope of glory or advancement, and a greater chance of danger.

The reader of Mr. Stevenson's book is sure to be struck by the thought of its value to engineers now and hereafter, but most to those in our far settlements, who have no chance of going to Skerryvore, or or to the Eddystone; and who, indeed, if they had, would see the work; but not how it has been done. Mr. Stevenson has been careful fully to explain every step which he took, to account for his failures, to give the reasons by which he was led, and to describe every process, however common, or however trifling. He thought that nothing belonging to his work was beneath him; and as he looked into everything, he was enabled even to make improvements in many of the common operations. By recording what he did, he enables others to do likewise, and to follow in his path; and no one thinks that his book is too long,—but rather, each wishes that it were longer, though nothing is left out. Care in

such works is highly needful, and is most wanted where there are no bounds to the outlay which may be made. By leaving out such dove-tails and ribbands as Smeaton and Thomas Stevenson had in their lower layers, Mr. Stevenson saved above £4,000 in the cost of dressing the granite, and without any loss of strength or safety. By getting every-thing ready before-hand, he had no loss of time in running up his build-ing on the rock, but had every stone dressed, so that it was right to the eighth of an inch; and the whole building is as well finished as if it were raised upon the main land, with every help at hand, whereas, there was hardly room on the rock for blasting, no mooring ground, no pier, no quay, hardly room for a windlass, and everything was brought from Hynish twelve miles off.

Whoever reads this book must think more highly of the labours of engineers; but when we look at the wonderful works which are spread over this land, we cannot but wish that we had as good records of them. The public will name many who are well able to do justice to their own labours, and the fulfilment of the public wish would greatly enrich our libraries. The history of the Liverpool and Manchester Railway, by Mr. George Stephenson, would be a hand-book for all time. Mr. Robert Stephenson, M P., has in the London and Birmingham Railway a good subject for illustration. Mr. Lock, M.P., can do no better service to the profession than by the publication of an account of the Grand Junction Railway. Mr. Brunel has spent many years upon the perfection of the broad-gauge system, and has in the Great Western Railway achieved a success which should not be forgotten. Mr. Cubitt has allowed his assistants to give accounts of the tunnels and blasting operations on the South Eastern Railway, but a full account of the whole line is wanted from his own hands. We hope the time is not far off when we shall see these among other contributions to our professional literature.

We shall now call attention to the rocks on which the Skerryvore lighthouse was raised. They form part of a long reef, eleven miles to the south of Tyree, in the outer range of the Hebrides or Western Isles, so that they are in the sea-way between Scotland and Ireland; and ships from seaward, if they miss the north of Ireland, are often driven on Skerryvore, where many wrecks have happened. In 1814, an act of parliament was obtained for building a lighthouse, but it was not till 1834 that Mr. Alan Stevenson was sent to make the first survey.

At low tides, Skerryvore measures about 280 feet square; but it is cut up by gullies of unlooked for depth, so that the solid part is only 160 by 70 feet, On this a loaf of rock, about five feet broad, rose to the height of eighteen feet above high-water level, the greater part of the rest being about six feet above that level. The rock Mr. Stevenson calls a syenitic gneiss, consisting of quartz, felspar, hornblende, and mica.

It was not till the summer of 1835 that the survey was finished, and Hynish, in the wretched island of Tyree was chosen for the workyard. This is twelve miles from Sherryvore. In 1836 and 1837, quarries were opened in Tyree, and in the latter year the pier at Hynish was begun.

The first barrack raised was swept away by the sea, so that in 1839 the summer was spent in raising another, and in excavating the foundation of the lighthouse tower. The difficulty of doing this may be appreciated from the following account :—

"It was commenced on the 6th of May, and was continued up to the last hour of our remaining on the rock, on the 3rd of September. A more unpromising prospect of success in any work than that which presented itself at the commencement of our labours, I can scarcely conceive. The great irregularity of the surface, and the extraordinary hardness and unworkable nature of the material, together with the want of room on the rock, greatly added to the other difficulties and delays, which could not fail, even under the most favourable circumstances, to attend the excavation of a foundation pit on a rock at the distance of twelve miles from the land. The rock, as already noticed, is a hard and tough gneiss, and required the expenditure of about *four times* as much labour and steel for boring as are generally consumed in boring the Aberdeenshire granite.

"After a careful survey of the rock, and having fully weighed all the risks of injuring the foundation, I determined at once to enter upon a horizontal cut, so as to lay bare a level floor of extent sufficient to contain the foundation pit for the tower. The very rugged and uneven form of the rock made this an almost necessary precaution, in order to prevent any misconception as to its real state, for it was traversed by numerous veins and bands inclined at various angles, on the position and extent of which the stability of the foundation in no small degree depended. That operation occupied thirty men for 102 days, and required the firing of no fewer than 246 shots, chiefly horizontal, while the quantity of material removed did not greatly exceed 2,000 tons. It was a work of some hazard; for the small surface of the rock confined us within thirty, and sometimes within a dozen yards of the mines, while its form afforded us no cover from the flying splinters. The only precautions we could adopt were to cover the mines with mats and with coarse nets, which I had caused to be made during the previous winter, of the old ropes of one of the lighthouse tenders, and in each blast to apportion very carefully the charge of powder to the work that was to be done. This was managed with great skill by Charles Barclay, the foreman of the quarriers, who charged all the bores, and, along with myself, fired all the shots. So completely did the simple expedient of covering the bores with nets and mats check the flight of the stones, that, except on one or two occasions, none of the splinters reached us, and all the damage done was a slight injury to one of the cranes. Perhaps, also, our safety may, in some measure, be attributed to a change which I introduced into the mode of charging the horizontal shots, by which all the risk of pushing home the powder in the ordinary mode with the *tamping rod* is avoided. That change consisted in using a kind of shovel formed of a rod, armed with a hollow half-cylinder of sheet copper, which contained the powder, and being inverted by giving the rod half a turn round its axis, made the powder drop out when the cylinder

reached the bottom of the bore. It was in all respects, excepting size, the same as the charging-rod used for great guns. The amount of materials removed by blasting, as nearly as I could ascertain, was only about 1,000 cubic yards; and, taking all the circumstances into account, it may be doubted whether there be any instance in modern engineering of an operation *of so small an extent* occupying so much time, and involving so great risk. The blasting of the rock, however, was not the only difficulty with which we had to contend, for it also became necessary to remove the quarried materials, amounting to about 2,000 tons, into the deep water round us, to prevent their being thrown by the waves upon the rock. I am well aware that the quantity of materials which I have just mentioned, will be apt to produce a smile from those who have been chiefly conversant with the gigantic but simple operations which generally characterise the great railways of this country; but if it be remembered that we were at the mercy of the winds and waves of the wide Atlantic, and were every day in the expectation of a sudden call to leave the rock, and betake ourselves to the vessel, and on several occasions had our cranes and other tools swept into the sea, the slowness of our progress will excite less surprise; and still less will those who duly weigh the dangers of our daily life, both in our little vessel and on the rock, and who, at the same time, reflect on the many striking proofs which we almost every hour experienced of the care of an Almighty hand, be disposed to withhold their sympathy from the heartfelt expressions of gratitude which often went round our little circle in the boats, as we rowed in the twilight from the rock to the ship. Isolation from the world, in a situation of common danger, produces amongst most men a freer interchange of the feelings of dependence on the Almighty, than is common in the more chilly intercourse of ordinary life.

"With a view to lessen the dangers of blasting in such a situation, I had provided a galvanic battery on the plan proposed by Mr. Martyn Roberts, but I used it less frequently than I intended. The attachments of the wires were very liable to be broken from various causes, where there were many men congregated in a small space; and so we could not venture to leave the apparatus on the rock. The frequent re-shipment of it in a heavy sea was another cause of the derangement of its parts. I soon, therefore, laid it aside, and only had a recourse to it when any work was to be done under water, or in cases where the simultaneous firing of several mines (for which it is admirably adapted) was of importance in effecting any special purpose.

"When the floor had been roughly levelled I again carefully surveyed the rock, with the view of fixing precisely the site of the foundation-tip, and of taking advantage of its form and structure to adopt the largest diameter for the tower of which the rock would admit. In some places I found that parts of the rock, apparently solid, had been undermined by the constant action of the waves, to the distance of 13 feet inward from its face; but none of those cavernous excavations reached the main nucleus, so that, after much deliberation and repeated examinations of all

the veins and fissures, I was enabled to mark out a foundation-pit 42 feet in diameter, on one level throughout. That was a point of no small importance; and although it had cost great labour at the very outset, much time was saved by it in the subsequent stages of the work. Not only was the labour thereby avoided of cutting the rock into separate terraces, and fitting the blocks to each successive step, as was done by Smeaton at the Eddystone; but the certainty that we had a level foundation to start from, enabling us at once to commence the dressing of stones without regard to any irregularities in the surface of the rock; and the building operations, when once commenced, continued unimpeded by the necessity for accommodating the courses to their places in the foundation-pit, so that the tower soon rose above the level, at which there was the greatest risk of the stones being removed by the waves before the pressure of the superincumbent building had become great enough to retain them in their places.

"The outline of the circular foundation-pit, 42 feet in diameter, having been traced with a trainer on deck, numerous jumper-holes were bored in various places, having their bottoms all terminating in one level plane, so as to serve as guides for the depth to which the basin was to be excavated. The depth did not exceed 15 inches below the average level, already laid bare by the cutting of the rough horizontal floor which has just been described; and before the close of the season of 1839, about *one-third* of the area of the circle had been cleared, and was ready for the final pick-dressing which prepared it for the reception of the first course. The excavation of this circular basin was conducted with the greatest caution, and few shots were permitted to be fired lest the foundation should in any place be shaken by the action of the gunpowder on any of the natural fissures of the rock. The work was chiefly done by means of what are called *plug and feathers*. In that part of the work the bores were nearly horizontal, and the action of the *plug and feathers* was to throw up a thin superficial shelf or parting of rock of from 6 to 12 inches in depth, and not more than 2 feet square. By that painful process an area of about 1,400 superficial feet was cleared. The chief trouble connected with that operation was cutting, by means of the pick, a vertical face for the entrance of the horizontal *jumpers* or boring rods; and whenever advantage could be taken of natural fissures it was gladly done. Another considerable source of labour was the dressing of the vertical edges of the basin, as that implied cutting a *square check*, 15 inches deep and about 130 feet long, in the hardest gneiss rock; and the labour attending which, can only be estimated by a practical stone-cutter who has wrought in such a material. The plan employed was to bore all round the periphery of the circle, 1⅝ inch vertical jumper-holes, 6 inches apart, to the required depth, and to cut out the stone between them. The surface thus left was afterwards carefully dressed, so as to admit vertical and horizontal moulds, representing truly the form of the masonry which the check was intended to receive. The experience of the labour attending that operation gave me great reason for congratulation on having adopted a foundation on one level throughout, instead of

cuttiug the rock into several terraces, at each of which the same labour of cutting angular checks must necessarily have been encountered. The cutting of the foundation occupied 20 men for 217 days in all, whereof 168 days were in the season of 1839, and the rest in the summer of 1840."

It was not till 1840 that this pit was finished, when Mr. Stevenson says—

"The rock; indeed, was in many places so hard as often to make it seem hopeless that tools could make any impression on it. The time employed in the excavation and the number of tools expended on it, were very great, as a pick seldom stood more than three strokes in the harder quartzose veins; but our preservance was at length amply rewarded by obtaining a foundation so level, and so fairly wrought throughout the whole area of a circle 42 feet in diameter, as to present to the view the appearance of a gigantic basin of variegated marble; and so much pleased were the workmen themselves with the result of their protracted toil, that many of them expressed serious regret that the foundation must soon be covered up, so as (we trusted) never to be seen again. In the dressing of the rock much inconvenience arose from the small splinters which flew out before the tools, sometimes rising to the height of 40 feet, and coming in at the windows of the barrack; and after several injuries had been sustained, I at length found it necessary to send to Glasgow for fencing masks to protect the mens's faces. In all our work, nothing was more grudged than the occasional loss of half a day in baling out the water from the foundation-pit after it had been filled by a heavy sea."

The mortar employed in the building was composed of equal parts of Aberdeen lime and Pozzolano earth, being identical with that used by Smeaton.

In 1840, six courses were set, being a mass of masonry equal to the whole of the Eddystone tower. In 1841, 30,300 cubic feet were built, being twice as much the Eddystone, and more than the whole Bell-rock lighthouse. In 1842, the masonry work was finished.

The general arrangement of the tower is much like that of the Bell-rock lighthouse.

"The ascent to the outside door is by a ladder or trap of gun metal, 26 feet high. The first apartment on the level of the entrance door, is chiefly appropriated to the reception of iron water-tanks, capable of holding a supply of 1251 gallons. The next story is set aside for coals, which are stowed in large iron boxes. The third apartment is a workshop; the fourth is the provision store; and the fifth is the kitchen. Above are two stories, each divided into two sleeping apartments, for the four light-keepers. Over them is the room for the visiting officers; then follows the oil stores, and lastly comes the light-room, making in all twelve apartments. The nearness of the oil store to the light-room is a great convenience to the keepers, who are thus saved the trouble of carrying the daily supply of oil to the light-room, up a long flight of steps. The passage from story to story is by oaken trap ladders, passing through

hatches in each floor, and partitioned off from each apartment, in order to prevent accidents, and to check cold draughts."

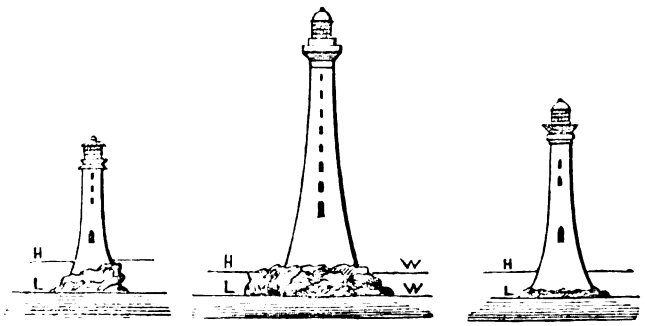
The light was exhibited at Skerryvore on the 1st of February, 1844.

The whole cost of erection was 00,268*l.* 12*s.* 1*d.*, but of this very little was spent directly on the lighthouse. The cost may be thus subdivided:—

Establishment at Hynish -	£4822	Gunpowder - - -	£375
Rock barrack, No. 1, -	790	Excavating platform - -	763
" No. 2, -	1470	Dressing lighthouse blocks	9929
Establishment and quarries at North Bay - - -	1883	Tools and machinery - -	4267
Signal tower and lights at Hynish	1215	Cartage - - - -	1104
Wharf and railway at Skerryvore	257	Mortar - - - -	889
Steamer, tender and stone lighters - - -	17145	Lighthouse tower, putting together and fitting - -	8551
Moorings - - -	766	Lightroom - - -	3851
Boats and freight of hired vessels	5700	Salaries - - - -	3656
Labourers discharging cargoes	933	Lightkeepers' house - -	3915
Travelling expenses - -	1711	Pier at Hynish - - -	2591
Coals - - - -	1463	Dock at Hynish for the tender	7055

From the whole cost, £2,839 is to be taken off for the steamer and materials sold, but each item is given by Mr. Stevenson in detail.

We shall conclude for the present with the following tabulated statement of the three Lighthouses of Skerryvore, the Bell Rock, and the Eddystone, with the accompanying sketch from Mr Stevenson's work of each on the same scale.



EDDYSTONE. SKERRYVORE. BELL ROCK.

Lighthouse.	Height of Tower above first entire course. (H)	Contents of Tower.	Diameter at Base.	Diameter at Top.	Distance of centre of gravity in feet from Base. (G)	$\frac{H}{G}$
Eddystone,	68	13,343	26	15	15·92	4·27
Bell Rock,	100	28,530	42	15	23·59	4·24
Skerryvore,	138·5	58,580	42	16	34·95	3·96

The Hurricane Theory.

Sir.—I received much satisfaction on perusing Mr. Piddington's letter, inserted in your last number (May), referring to the contraction of the hurricane meteor; which feature, I was not aware had been confirmed, when I took the liberty of adverting to the point, as given in the examination of the *Charles Heddle's* storm. My remark of there having been no established proof of it, was drawn from the words of Mr. Redfield, in reply to a query of mine on the subject, in the early stage of the investigation of the law of these storms: that gentleman's observation will be found in the *Nautical Magazine.*

The motive which induced me to allude to the point was that, something appeared to be wanting to satisfy the mind, which was not found in the narrative. It has been said,* "The truths which are often received upon authority, are certain conclusions or principles of belief, which arise out of certain evidence. These ought not to be received except after examination of the evidence on which they rest; and receiving them upon authority, that is, on the word of another person, arises out of an inferior state of the mind, from which a man is either unable to examine the evidence, or does not choose to take the trouble."

It will be remembered that, after examining the evidence, I stated that I did not arrive at the same conclusion on the particular point, with the investigation of the facts of the case, and hence the desire for further information. The testimony given of the Coringa hurricane having contracted being certain, would seem to settle the point of these meteors lessening in circumference.†

I happen to be, Sir, so much of the "seaman," and so little of the "Roman," as to be rather abrupt in my expressions at times; but I sincerely assure you without the remotest idea of giving offence to those who differ in opinion from me. To do away with a wrong impression therefore, and to relieve any "ruffling of the plume" of the *amour propre,* I trust you will permit me to add with reference to what I said in another paper,—"On the peril of scudding under sail in the left-semicircle of West India hurricanes," a few words.

I would not be misunderstood as undervaluing the spirit which dictated advice to the contrary, given by others, or wish them to think that I desire the caution which I stated I would myself observe, if exposed to a storm in that part of the circle, to influence the seaman. My object, in the expressions used, was rather to induce him to *study* the point, and *reason* it out for himself.

I take leave to observe that, I think no seaman would doubt the danger to a vessel scudding under sail, when the wind is liable to shift suddenly; indeed, even when the wind remains steady, the difficulty of

* Dr. Abercrombie.

† I take this opportunity of apprising the reader, that the paper on the "Aberration of Hurricanes," was written two or three years ago. This I think necessary, to obviate an apparent inconsistency with reference to the article which Mr. Piddington has alluded to.

steering a vessel under sail, with a heavy following sea, is so great, and the peril of broaching to so imminent, as always to impress the mind with anxiety.

On this head, an extract, which I have seen from the recent work of Captain Sir Edward Belcher, gives a very graphic example; and, among many instances I have known, I may state that one of our frigates (the *Franchise,*) coming up Channel, was in great danger of going down head-foremost!

When any one will be at the pains to convince me that the accounts of the wind shifting suddenly in the left semi-circle are false, and the narrators were under a delusion, and that there is no *curl* therein, then, as an honest reasoner should do, I shall be ready to give up my opinion, an opinion I believe to be based upon certain facts, recorded facts, and not upon "any prepossession in favor of one view of the question, or any aversion to, or disrelish for, a different view of it."

I am, Sir, greatly obliged to Mr. Piddington for his desire to present me with a copy of his valuable work, (for valuable I know it must be coming from a gentleman who has devoted so much of his time to the study), but I had designed to order one as soon as the announcement of its publication appeared. As to criticising it, although I have had the temerity to touch on isolated points, and to write much on the operation of circular storms, I do not think that would qualify me for the task of reviewing an entire work.

May, 1848. STORMY JACK.

THE SAILORS' ORPHAN GIRLS' ASYLUM.

June, 1848.

SIR.—I venture to place in your hands a statement, which I earnestly wish you may deem admissable into your pages; the charity to which it refers, having assuredly a strong claim on "*Nautical*" attention and support. By making it better known among your numerous readers, you will render essential benefit to the youthful object of its care; and I need only add, that the deep and heartfelt interest in this and all kindred institutions, which impels me thus to intrude on your notice, is but that which well befits every English woman, especially one who may subscribe herself with all respect,

AN ADMIRAL'S ORPHAN DAUGHTER.

THE Sailors' Orphan Girls' Episcopal School and Asylum receives within its walls twenty orphan daughters of British seamen, whether belonging to the navy or merchant service, between the ages of 3 and 15, whom it boards, clothes, educates, and aims to set forward in life, by placing them out as servants in respectable families. It also extends a measure of the same advantages to about twenty others, allowed to attend daily from the neighbourhood.

More than 600 such children have during the last 18 years, been thus rescued from the worst miseries of the orphan's lot; and much of lasting benefit, as well as present relief, has thus been ministered to the poor and destitute.

The charity has not been without influential patronage; headed by Her Royal Highness the Duchess of Kent, and the Right Honourable Lord Byron. But we all know it is from the many in the middle ranks of life, rather than the few in the higher, that the practical support of our public institutions is reasonably expected. Thank God, in our land, and in our day, we are not wont to look to these in vain, when the claims of any such cause have been once satisfactorily established. Yet the vast variety of appeals presented to all who are able and inclined to attend to them, and the round of busy engagements in which all but positive idlers seem ever involved, are frequent hindrances to those being *heard*, which need *only* a hearing, to ensure them a kind and effectual response.

Added to this, with regard to the charity in question, the wretched locality in which it unfortunately stands, amidst the dense population of our sea-faring men and their families, has always been an obstacle to its being either frequently inspected by visitors, or very regularly superintended by an efficient Lady's Committee of management. It is therefore matter of more concern than surprise, that it has thus long remained comparatively little known, and in consequence, most inadequately supported. In fact the efforts and liberality of a few friends, who have tested and proved its value, aided by the faithful and unwearied exertions of its School-mistress, have alone prevented its falling to the ground: and these have failed to keep it free from the incumbrance of a debt, which unceasingly damps its energies, and cripples its operations.

Urgent and affecting applications for admittance, the Committee are reluctantly compelled to turn a deaf ear to, in the present state of their finances: and either the removal to more commodious premises, or the much needed repair and improvement of those they at present rent, they likewise feel it their painful duty to defer.

Being without endowment, or any other resources than the fluctuating list of annual subscribers and benefactors, aided by an occasional sermon, and from time to time a sale of such useful and ornamental articles as a few kind and warm friends are ready to supply, the Committe find their charge, however interesting, one of frequent anxiety and embarrassment. Still, however, the Institution pursues its quiet unobtrusive course of usefulness, relieving many a widowed heart of a portion of its burden, saving many a helpless orphan child from want and ruin, and sending forth, year by year, into that important, though humble, class of the community, our household servants, those whom it has trained in the principles and habits that will best prepare them "to learn and labour truly to get their own living, and to do their duty in that state of life to which it has pleased God to call them."

Wives, mothers, sisters, daughters, of British sailors, placed happily out of reach of the privations and perils which but for such a shelter, must overwhelm this orphan band: husbands, fathers, brothers, personally familiar with the casualties of a profession, that is daily making the children fatherless, and the wives widows in the midst of us: *all* who recognize the special claims of British seamen on their fellow-countrymen and fellow-countrywomen,—such will surely need but to be informed

of the existence and the difficulties of an institution like this; and they will promptly stretch forth to it their helping hand, if only in gratitude to a kind Providence, for their own happier lot.

But twenty of these children, as wholly dependent, and but forty, as partially so, do the Committee venture to present for support, to the thousands around, who have more than heart could wish. Shall this handful then plead in vain? No! rather by "delivering the fatherless, and *her* that had none to help her," may the rich "blessing of *her* that was ready to perish come upon" every kind reader of this appeal on their behalf.

Subscriptions and Donations are thankfully received by Messrs. Barclay, Bevan, Tritton, & Co., Lombard Street; by Mr. Nisbet, 21, Berners Street; Messrs Seeley, Fleet Street; Messrs. Hatchard, Piccadilly; at the Office of the Naval and Military Bible Society, 32, Sackville Street, Piccadilly; at the Sailors' Home Office, 23, Well Street, London Docks; by the Honorary Secretary; the Rev J. Lyons, A.M., St. Mark's Parsonage, Whitechapel; or by Mrs. Largent, at the Sailors' Orphan Girls' Episcopal School, 29, Cannon Street Road, St. George's East, London, where visitors also are respectfully invited.

Bermuda Light.

The improvements in the approaches to this island alluded to by the Governor, Colonel Reid, appearing likely to render it more frequented, to the correct position of the light determined by Captain Barnett, which we gave in our volume for last year, we may add the following observations by this officer, in August, 1846, on the character of the light. He says in a letter to the Hydrographer:—

"On our voyage from Nassau we had an excellent opportunity of observing the intervals and duration of the flash of the light. It bore N.E.b.E, 22 miles and the time day dawn, the weather fine and remarkably clear, wind south. By these observations the mean interval was 63·4 seconds, and the duration of flash 7·3 seconds."

The governor opened the Colonial Parliament on the 15th ult. The most important part of his excellency's speech was that which bore upon ocean steam navigation.

"You will learn with satisfaction by a dispatch from the Secretary of State that her Majesty's Government concur in the advantage of deepening the Stag's Passage, and I trust the time is not distant when that work will be achieved. Bermuda has happily become the connecting link of a great chain of direct steam intercourse between the mother country, the north American continent and all parts of the West Indies. The voyage to and from England is thus reduced to little more than two weeks' duration, and we are brought within four days' easy access of markets of almost illimitable demand for productions which you may gather in abundance at the seasons that they are planting there. With industry and enterprise the consequence on the prosperity of the colony, cannot be doubted. Connected with these considerations, I remark with particular satisfaction the encreasing clearance of the land, and the observable improvement in the industry of all classes of the people. The owners of the soil are acting in best accordance with their own interests, by the liberal encouragement of cultivation; for it is manifest that

the garden and orchard husbandry of the colony, and above all, the rearing of stalled cattle, may be pursued on an extended scale with profitable returns. It is neither necessary nor convenient that this colony should be entirely tributary to other countries for the cattle supplies requisite for the population, and the public establishments; and the experience of the last twelve months has fully borne out a remark I have made in other places, namely, that the winds and the waves are the charter of a protecting impost to the stock-farmer of Bermuda, beyond the reach of human abrogation. I commit it to the public spirit which has ever distinguished this legislature to relieve all steam ships, carrying the public mails of the countries to which they belong, from light dues at Bermuda; and I recommend to your judicious support well directed plans for encouraging the resort of strangers to these shores in search of health, business, or recreation."

While on the subject of lights, and their distinct visibility, we may notice the following *jeu d'esprit* in the lighthouse way, a model of which was to be seen at the recent soiree of the President of the Civil Engineers Society.

Telegraphic Lighthouse.—"A plan with suggestions for a Telegraphic Lighthouse has lately been presented to the Government by Mr. G. Wells of the Admiralty. Mr. Wells points out the numerous accidents that vessels have encountered owing to the mistakes of mariners, as to the distance and position of the several lighthouses on our coasts, and states that the great objections to those which now exist, are, first, their unnecessary elevation; secondly, their impropriety of coloured lights, which cannot be distinguished in foggy weather; and thirdly, the general insufficiency of the light, and its similarity in appearance. To obviate these disadvantages Mr. Wells proposes that in the existing lighthouses four or more circular apertures should be cut just below the lantern, and the openings fitted with glazed sashes of ground glass, with the initial letter of the particular lighthouse painted in an opaque colour thereon, the light being so reflected as to render the unpainted glass transparent, and thus exhibiting the letter itself in bold relief. It is also suggested that in constructing new lighthouses it would be better that they should not be carried to the present altitude as the nearer the light is to the level of the eye the less probability would exist as to any mistake in the distance of it."

We are quite ready to concede that a lighthouse may be out of its place sometimes when among the clouds, such as that at Rio Janeiro, and that at Sumburgh Head. But all seamen will desire to see a light as soon as possible, and many well know from experience the great advantage of catching a glimpse of a light let it be ever so distant, so as to know their whereabouts, for that glimpse has been full often the means of saving a ship. We cannot compliment Mr. Wells on his proposal, and as to his distinguishing *letters of light* he is surely dreaming?

Yachting Intelligence.—The Fixtures for the Ten forthcoming Regattas.

1848—July	11.	Royal Mersey Yacht Club at Liverpool.
"	18.	" Yorkshire Yacht Club at Hull.
"	24.	" Harwich Yacht Club.
Aug.	2.	" Southern Yacht Club, at Southampton.
"	2.	" Yorkshire Yacht Club, at Whitby.
"	7.	" St. George's Yacht Club, in Dublin Bay.
"	15.	" Victoria Yacht Club, at Ryde.
"	17.	" Yacht Squadron (cutters), at Cowes,
"	21	" Yacht Squadron (schooners), at Cowes.
"	24.	" Western Yacht Club, at Plymouth.

REPORT TO THE COMMISSIONERS OF THE NORTHERN LIGHTHOUSES, *relative to the Summary Report by the Examining Commissioner on the Harbours of Scotland.*

(Continued from p. 318).

The Board has thus erected 27 great sea-lights on the coast of Scotland, including three on the Isle of Man, but exclusive of three secondary lights, besides re-building three of those which were first erected. They have also for some time been engaged in the erection of lighthouses at Noss-head, near Sinclair's Bay, on the coast of Caithness, at Ardnamurchan, in Argyllshire, at the entrance to the Sound of Mull; and a considerable time before the date of Summary Reports, they had resolved upon, and are now preparing for, the erection of two lights in Hoy Sound, a light on the "Ship of Sanna," another on the island of Devaar, one at Kyleakin, in the Sound of Skye, and another in Loch-in-daal, in the Island of Islay. The lights in the course of erection, as well as those resolved upon, are all noticed in the Summary Report as being required in the precise localities selected by the Board, thus affording a confirmation of the views which the Board entertain, and a testimony to their judicious choice of stations.

When the works now mentioned as in progress have been completed, the lights will in only two instances be more than 50 miles apart, and the great majority will be much nearer each other. The exceptions alluded to will be between Cape Wrath and Island Glass (about 70 miles), and between Cape Wrath and Kyleakin (about 84 miles). On the line between Cape Wrath and Island Glass, the most salient point is the Butt of the Lewis, a high and bluff headland, for which a guide is not much required, and where a light would be extremely apt to be obscured by fog. For the refuge harbour of Stornoway a light would be most useful; and so satisfied were the Board of this, that in 1827 they gave Mr. Steward Mackenzie, the late proprietor of the Lewis, a lantern and some reflectors to enable him to complete a lighthouse which he had erected on Arnish Point, but which has never yet been exhibited to the public. The commissioners have at various times had under consideration the placing of a light either on the Trumpanhead, Biblehead, or Chickenhead, about 45 miles from Cape Wrath, and have also in view to make the entrance to one of the natural harbours between Island Glass and Barrahead, so as to complete the chain of lights in the passage of the Minch. As to the second line, or that between Cape Wrath and Kyleakin, which is less important for the general trade, a light or lights may perhaps be required for leading to the northern entrance of the Sound of Skye. Various sites might be named; but that which may be selected should, if possible, also serve to point out some of the natural harbours on that line of coast.

Ackergill.—Summary Report, p. 41.—Sinclair Bay, from the low nature of its shores and the similarity of Noss and Duncansby Heads, has often been mistaken for the entrance of the Pentland Firth, and many wrecks have taken place in consequence; but the site for a lighthouse has now been marked out at Noss Head, which it may be hoped will be speedily erected and serve as a remedy: yet for more than a quarter of a century of profound peace, 70 miles of this coast, from Tarbet Ness to Pentland Skerries, have been left without a single light, while the traffic along it, from official returns, appears to be 4,864 loaded vessels of 706,866 tons annually.

Tobermory.—Summary Report, p. 43.—The Sound of Mull, or the strait between the island and the main, is 15 miles long, by about two miles wide, and has good depth of water throughout. Since the erection of the light at

Lismore, at its southern entrance, in 1833, the traffic through it has much increased, but a light is still wanted at Ardnamurchan, at its northern entrance, and a harbour light at Tobermory, besides some buoys and beacons (particularly on the New Rock), in order to bring out the true value of this passage, and to complete the anchorage as a harbour of refuge.

The site for a lighthouse has now been marked out at Ardnamurchan Point, but hitherto the approach to Tobermory and to the Sound of Mull by night has been almost barred. In this region of rapid tides, stormy seas, and long winter nights, the nearest light in coming from the westward is at Barra Head, distance 60 nautic miles; and the nearest in coming from the northward, through the intricate navigation of the Little Minch, is at Island Glass, full 85 miles distant.

Orkney Isles.—Summary Report, p. 41.—The Orkney Islands contain numerous natural bays and harbours. Long Hope in Hoy, and Widewall in South Ronaldsha, are well known for the refuge they afford in stormy weather to vessels passing through the Pentland Firth. The tidal harbour of Stromness is especially valuable, as it is the only port north of Aberdeen where vessels can go to for repairs in case of damage, there being a patent slip laid down, capable of taking on vessels of 500 tons burthen. Here also water and supplies of all sorts may be obtained; and it is annually visited by Greenland whalers and Hudson's Bay ships, besides 580 vessels seeking shelter, which called here during the last year. The harbour would be doubly valuable were there proper lights to lead up to the anchorage.*

Mull of Kintyre.—Summary Report, p. 45.—The fixed light at the Mull of Kintyre, at the south-western entrance of the Peninsula of Argyll, first shown in 1787, was one of the earliest, if not the first public coast-light exhibited in Scotland. It stands at an elevation of 297 feet above the sea, and occupies a most important position as the guide into the Irish Sea by the North Channel (here only 10 miles wide), and as the turning point for vessels bound into the Clyde. From Parliamentary papers it appears that 6,463 loaded vessels, of 867,596 tons, paid dues for passing this light in 1846. It is, however, wanting in three essential conditions of a well placed light: it stands at too great an elevation above the sea, and is, therefore, often obscured; it does not cover the outer dangers, namely, Patterson's Rock, which lies some distance to the eastward of Sanda: nor is it available for vessels bound up the Clyde. To light this channel in the most useful manner, the Mull light ought to be removed to Sanda (or an additional light be placed on this island), and a compensating light erected on Rathlin Island, off the north coast of Ireland. This latter light would also be a great benefit to the traffic from Sligo and Londonderry to Glasgow. A conspicuous beacon likewise should be erected on Patterson's Rock.†

Portree.—Summary Report, p. 43.—The sheltered and almost land-locked navigation of the Sound of Skye might be thrown open to our coasters by night, if the Kyle of Akin were lighted, as it easily might be.‡

Islay.—Summary Report, p. 45.—Off the south-west point of the Island, at the Rhinns of Islay, an intermittent light was placed in 1825, at an elevation of 150 feet above the sea, visible six leagues in clear weather. It is nearly midway between the light at the Mull of Kintyre and that at Skerryvore, or about 40 miles from each. Since the erection of this lighthouse Loch-in-daal is much more frequented as a harbour of refuge by vessels using the

* It is understood that leading lights were to be erected on Græmsay.
† It appears that a light is to be placed on Sanda, and also on Devaar.
‡ It appears that a light is to be placed here.

North channel to or from the Clyde and Liverpool; but it still wants a harbour light, and buoys and beacons to mark the projecting spits off Bowmore.

Hebrides—Summary Report, p. 43.—This group of islands, comprising the Lewis, Harris, Uist, Berbecula, and Barra, and reaching 112 miles from north-east to south-west, forms the western limit of the passage known by the name of the Great and Little Minch, a track much frequented by shipping, 2,887 loaded vessels, of 364,001 tons having passed through it during the last year. This extent of coast from Cape Wrath to Barra, a distance of 140 miles, has only one intervening light at Island Glass, erected as early as 1789. Barra Head Light, at the southern end of the group, at a distance of 75 miles from the latter, has the undesirable distinction of standing at a greater elevation than any other light in the United Kingdom, namely, at 680 feet above the level of the sea. It was first lighted in 1833.

Stornoway.—Summary Report, p. 43.—There is a grant want of a harbour light.

Loss of the Brig Mary of Liverpool. *Extract of a letter from H.M. Schooner Bramble.—By Lieut.-Commander C. B. Yule.*

At 5h. 30m. P.M., we tacked off Double Island Point, and whilst standing out our masthead man observed a boat making for the land. Having no doubt the crew were in distress, I shortened sail and shaped a course to pick the boat up. There was rather a heavy sea running. We however succeeded in getting the people and a few damaged stores out of the boat, and then took her in tow.

The boat appeared to have belonged to the late brig *Mary* of Liverpool, commanded by Mr. John Beel, who with his wife, mate, and seven seamen were received on board the *Bramble* after having been ten days in the boat.

It appears from the master's statement, that the *Mary* sailed from Sydney on the 19th November, 1847, bound to Manila with a small general cargo. Everything was going on prosperously until the 2nd of December. In the forenoon of that day sights were taken, and at 11h. 30m. A.M., land was seen, bearing E.N.E., about eight or ten leagues distant. At noon a meridian altitude of the sun was observed. The vessel's position being then in latitude 20° 01′ S., and longitude 163° 05′ E., a course was then shaped N.W.b.N., up to 6h. P M. with a fresh breeze from the eastward which then fell light; the course was again altered to N.W., no land being then in sight. At 8h. P.M. having gone N.W. ¾ W., about ten leagues, the water being perfectly smooth and the wind light, the vessel grounded, but so imperceptibly as not to be felt, until it was found she had become stationary. The sails were then furled, the long boat got out, the stream anchor and hawser laid out astern, and every exertion made to get the vessel off until 2h. A.M. on the 3rd, at which time the wind had increased so much as to create a heavy sea, when the hawser parted, supposed to have been chafed by the coral. Mr. Beel and his crew finding that the utmost endeavours failed in saving the brig, they could afford to lose no time in making preparations for their personal safety. The long boat and jolly boat were then got in readiness as well as their distressed circumstances would permit. Having saved about three hundred weight of biscuit, a puncheon of water, the chronometer, ship's log and papers, together with the mails and a few personal effects, they reluctantly abandoned the vessel at 4h. A.M., at which time she laboured so much as to lead them to fear the masts would roll over the side and destroy the boats. The master, his wife, and five seamen embarked in the long boat, the mate and three seamen left

in the jolly boat, when the two boats in company shaped a course for Moreton Bay, it being the nearest civilised part of Australia that Mr. Beel could hope to reach. During each night a small line was passed between the two boats to prevent their parting company, in which manner they went on very well until the 6th, when the wind blew very strong with a heavy sea running, so much so that he was induced at about 10 or 11 P.M., to try the effect of some oil being thrown overboard, but before the oil spread so far astern as the jolly boat, some heavy seas struck her and turned her over two or three times; the long boat's sails were immediately lowered and the small boat hauled up, when three out of the four men were saved, one unfortunate man being lost. Although the oil had a most beneficial effect on the surface of the water, the sea ran so heavily at one time as to fill the long boat nearly up to the thwarts, which required the united exertions of three men to bale out and keep the boat dry. The jolly boat as a matter of course was abandoned, the three men saved from her being taken into the long boats, in which crowded state the perilous voyage was pursued, the wind continued strong with a heavy sea, but fortunately from a favourable direction: at about midnight on the 11th, breakers were seen both ahead and to leeward, but as any attempt to weather them under sail or pulling would be utterly useless, the sails were lowered and recourse had again to oil. The boat passed through the breakers over the reef, she struck two or three times by which she sustained so much damage as to require blankets to be nailed on, which to a certain extent succeeded; two men were however constantly employed to keep the boat clear of water by baling. Nothing important occurred from this time until the 13th, when land was observed, which proved to be Great Sandy Island, near Wide Bay; the *Bramble* was first seen by them at about 1 P.M., from which hour until about half-past four every exertion was made to obtain assistance, which at last terminated successfully.

I certainly felt rejoiced at having sailed that morning, which enabled me to render that assistance and protection these unfortunate people felt so much in need of. Mrs. Beel's sufferings must have been truly pitiable, having been wet through and exposed to the searching influence of the sun for ten days, and from constantly lying in the same position she suffered much pain.

NAUTICAL NOTICES.

THE positions mentioned below I made by observations (which I have taken much pains with) to differ considerably from those laid down in our latest Admiralty charts, and also given in Horsburgh's directory.

	POSITION BY MY OBSERVATIONS.		BY CHARTS, & HORSBUGH	
	Lat. ° ′	Long. ° ′	Lat. ° ′	Long. ° ′
Pulo Brala Summit . .		103 44 E.	4 47 N.	103 37 E.
Pulo Panjang centre in Siam Gulf	9 18 N.	103 38½	9 5	103 17
Pulo Oby summit . . .	8 24½	104 57½	8 25	104 54
Pulo Sapata	9 58½	109 11½	10 00	109 3

All the islands in the neighbourhood of the latter are also placed too far to the westward about eight miles, viz: the Catwicks and Cicer de Mer.

Pulo Sapata cannot be seen so far as ten leagues, when nineteen miles from it, from the *Royalist's* deck it was just visible above the horizon, height of eye ten feet. In consequencs of such an error existing vessels will do well to give this prominent angle of the coast a wide berth.

Royalist bank.—On January 15th, we discovered a bank having 17 fathoms at each end of it, and crossing it in a S.S.E. direction continued in from 10 to 6 fathoms (sand and hard bottom) for about 1¼ mile when we again deepened to 17 fathoms. I could give it no further examination, there being a stiff breeze and considerable swell on, made me too glad to get off it.

The position we determined is as follows:—Lat. 8° 12½′ N., long. 105° 11½′, or 14′ of longitude east of observatory summit. Pulo Oby. was occasionally in sight through the haze, but no correct bearing could be obtained. I could not see the bottom, and am not positive that it was coral, the lead only bringing up reddish sand.

Bank supposed to be that mentioned by Horsburgh as Laurel's Bank.

January 22nd, at 7h. 40m. P.M., standing to the N.N.W., we suddenly came on 10 fathoms (rock) from having had immediately before 25 fathoms no bottom. We tacked immediately and had 8 fathoms in stays. The position of this as well as I could ascertain it is about lat. 8° 5′, long. 108° 14′, or 58′ west of Sapata. The above positions in longitude are laid down considering Singapore flag-staff in longitude 103° 53¼′ East.

I hope on my passage down I may have an opportunity of corroborating my position of Pulo Sapata.

I have the honor to be, Sir, &c.,

D. M. GORDON, *Lieut. R.N.*

PORT OF HARTLEPOOL.—*Light on the Heugh. First exhibited on 1st October,* 1847.

Lat. 54° 41′ 51″ N. Long. 1° 10′ 19″ W. of Greenwich.

The light bears by compass, from Souter Point, on the coast of Durham; S. ¼ W. distant 17 sea miles; and from Staiths Old Nab, on the Yorkshire coast, N.W.b.W. distant 16½ sea miles, and is seen at any place along the coast within these points, and seaward, in clear weather, at a distance of fifteen miles; the light being of the first order, and at an elevation of eighty-four feet above the level of high water, spring tides.

There is also seen from the same tower, at night (underneath the principal light), from half flood to half ebb, a tidal light of a red colour, which is visible to the eye within the limits of four miles, but beyond that distance it blends with the main light, rendering it indistinct. During the day, at half flood, a red ball is hoisted to the top of the mast on the tower, where it remains until half ebb.

The stationary red light on the Pier Head of the Old Harbour is shown as heretofore; and there are two red lights on the Quay wall of the Inner Harbour, which are seen in one from the Bar, for the guidance of vessels entering.

The fixed green light on the North Pier Head of the West Harbour is exhibited from sunset to sunrise, and the two red lights seen in one, bearing N. W. ¼ N. direct the course into the Harbour.

Sailing Directions.—Vessels bound to the port in gales of wind from N. or N.E., when Pilots cannot be obtained, should attend strictly to the following:—

A large buoy is situated off the Southern extremity of the Heugh, known as the "Buoy of the Stone," moored in twenty-two feet low water of spring tides, and which has an iron wicker ball and staff. The Heugh light bearing therefrom, by compass, N. ¼ E., distant one-third of a mile; the red light on the Pier Head of the Old Harbour, N.W. ¾ W., four tenths of a mile; and, the green light on the North Pier Head of the West Harbour, W.b.N. ¼ N., eight-tenths of a mile.

Before bearing away, let the tide be flowed to about last quarter flood, carrying a smart canvass on the vessel, particularly (if possible) her after sails. Pass close to the buoy above described, leaving it on the starboard hand; if bound for the Old Harbour, the course will be N.W.b.W. ¼ W., with the Pier light about one point open on the starboard bow, when the beacon, coloured black, with a wicker ball and vane, is visible on the same hand. Nearly right ahead is another black buoy, with ball and staff, for which steer till the Pier light just opens to the Westward of the beacon; a mid-channel course between this and the black buoy with the ball, will lead to where a Pilot can board the vessel. At this time the two red lights on the Quay wall will be seen in one, N.b.W., which leads to the entrance of the Inner Harbour.

A moveable staff, carrying a flag, is attached to the Lighthouse on the Pier, which, in cases when found necessary, will be inclined to either hand to which it is requisite for the vessel to be steered, and will be kept perpendicular when the course is right. In case of danger a black ball (only) will be exhibited at the top of the staff.

For ships bound to the West of the Harbour, the course from the Buoy of the Stone, to the Fairway Red Buoy is West, a little more than half-a-mile, leaving a chequered red and white buoy on the starboard hand. Then from the Fairway Buoy, N.W. ¼ N., with two red lights in one, leaving the black buoys on the starboard, and the white buoys on the port hand.

A moveable flag staff is placed on the South Pier for exhibiting similar signals as at the Old Harbour.

If at any time the Buoy of the Stone should have gone adrift, or is not able to be made out when rounding the Heugh, the tall chimney of the Foundry at Middleton, bearing N.W., in a line with the Pier light at the Old Harbour, will clear the danger; and no vessel, if possible, with the wind N. or N.E., ought to pass further to the Southward than these marks describe.

On entering the Bay from the Southward and Eastward, the Longscar Ridge is to be avoided by noticing off the Eastern extremity a large plain black buoy, moored in twenty-two feet low water of spring tides, the Heugh light bearing therefrom, by compass, N. ¾ E., distant a little more than one mile.

Seaton High, or Tees Upper Light, bears W. ¼ S., open to the North of Carr House; the Pier light at the Old Harbour, N.b.W. ¼ W., and the West Harbour Pier light N.W. ¾ N., the buoy having been cleared, either Harbour may be taken by the instructions that have been given.

By Order,
WILLIAM O. MOSSMAN, *Haven Master.*

Hartlepool, 1st May.

ROMAN ROCK.—The following notice has been issued by the Government Secretary, as a warning to mariners, to avoid Cape Receife Reef until duly surveyed:—Colonial Office, March 6th, 1848. A letter having been received

by the Secretary to Government, from Capt. Lloyd, R.N., resident magistrate of Port Elizabeth, relative to the wreck of the brig Lady Leith, in which the loss of that vessel is attributed to the passing between the Roman Rock and the shore; and as it appears that Mr. Salmond, who was sent to the assistance of the Lady Leith, is of opinion that the Roman Rock forms part of a reef extending from the land, and spreading to a considerable distance in that neighbourhood:—

It is strongly recommended to commanders of vessels not to pass between the Roman Rock and the shore, or to hug the land in that neighbourhood, until a proper survey shall have been held of such reef, and the rocks in the vicinity.—By command of his Excellency the Administrator of the Government.

Signed,
JOHN MONTAGUE, *Secretary to the Government.*

GIBRALTAR.—*April*, 25.—Sir,—I strongly recommend all masters of vessels to respect the rules and regulations of the port of Algeciras, particularly as regards quarantine; two British vessels having been recently fined very heavy sums by the authorities for infraction of, and resistance to, their sanitary laws.

Signed,
J. LONGLANDS COWELL, *Agent for Lloyd's.*
Capt. G. A. Halsted, R.N., Secretary, Lloyd's.

THE BUNT HEAD BUOY AND THE S E. GOODWIN BUOY, have by a Trinity-House Notice, dated 25th May last, been removed. The former now lies with:—

St. Lawrence Church in Line with Ramsgate Mill	N. ¾ W.
Waldershare Tower, in line with Mongeham Church	W. ¼ S.
Gull Light Vessel	N.E.b.N.
Fork Buoy	S. ¼ E.
South Brake Buoy	W.b.N.

And the latter with:—

St. Lawrence Church, it's breadth open West of Ramsgate Mill	N. ¼ W.
Shakespear's Cliff, just open of the South Foreland	W. ½ S.
South Sand Head Light Vessel . .	W. ¾ S.
South Calliper Buoy	N.E.b.E. ½ E.

The latter must not be approached within a mile and a half in passing.

CLARE REEF.—The ship *Earl of Clare*, from Bombay towards China, on the 31st of March last, at noon, being in lat. 17° 50′ N., and long. 124° 40′ E., discovered shoal water alongside, and saw the bottom distinctly about 20 yards from the ship; large white shells and dark coloured rocks.

Immediately under the ship apparently no bottom, and the water not discoloured, as it was over the shoal.

From the nature of the bottom having been seen so very distinctly, I cannot but pronounce it most dangerous, it being immediately in the fair track for ships bound through the Pacific Ocean, from the Pellew Islands towards the North Bashees.

The position of the danger may be considered correctly ascertained, as we

had sights for latitude at noon, by three good instruments, as also for longitude. The chronometers being found correct on making the Bashees and Lema Islands, in a run of five and eight days respectively, after seeing the shoal.

On R. Blanchard and Co's general outline chart for 1843, is marked "Lord Anson's Shoal," being nearly in the latitude and longitude of the one abovenamed. There must have been some reason for marking it down, although I can find no mention of it anywhere else.

I must remark that so satisfied am I of its position and existence, that there is no other danger, for which I would keep a better look out, or give a wider berth in passing.

(Signed) M. AGER.

[We take the foregoing from that valuable publication the *Hong-Kong Register*, (25th of April), and having referredto the Galleon chart in Lord Anson's Voyage, we find a shoal precisely in the same latitude as this of Capt. Ager, but 5° of longitude further east; making it but 86 miles according to the chart from the coast of Luconia of the Phillippine Islands. It appears in Arrowsmith's large chart of the Pacific, as laid down in the Galleon chart. There can be no longer any doubt of its existence, and we caution seamen against it.

OUTFIT OF SHIPS.

SIR.—The interests of British shipping, British seamen and all commerce connected therewith, has of late years occupied much of the attention of the legislature and merchants of this unrivalled maritime interest of Great Britain, which, I trust, will continue to be fostered and improved, and during the many alterations that have successfully taken place, on the whole, it may perhaps be said that all has tended to its prosperity.

Among the recent discoveries made, it is asserted without fear of contradiction that vast numbers of ships, of all sizes and all sorts of class, have been, and even now are, commanded by persons whose nautical knowledge is quite inadequate to entitle them to command ship property and cargo intrusted to their care; and from which cause arise so many losses, so many averages, and so many tedious voyages, which are alike disastrous to owner and merchant. As all this loss is generally attributed to want of proper attention on the part of shipmasters, it is but fair, if such is the case, that they are to be blamed; but if other causes are at work, it is but fair also that credit be given.

The position of a shipmaster is of a very responsible nature, increasing in importance as occasion occurs, either in the length of the voyage, size of the ship, or the value of the cargo, and therefore it is reasonable, and, in fact indispensable, that the command of ships should only be conferred on individuals who are fully competent to take charge of life and property. When we hear of the loss of a ship, our first question naturally is, are the lives of the crew safe; and, secondly is ship and cargo covered against loss; but seldom is it taken into consideration, was the captain and officers in such a position as to have saved the ship from destruction? But, if a remark is made at all, it is a word of sympathy, or one of condemnation for the unfortunate captain, who has left his charge either on a rocky shore, or left her immersed in the fathomless ocean.

To remedy as much as possible causes that operate to the disadvantage of *owners* and underwriters of vessels, it has been recommended that all persons

for the future soliciting the command, or officership of any vessel, should undergo such an examination as will satisfy competent judges that they are fully qualified for their respective situations, classing them 1st, 2nd, and 3rd, as they deserve. I am one of those who admire this plan of remedying the existing evil, and am fully persuaded if men of acknowledged competency were invested with powers of judgeship, and paid for their labour, very satisfactory results would follow, and in a short time, with other improvements, ships would be insured cheaper, and the whole machinery made more efficient. However, Mr. Editor, there is another, and, in my opinion, a most important improvement that is not yet put in practice, viz., the examination of *outfits to ships*, which, when of an indifferent character—and this is too often the case, I contend is as much the cause of *long passages*, and losses *in toto*, as what is occasioned by the incapacity of masters and officers, and ought, in justice, to be considered well ere those in command of ship property should be visited with vengeance either from an *owner* or an *underwriter*.

We at this large maritime seaport are observing daily the arrivals and departures of vessels from and to all parts of the globe, but it is hardly possible to discover of two vessels sailing which of the two is best furnished to enable her to perform the voyage. But if an examination took place, I venture to say that the greatest difference would be found, a difference so great as to enable the one captain to encounter and conquer the most fierce attack of the elements, whilst the other captain is doomed either to loss, complete or partial disablement; and it is under these circumstances that many a brave and competent shipmaster either loses his life or his reputation, whilst the other man, who is perhaps less qualified, survives the storm and receives unbounded congratulations for his preservation of *ship* and *property*.

My argument therefore is, if shipmasters are placed in such peril, both as regards life and property, and also subjected to examination as to competency, it is nothing but justice to themselves that, the law should require an owner of a vessel to give such an outfit to a vessel, that would strengthen the hands of those in command to encounter the dangers and the obstructions of the elements. It is a well known fact, that vast numbers of ships are sent to sea bare of everything, thus endangering all concerned; and even in ordinary cases, captains are always blamed when making long passages when they have done all that mortal man can do; whilst, on he other hand, some are lauded to the skies for her splendid passages, which have only been the result of superior equipment in their accomplishment.

A MERCHANT.

[The foregoing proposal taken from the *Liverpool Courier*, should be adopted, but there is yet one more measure to complete the subject, and that is, *a Court of Enquiry* into every loss that takes place among our merchant shipping, and the publication of the minutes.—ED. *NM*.]

ADMIRALTY ORDER.

Admiralty, June 7th, 1848.

The Lords Commissioners of the Admiralty having referred to a Committee of Flag Officers, the consideration of the Naval actions for which medals should be granted, in accordance with the spirit of the Queen's most gracious intentions, as signified in the *Gazette* of the 4th of June, 1847, and Her

Majesty having been pleased to approve of the several suggestions submitted by the said Committee, the following notice is issued for the information and guidance of those who may have claims to this honourable distinction:—

1st.—The rule directed by Her Majesty to be observed in extending this mark of her royal favour is so comprehensive as to bring within its scope all officers, seamen, and marines (and soldiers who served as marines) who were present in any action which at the time received the special approbation of the Lords Commissioners of the Admiralty.

2nd.—From the commencement of the war in 1793, it was the practice of the Board of the Admiralty to notice the battles of conspicuous merit by the promotion of the First Lieutenant of the ship or ships, or the promotion of the Commander, if the action was fought by a small vessel; and, conformably with this practice, it is Her Majesty's pleasure, that persons of every rank, who were present in such actions, during the wars commencing in 1793, and ending in 1815, and now living, shall receive a medal commemorative of their meritorious services; and they are required forthwith to state their claims for each action in which they may have been engaged, and transmit the same to the Secretary of the Committee of Flag Officers, Admiralty, London.

3rd.—Her Majesty has also been pleased to take into her gracious consideration the many instances of gallantry displayed by officers, seamen, and marines, in boat actions during the same period, and to direct that such services, if distinguished by the promotion of the officer conducting the enterprise, shall entitle those who were present, and now living, to a medal; provided the answers to be given in the prescribed form shall enable the Committee to ascertain that the claim is well founded. But the officers, seamen, and marines of the ship, from which the boat was detached, are not to participate in a distinction which only properly belongs to those personally engaged.

4th.—It is also ordered, that service in the frigates and smaller vessels, which were actually present in any of the great fleet actions mentioned in the *Gazette* of 4th June, 1847, for which the captains of the ships of the line received medals, shall entitle those now surviving of the crews of such vessels to a medal.

And all surviving officers, seamen, and marines belonging to ships actually co-operating and present during the siege and capture of Martinique in 1809; Guadaloupe in 1810; Java in 1811; St Sebastian in 1813, for which the Army had medals, will be entitled to a similar distinction, if their return, according to form, shall enable the Committee to trace the presence and co-operation of the ships to which the applicants belonged.

And 5th.—Her Majesty having taken into her most gracious consideration the circumstance that medals have been granted by her Majesty for services rendered by the Navy, not only in the wars commencing in 1793, and ending in 1815, but also for services rendered in the late war in China, whilst the intermediate general actions, viz:—the attack on Algiers in 1816; the battle of Navarino in 1827; and the operations on the coast of Syria in 1840, are unmarked by any such distinction, has been pleased to direct that the surviving officers, seamen, and marines engaged in those actions shall also receive a similar mark of their Sovereign's gracious recollection of their services, and of her desire to record the same; and all such officers, seamen, and marines are, therefore, hereby called upon to transmit their claims to such distinction according to the annexed form, and addressed to the Secretary of the Committee of Flag Officers, Admiralty, London.

The following Flag Officers have been directed to re-assemble, as a Committee, for the investigation and adjudication of all claims sent in according

to the printed forms, viz:—Admiral Sir T. Byam Martin, G.C.B.; Admiral Sir W. Hall Gage, G.C.H; Admiral the Hon. Sir Thomas Bladen Capel, K.C.B.; Vice-Admiral Sir James A. Gordon, K.C.B.

By command of the Lords Commissioners of the Admiralty,

H. G. WARD.

NEW BOOKS.

THE PHYSICAL ATLAS.—*A Series of Maps illustrating the Geographical Distribution of Natural Phenomena.—By Henry Berghaus, L.L.D., F.R.G.S., &c. Edinburgh, Johnston; London, Saunders; Glasgow, Lumsden; Dublin, McGlashan.*

We have recorded the successive appearance of the numbers of this valuable work, and along with each, our humble commendation of the vast amount of research which they display, and the extraordinary ingenuity with which the various natural phenomena they describe, have been pourtrayed in a Geographical Atlas. It may be safely called a picture of nature; one in itself quite unique, and mapping a vast amount of information concerning her multifarious features in their geographical places. The three last numbers of the work are now before us:—the first No. 8 containing a geological chart in two parts of the British Isles, and a tidal chart of the British Seas. The latter addressing itself to seamen in particular, and displaying the gradual progress of the tidal wave of high water, will leave on his mind, a better impression than he could otherwise obtain, of the complicated action of this wave, arising from the obstacles it has to contend with in the geographical arrangement of the British islands.

In the next number, the various mountain chains of South America are shewn with their heights as determined by Humboldt and other celebrated travellers; as well as an interesting chart of the world shewing the isothermal lines on each side of the equator. The last number contains a map of the mountain chains of Asia and Europe, and a chart of the world shewing the geographical distribution of the currents of air, a chart which addresses itself specially to seamen. We here recognize the successive productions of Redfield, Reid, and Thom, with those whose works the readers of the *Nautical* are well acquainted. The limits of the trade winds, the monsoons, and the counter westerly currents in the temperate latitudes are also shewn in this chart. An attempt is also made in another map of Europe to trace the different races of man in language, religion and form of government; the latter we may observe a matter of no small difficulty, seeing so large a portion of Europe in a kind of transitive condition at the present time. But we are not for being hypercritical with such a work as the present. The attempt from its vast and complicated nature must necessarily be imperfect; but imperfect as it may be, it is yet highly successful, and commendable, inasmuch as that it facilitates to the enquiring mind the discovery of those secrets of nature of which it is in search, making them at once plainly intelligible and conveying correct and lasting impressions. The whole work is justly dedicated to the great philosopher of the age Baron Humboldt, from whose researches the greater portion of it is compiled. On the whole we commend the Physical Atlas to the naturalist and the man of research, whether he be landsman or seaman. We can assure him he will find a rich treat in its pages, the contents of which either in their nature, or the execution of design, will be viewed with a relish by the most fastidious eye.

New Charts.

List of Charts and Plans Published by the Hydrographic Office, in June, 1848.—(Sold by R. B. Bate, 21, Poultry, London.)

Sigri, *Mityleni Island, Capt. R. Copeland*, 1834, Price 8*d.*
Ajano Port, *Capt. Copeland*, 1834, Price 6*d.*
Coast of Algarve, *Portugal*,
Tenerife Island, *Canary Islands, Capt. Vidal, R.N.*, 1837, Price 1*s.* 6*d.*
Grand Canary, ... *Do.* ... *do.* ... ... Price 1*s.* 6*d.*
Palma, Gomera, and Hierro or Ferro, *do.* ... ... Price 1*s.* 6*d.*
Lonzarote, *Lieut. Arlett*, 1835, Price 1*s.* 6*d.*
Fuerteventura, *Do.* Price 1*s.* 6*d.*
Santa Cruz, *Do.* Price 6*d.*
Campbeltown Harbour, *Capt. F. W. Beechey, R.N.*, Price 1*s.* 6*d.*
Dublin to Holyhead, *Capt. F. W. Beechey, R.N.*, 1847, Price 1*s.*
River Elbe, *from a Danish Survey*, 1846, Price 3*s.*
Lake Huron, *Sheets* 1 *and* 2, *Capt. H. W. Bayfield*, 1822, each 2*s.*
Etang Harbour, (*New Brunswick*) *Lieut. A. Kortright*, 1847, Price 1*s.* 6*d.*
Titicaca Lagoon, (*South America,*) *J. B. Pentland, Esq.*, 1827 *and* 1838 Price 3*s.*
Callao Road, *Capts. Fitzroy, and Sir Edward Belcher*, Price 1*s.* 6*d.*
Fox Bay, Port Edgar, &c., *Falkland Islands, Capts. Sulivan, and Robinson R.N.*) 1843, Price 1*s.* 6*d.*
South American Lights, to 1848, Price 2*d.*
British North American, Do. Price 3*d.*
West India Islands and adjacent Coasts, ditto Price 3*d.*
East India, ... ditto. ... Price 3*d.*

Births, Marriages, and Deaths.

Births.

May 18, at Falmouth, Mrs. William P. Banks, widow of the late Dr. William P. Banks, R.N., of a daughter.

— 24, at Lower Walmer, the wife of Capt. E. P. Charlewood, R.N., of a daughter.

— 25, at Portsea, the wife of Lieut. G. B. Jeffreys, R.N., of a daughter.

— 16, at Woodnesborough, the wife Com. T. D. Stewart, R.N., of a son.

— 27, at Plymouth, the wife of Lieut. P. G. Nettleton, R.N. of a daughter.

June, 9, at Freshwater, the Lady of Capt. A. S. Hamond, of a son.

— 11, at Pitts Deep, the wife of Lieut. Tracy, R.N., of a daughter.

— 15, the wife of Capt. Bower of a son.

Marriages.

May 26, at Stonehouse, W. M. Wildey, Esq., M.D., R.N., to Jannet Francis, youngest daughter of the late Captain Greenlaw, R.N.

June 9th, at Malta, Lieut. A. C. Hobart to Mary Ann second daughter of the late Dr. C. Grant.

June 14, at Gosport, Lieut. R. Wilcox, R.N., to Ellen, fourth daughter of J. Adams, Esq. of Gosport.

— 15, at Southsea, Com. A. G. West, R.N., to Jane, daughter of the Rev. J. Inman, D.D.

— 20, Capt G. Wodehouse, R.N, to Eleanor Charlotte, daughter of Andrew Mortimer and Lady Emily Drummond.

Deaths.

Admiral Sir William Hotham, G.C.B., aged 76,

May 31, Mr. F. W. Brittain, son of Capt. J. Brittain, R.M.

— 18, at Shrivenham station, of injuries received on the Great Western Railway, Com. F. C. Blair, R.N.

June 7, at Stoke, Fanny, the wife of Capt. Critchell, R.N.

— 14, at Kimbolton, Capt. F. Welstead, R.N.

— 3, at Plumstead, Capt. F. W. Burgoyne, R.N.

The Emigrant ship *Omega*, which was supposed to have foundered after the emigrants had been taken out of her, has been passed perfectly sound, eighty miles west of the Scilly Lights, by the barque *Franklin*. Not a soul was on board, and the vessel was drifting with the currents, leaving little doubt that had the emigrants remained on board, every one could have been saved.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory From the 21st of May, to the 20th of June 1848.

Month Day	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade				Wind. Quarter		Strength.		Weather.	
		9 A.M.	3 P. M.	9 AM	3PM.	Min	Max	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
		In Dec	In Dec										
21	Su.	30·26	30 28	58	62	44	64	NW	SW	1	1	o	od 3
22	M.	30·31	30·31	59	67	56	68	N	N	2	2	o	e
23	Tu.	30·34	30·32	53	63	49	66	NE	NE	3	3	b	b
24	W.	30·32	30·32	58	67	43	69	NE	NE	3	4	bc	bc
25	Th.	30·30	30·24	60	72	46	73	NE	E	1	3	b	bc
26	F.	30 12	30·10	63	70	49	72	NE	NE	1	1	bc	bc
27	S.	30·14	30·17	60	66	54	67	E	NE	3	3	o	bc
28	Su.	30·14	30·10	56	67	43	68	E	E	2	2	b	b
29	M.	30·02	30·00	59	71	45	73	S	SW	1	2	bm	b
30	Tu.	30.12	30·14	60	65	56	67	N	NW	5	3	qo	bc
31	W.	30.06	29·90	60	68	47	69	SW	SW	4	4	bc	bcr 3
1	Th.	29.86	29·80	54	57	47	59	W	W	4	4	o	bcp 3
2	F.	29·42	30·36	58	62	51	63	SW	SW	3	4	bcp 1 2	bc
3	S.	29·28	29·30	53	58	45	59	SW	S	3	3	bcp 1 2	bc
4	Su.	29·47	29·56	53	62	44	64	SW	SW	4	4	bcp 2)	bcp 4
5	M.	29·74	29·76	59	66	50	67	S	SW	5	5	qbc	qbc
6	Tu.	29·83	29·85	57	66	49	67	SW	SW	2	5	bc	qbc
7	W.	29·91	29·93	62	65	51	67	SW	SW	6	6	qbc	qbc
8	Th.	29·82	29·78	60	63	50	65	SW	SW	4	5	ep 2)	qe
9	F.	29·85	29 85	58	64	47	66	SW	SW	4	6	bc	qar 4
10	S.	29·66	29·66	59	58	54	62	SW	S	4	4	or 1 2	or 3 4
11	Su.	29·76	29·82	58	63	53	65	W	SW	2	2	bc	bc
12	M.	29·90	29·70	61	60	50	67	NE	E	3	3	o	otir 6
13	Tu.	29·54	29·66	59	59	54	60	SW	SW	4	6	op 2	qbcp 3
14	W.	30·02	29·00	58	64	46	44	SW	SW	4	5	bc	qbc
15	Th.	29·86	29·86	63	71	54	72	E	E	2	3	b	bc
16	F.	29·82	29·91	66	72	57	73	SW	SW	2	3	bc	bc
17	S.	29·82	29·85	65	71	57	72	SW	SW	4	4	bc	e
18	Su.	29·94	20·00	63	68	57	69	SW	SW	2	2	e	bcp 3
19	M.	30·14	30·13	53	55	52	59	N	N	4	4	or 1	gep 3
20	Tu.	30·16	30·16	56	60	51	63	N	NE	3	3	o	o

MAY 1848.—Mean height of Barometer=30·091 inches; Mean Temperature=56·0 degrees; depth of rain fallen=0·24 inches.

TO CORRESPONDENTS.

Received;—Letters from the bark *Ganges*, from the *Royal Adelaide*, and *Stormy Jack*, also list of West India Hurricanes.

The letter signed "AN EIGHTEEN POUNDER" should have been authenticated and addressed to the proper office.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

That future pilgrims of the wave may be
Secure from doubt, from every danger free.

AUGUST 1848

Tidal Electric Phenomena.—*Royal Harbour Ramsgate.*

On the 1st of August 1846, in the afternoon, a severe thunder-storm visited London, and extended to the south-eastern coast of England, inflicting more or less injury, in proportion to the aspect of the country, and the nature of the buildings over which it passed.

I was standing on the pier at Ramsgate, when a sharp crash, resembling a mortar discharge, without any perceptible reverberation, greatly alarmed those who were with me. (I must observe, *en passant*, that at this instant, part of a new wall to the churchyard at Mount Albion, was most singularly thrown down and scattered). At this moment I saw distinctly the flash, which was crimsoned ! spiral ! and intense ! ascend from the earth, to the heavy cloud which hung over us, and as instantaneously the tidal column rose ! fell ! and rose again three times in unequal undulations ! and then gradually subsided to its proper level. At the period for removing the tidal diagram from the tide-gauge, I found these oscillations of the tidal pendulum beautifully delineated, and when I went to London, I exhibited them at the Admiralty, and was assured that the phenomenon, of the positive electric state of our portion

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During the last three or four days of October 1834, the weather was calm and serene, the barometer stood at a height seldom exceeded in this neighbourhood, it reached as high as 30·75 on those instruments fixed near the level of the sea: the atmosphere was then exerting a pressure on every superficial foot, equal to 55lbs. above its medium weight, and this excess of pressure caused the waters of the sea to recede from our shores, by lowering

of the earths surface, had been noticed there upon the day in question during the storm, and they were highly gratified with the unerring register of a tidal-guage, thus shewing the effect it had produced on the tidal column in the locality of Ramsgate harbour.

On the 12th of June this year 1848, at 5h. P.M., the sky exhibited all the appearances which I have seen in tropical climates, and something very severe was anticipated, I never saw in this country so perfect a deluge of rain. The height of this thunder storm was at 6h. P.M. No wind accompanied its progress, as in the year '46, August 1st. The air was in a quiescent state, and the whole lower atmosphere around us, seemed filled with the electric fluid. (I have been since told, "That the bells of the Electric Telegraph at the Railway station were unceasingly agitated.") Unlike the flash in the former instance, the lightning was for some intervals in one broad continuous sheet, and the thunder prolonged but less sharp and startling! At 6h. P.M., as shewn by the tidal diagram, the sea suddenly rose, and in about ten minutes there was a difference of four feet in altitude of the tidal column. I did not observe the return flash in this instance, but the undulations of the tide now, were precisely similar as in the former instance, but to a greater extent, and I believe were occasioned by the earth being in a positive and the cloud in a negative state of electric action, and if so, (agreeably with cause and effect,) one or the other, of the following hypothesis, I imagine must be realized.

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the medium level eleven inches below the usual height. The smoothness of the sea, and the stillness of the air enabled us to ascertain this point very correctly, by means of the tide-gauge, in Devonport Dockyard, where oscillations of the tides are recorded in a book kept for that purpose.

The phenomena of the tides are very wonderful, but not so generally understood as they deserve to be. A few remarks on this subject, may perhaps, prove useful, as well as amusing to some of your readers. Independent of the great use and importance of tides to the sailor, they may also be impressed into the service of landsmen. Sea water when raised by a flowing tide, may be retained and used as a moving power to drive machinery; this may be done during the influx as well as reflux, and to an unlimited extent in such localities as Bristol, where the range of the tide is very great. The range from high to low water is dependent on the attractive forces of the sun and moon; these united forces produce spring tides, their difference neaps; but there are other agencies which disturb the tides, and produce changes in the actual height to which they would rise by the attractive forces of the heavenly bodies.

1st. Winds may either lower the general level of the sea, by blowing the water from the land, or the reverse of this happen, when the wind blows upon a coast or into a bay, the amount of this disturbance will depend on local circumstances, and can only be ascertained by observation.

2nd. The atmosphere has a weight amounting on an average, of 14 or 15 pounds on every superficial inch, now if this mere weight were invariable, the height of the tides (or the surface of seas, such as the Mediterranean where there are no tides,) would not in any way be affected by the atmospheric

First: It may be possible to the prodigious force of electric action, to lift, as it were, in its upward progress to the cloud, that portion of the earth's atmosphere, contained beneath the cloud, and I am the more inclined to believe this from observing short intervals during the sheet rain, when it comparatively ceased, and returned again in broad streams of water. According to Ferguson,—"A cylindric column of air, 1200 feet high, is of equal weight with a column of water of the same breadth, and one foot high." (*query*) How did the column of water of four feet increased altitude, lift the superincumbent column of air equal to its own weight and pressure, or 4800 feet in columnar altitude? Surely it must be caused by some unappreciated, but prodigious power, in an upward progression, thus releasing the tidal wave from a portion of atmospheric pressure in that especial locality.

Or, Secondly,—What is the effect, from the earth upwards to the cloud, of powerful electric action, where water intervenes as a conducting medium? Has it lifted in its passage a column of water four feet in depth over a certain area? Or, has it in escaping from that fluid, released it from the pressure of a column of air 4800 feet in depth? I cannot help thinking that if we attribute it to expansion of the fluid column, consequent on an increase of thermometric temperature, both air and water would partake of this effect, and counterbalance each other, or in other words, their equilibrium would not be destroyed! I therefore lean to the first hypothesis, or uplifting power of terrestrial electricity!

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pressure, but we all know that this is not the case, and our barometers point to us the changes that take place in the weight of a superincumbent column of air. All fluids have a tendency to an equilibrium when free to act by the force of gravity, and this law is beautifully exemplified on a well regulated tide guage, where the medium level of the sea is easily found. If the barometer falls, the surface of the sea rises in proportion. If the weight of the atmosphere be increased and a rise of the barometer take place, the medium level of the sea falls in the proportion of 10 inches of sea water to 1 inch of mercury.

It has been ascertained by a careful discussion of a great many correct tidal observations, that when the atmospherical agencies are carefully separated from the attractive forces of the sun and moon, so far as they act on the waters of the ocean; that every tide ranges as much above as below a certain point on the solid earth; that every half tide attains this point, whether in flowing or in ebbing. If for example it was low water at three feet on a tide guage and high water at seventeen feet, the range would be fourteen feet, and the medium level ten feet: on another occasion low water may be at one foot, and high water nineteen feet, but the medium level would still be found ten feet, namely, halfway between the extremes—where the barometer stands at its mean annual height and when the winds are hushed and the sea smooth this is always the case. But if a year's tidal observations be taken, including all contingencies, their *mean* will give the same result within less than half an inch, the number of observations correcting all atmospherical contingencies.

Here then we have a *zero* or point from whence to compute our heights on shore and our depths at sea, this being once ascertained, a good self-registering tide guage, becomes a check upon the barometer, and in most cases the

I state these facts to induce others who have more leisure than myself, to attend to these interesting phenomena! Interesting to the Philosopher, and certainly not less so to the Mariner! Who can feel surprise at the shifting sudden alterations in sands and shoals! As the thunderstorm is partial and local, so also must be its effects! Fancy then the cause in existence at low water in this locality! The Goodwin Sands (as a natural consequence) a high and dry barrier to the tidal column of some miles in extent. The tide rises vertically four feet in a few minutes in the Gull stream and rushes into, and through the Trinity Swatch with an increased velocity sufficient to account for any change in its points or projecting tongues of sand; to know this should induce us to keep a good look-out, and not allow our old friend, "the hand-lead, to be so much neglected, but emulate our seamen of the Old School," A good School!

> "By practiced skill, o'er bar and shelf to sound,
> With dext'rous arm, sagacious of the ground!"

Again, is it not clear, that the rise, being partial and local, must according to the known law of fluids, occasion a derangement of the set of the tide in its immediate sphere of action? Accelerating or retarding its current, during the haze and uncertainty of tempestuous weather?

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rise and fall of the sea, *precedes* a rise or fall in the barometer. Here then we have a new feature in the theory of the tides that may prove of vast advantage to science. Sir John Herschel, in his preliminary discourse on the study of Natural Philosophy, Art 322—in alluding to the geological changes in the relative levels of existing continents and seas, remarks, that these changes can only be detected by means of the correct *sea level*, (see Preliminary Discourse,) if such could be accurately ascertained. Now the tides will always point out this level, since the waters of the ocean become the geologists' liquid level, because *they* always obey the force of terrestrial gravitation, and conform to the spheroidal curvature of the earth.

During every lunation, we have a superior and an inferior spring tide. The superior of highest spring, happens when the moon is in that part of her orbit nearest to the earth, those tides that rise highest above the mean level, also recede the lowest. Now if it be an object to perform some operation depending on the height of the tides, we have only to look out for the best springs, and a low state of the barometer, and a wind blowing upon the coast. If our operations depend on the lowness of the tide, and the portion of bottom laid dry, our object will be best obtained with great spring tides, a very high barometer and an off shore wind. We now see the reason why southerly gales on our shores, are attended with high tides, the wind contributes its part, and southerly ones also are always attended by a low barometer and consequent diminution of atmospheric pressure, from these two causes alone the water on the coast of Devonshire may rise three feet above its medium level; and if to the contingencies be superadded an equinoctial spring tide, the water may rise to a height exceeding 25 feet above low water mark. On these occasions much damage is done by the water overflowing its accustomed bounds. We should therefore provide for such contingencies in erecting our Wharfs, Dock Gates, &c. The great storm in 1824 was a case in point.—*Plymouth Journal.*

(however short its duration) and might peril the drifting ship, till it was too late to rescue or extricate her from surrounding dangers!

Forewarned! forearmed! and repeated cautions are necessary to awaken the seaman to a proper degree of watchfulness, when in a tide way, or what is technically denominated Pilot's water! If these tidal diagrams are auxiliary to real and practical benefits as well as to scientific research, I shall be amply repaid, for any trouble or investigation my official duties, will enable me to bestow upon them.

K. B. MARTIN, *Harbour Master.*

A CHRONOLOGICAL LIST OF THE HURRICANES WHICH HAVE OCCURRED IN THE WEST INDIES, *Since the year* 1493; *with interesting descriptions.**

"The wind goeth towards the south, and turneth about to the north; it whirleth about continually, and the wind returneth again according to his circuits."—Eccle. 6. v. 1. c.

1493. 12th Feb.—This is the first hurricane I have met with, which has been recorded.

It was experienced in the North Atlantic by Columbus, on his first homeward voyage; and although out of the limits of the tropics, it is probable that it originated there.

The storm commenced on the 12th, and lasted three days, and was extremely violent; both the caravels were expected to founder; they parted company, and each thought the other lost.

Having resigned all hope from human exertions, they implored the assistance of the Almighty. The Admiral's ship was without ballast; they had neglected to take it in lest they should lose the favourable wind; this was remedied in part by filling empty casks with salt water. On the night of the 14th, the gale increased. Columbus thought that Providence had decreed to put an end here to his mortal existence, and to bury his deeds in oblivion; but the lamentations of his crew, who reproached him as the author of their troubles, distressed him more than the thoughts of death.

That the discoveries which he had made should not be lost to Europe, Columbus took the precaution to write an account briefly on parchment, which he headed up in a cask and committed to the deep. The wind

* I do not profess to offer this list of hurricanes as a perfect one; but I believe it is the most complete which has yet been collected.

I have added such narrations of the circumstances attending them as I could gather from various sources, which may serve to make the subject more interesting to the seaman, and others, who take an interest in the physical phenomena of Nature.

I have been principally indebted to the work of the late Captain Southey of the Royal Navy for the greater part of the accounts.

I have only to hope that some readers of the *Nautical*, will, if it be in their power, fill up the omissions.—S. J.

shifted to the west with heavy rain, and the gale abated. They made the Azores on the morning of the 15th, and anchored at St. Marys Isle, but were driven from their anchor by another severe gale, which abated on the 21st. In a very distressed condition they at length put into the Tagus; and eventually arrived at Palos on the 15th of March, thus completing the adventurous voyage of discovery.

1494. 16th of July.—Second voyage of Columbus upon this day, on the south side of Cuba, a violent hurricane occasioned the Admiral to declare, that nothing but the service of God and the extension of the monarchy should induce him to expose himself to such dangers.

The storm was weathered, as it appears that they anchored on the 18th to the eastward of Cape Cruz; the scene of the wreck of *H.M.S. Phœnix*, in a dreadful hurricane 286 years afterwards.

1496.—Aguada, the Spanish king's repostero, or steward, being about to return from St. Domingo to Europe, was assailed by a hurricane, and his four ships wrecked, as were two others also that lay at anchor. As Columbus, and Aguada, sailed for Spain subsequently to this disaster, on the 10th of March, if the date is correct, it would appear that this hurricane occurred out of the usual season. But as a new vessel was built from the wrecks, it is not improbable that the storm happened in October 1495.

1502.—On the 29th of June, Columbus arrived off the port of the city St. Domingo, and sent an officer in to request permission to enter, but Ovando who commanded there, refused his request. Columbus foresaw that a hurricane was approaching. A fleet of 32 vessels were ready to sail from the harbour. Columbus sent a messenger to recommend Ovando to detain them, until the hurricane, which the state of the weather denoted, should pass. The fleet, however sailed on the 1st of July, and within 24 hours, twenty sail with all on board perished!

According to the account of Columbus, this storm proved a severe one. He observes that "the gale was terrible, and in that night my vessels parted company, every one expecting death, and each considering it as certain that the others were lost. With the exception of Job, there never was a man who would not have died in despair! When to save my life and that of my son, brother and friends, I was at such a time forbidden the harbours, which by God's permission, I had gained for Spain, sweating blood. The vessel in which I was, weathered the gale marvellously: it pleased God that she received no damage whatever. My brother was in the unsafe vessel, and, next to God was the means of saving her. In the gale we made Jamaica."

This storm is remarkable as having occurred very early in the season: 1st. and 2nd of July.

A fortnight after this hurricane, Columbus experienced a long continuance of bad weather. It is so remarkable that I shall note it here. After refitting his vessel in Puerto Hermoso, or Escondido, (Hidden Port,) on the southern side of Cuba, a little to the eastward of Cumberland harbour, he sailed to the westward for Yaquimo; from whence he departed on the 14th of July: he was becalmed, and driven by the cur-

rent near El Jardin de la Reyna, or the Queen's Garden. Here the calm changed to a storm, and for *seventy** days they never saw sun nor star! They discovered the Guanaja, or Pines, so noted in more modern times as the haunt of pirates.

On the 5th of December he was off the harbour of Puerto Bello, with calms and variable winds: this was soon followed by a hurricane, which lasted nine days! The oldest seaman had never seen such weather: every one gave himself up for lost; and worn out with fatigue, sought protection in prayer.

A water-spout burst near them, and they attribute their safety to the interposition of St. John the Evangelist. The storm was followed by a calm which lasted two days. The calm was succeeded by sudden and violent squalls of wind from opposite quarters. The Admiral, therefore, named the coast from Puerto Bello to Veragua, "La Costa de los Contrastes".

It is doubtful if the storm mentioned above, was a circular one; I am inclined to believe that is was a rectilinear gale from the westward.

1503.—In the middle of May, Columbus experienced another heavy gale of wind off the Queen's Garden; in which his vessels were damaged by falling on board each other.

1504.—On his return to Europe, Columbus' ship was dismasted on the 19th of October, and subsequently carried away her jury-foremast in another gale.

Now that we have become acquainted with the extreme peril attending ships, even well found and manned, in the rotary storm, we are amazed at the repeated escapes of this enterprising and skilful seaman, in such frail barks as he employed in his adventurous voyages.

As we have now done with this great man, who was the first European seaman that mentioned the tropical hurricane, I may briefly state that he was born in the year 1447, and was engaged in a sea-faring life from the age of 14; and followed it for 40 years. He died at Valladolid on the 20th of May 1506,; and was interred in the Church of the Carthusians in Seville; but his body was subsequently removed, and entombed in the city of St. Domingo, according to a request made in his will.

The Latin epitaph on his tomb is thus rendered into English:—

"I Christopher Columbus, whom the land
Of Genoa first brought forth, first took in hand,
I know not by what Deity incited,
To scour the Western Seas, and was delighted,
To seek for countries never known before.
Crown'd with success, I first descried the shore
Of the New World, then destined to sustain
The future yoke of Phillip, lord of Spain;
And yet I greater matters left behind,
For men of more means, and braver mind."

* One is almost inclined to believe that *seven* is meant.

1508.*—On the 3rd day of August, all the thatched houses in St. Domingo, and several of those built with stone, every house in Bonaventura, and twenty sail of vessels, were destroyed by a hurricane. The wind blew first from the north, and then shifted suddenly to the south.

This is the first instance we find recorded of the centre of a rotary storm passing directly over a locality. Its progressive course must have been, at the time, due west.

1509.—The Admiral Don Diego Columbus arrived at the port of the city of San Domingo on the 10th of July. Shortly after, the city was almost destroyed by a hurricane.

These awful visitations were considered marks of Divine displeasure, as the Haytians declared that previous to the arrival of the Spaniards they were not so frequent.

As a peace offering, several churches were began, and completed with great diligence, and magnificence. But, it is evident, that however scared the Dons did not relax their persecution of the unfortunate owners of the soil.

The earliest notice of those fierce gales called *norths*, so common in the sea of Mexico, I find mentioned by Hernandez de Cordova; it lasted four days. It was in February or March.

The first English vessel ever seen in the West Indies arrived at Porto Rico in 1519. She was 250 tons burthen; 2 guns, and 70 men.†

1526.—In October this year, a violent hurricane did great damage at Española, or St. Domingo: the rivers overflowed their banks. No such storm had been experienced in that island for many years. By which remark, we may infer that these tempests more frequently proceed to the north-west over the windward islands than on a more western course.

1530. There is an incidental notice this year to this effect:—The inhabitants of San Juan were in great distress. The storms which had followed the hurricanes had made the rivers overflow their banks, and crops, trees, and herds had been washed away; so that the works at the gold mines, and other undertakings, were suspended.

1563.—I have a note of a hurricane having passed over the island this year. It is remarkable, too, for Hawkin's first voyage with negroes, which live cargo he sold at Isabella Bay, Puerta de la Plata, and Monte Christi. His vessels were the *Salomon* of 120 tons, and the *Swallow* of 100; the latter commanded by Thomas Hampton; and the *Jonas*, a bark of 40 tons!

1591.—A fleet of 77 sail left the Havana for Spain on 17th July. The largest ships were 1000 tons, and the smallest 200 tons. About the 10th of August in 35° N., this fleet encountered a hurricane; wind from the northward; the Admiral's ship with her crew of 500 men foundered; and three or four days after, in another gale, five or six of the

* See *Nautical Magazine*, 1841 page 746.

† I believe the merchant's name was Tyson; his decendants are still living in Bristol.

largest ships were lost with all their crews, among which was the Vice-Admiral. In 38° N., another gale overtook them, during which 22 vessels perished! Upon the 6th of September the remaining 48 ships sighted Flores, and were separated in another gale; and out of 123 sail, 26 only arrived in Spain. The English captured 7, and 19 were wrecked!

1623.—For the preceding 32 years I find no entry of hurricanes; it was a busy interval, for the English, French, and Dutch, like a swarm of hornets were buzzing about the ears of the Dons, and stinging them occasionally; so that although there can be no doubt that there were many storms since 1591, they were not recorded; at least I cannot find any notice in the printed works I have access to.*

On the 19th of September this year, a hurricane passed over the windward islands; at St. Christopher the tobacco crop was destroyed by this storm.

1642.—For nineteen years we heard nothing of storms of wind, although the elements of human passions were sadly at war.

During this year there were *three* hurricanes, which pressed heavily upon the scene of the busy bustling *homos* that were eyeing one another like prowling tigers. I find no detail of the first; the second lasted 24 hours, during which time, at St. Christopher, 23 fully laden vessels were wrecked. One of these belonged to the celebrated Hollander, De Ruyter, whose bust we saw, 162 years afterwards, gracing an old man-of-war hulk, at Port Royal, in Jamaica, *Sic transit, &c.* To add to the comfort of the cayanne-tempered sojourners of this inflammable isle, all the houses were blown down, and the whole of the cotton and tobacco plants were destroyed: the salt lakes overflowed their banks, and were for some time unproductive. The effect of the third storm is not narrated. One in 1651. Two in 1653.†

1652.—During this year, Prince Maurice was lost in a hurricane which swept the Caribbean Sea: he was in the fleet under the command of his brother, the *puissant* Prince Rupert, which afterwards returned to Nantes, where the ships and stores were bought by Cardinal Mazarine, and the purchase-money handed over to Prince Charles, then an exile, but who was afterwards Charles the Second of England.

1656.—The island of Guadaloupe was desolated by a tremendous hurricane; most of the houses destroyed, all the domestic animals killed, and all the plantations laid waste: every vessel at anchor in the roads was wrecked, and most of their crews drowned! another also occurred among the islands.

1664.—There was a violent hurricane at Guadaloupe, which destroyed the provision crops; and an earthquake at St. Christopher did considerable damage. On the 4th December a comet appeared.

1665.—Hurricane in October among the islands.

1666.— On the 28th of July, Lord Willoughby, the Governor of Bar-

* Some other diligent hand may be enabled to fill up this *hiatus*.

† *Nautical Magazine*, 1841, p. 745.

bados, sailed from that island with 17 vessels, and nearly 2000 troops. On the 30th he was off St. Pierre, Martinico, and on 2nd of August off Guadaloupe.

On the 4th three frigates and some smaller vessels destroyed the French ships in the Saints.

Symptoms of an approaching hurricane made his lordship extremely anxious for the return of the ships, which had been sent to the Saints; but the commanding officer's ship had suffered some damage, and could not be refitted before night.

At 6 P.M., the gale began from the north, and continued with great violence till midnight, when, after a *calm* which lasted for a quarter of an hour, the storm recommenced suddenly with the wind from the E.S. E., driving every thing before it, with irresistible violence.

Every vessel and boat upon the coast of Guadaloupe was dashed to pieces. All the vessels at the Saints were driven on shore; and of the whole of Lord Willoughby's fleet, *only two were ever heard of afterwards.*

An armie-en-flute of 22 guns got to Montserrat with only the stump of her mizen-mast standing, and a fire ship reached Antigua, dismasted.

The bottom of one ship was washed on shore at Cabsterre, Guadaloupe, and another at the Saints. The whole coast was covered with the wrecks of masts and yards; a figure from the stern of Lord Willoughby's ship was recognized among the ruins.

The hurricane lasted 24 hours; houses and trees were blown down, and a great number of cattle killed. The sea rose, and was driven to an unusal height. All the batteries, the walls of *six-feet* thickness, near the sea, were destroyed, and guns, 14-pounders, were washed away. The storm was felt at St. Christopher, and Martinico, but with less violence.

The savage nature of men's hearts at this period may be gathered from the following entry. In commemmoration of this *victory*, (gained by the elements!) the French Government made a foundation for the Jacobins of 2000 pounds of sugar, for them to chaunt a Te Deum annually upon the day of the Assumption!

Two of the English vessels were afterwards got afloat, and commissioned by the French. This storm is curious on account of the point from which the wind came after the central calm had passed.

It is the first instance clearly shown of a deviation of local route, which has been however, since confirmed. In the first place the meteor appears to have been moving to the west, but from some cause or other, turned suddenly to the south-westward.

This was a year of disasters to the English; and was called the "Dismal year of 1666"; the great fire in London occurred on the first day of September.

1667.—This year was as terrible as the last, the elements were in commotion as well as the unruly spirits of men.

At St. Christopher the misery was extreme. The island was so

closely blockaded, that supplies were with the greatest difficulty thrown in. The necessaries of life became dear beyond all former example.

To add to their distress, upon the first day of September, a tremendous hurricane desolated the island. It began at 9h. A.M., with a strong gale from the north, which lasted until 5h. P.M. At 6h. the wind shifted to the south, and blew with such violence, that all the houses and other buildings were blown down. The inhabitants sought shelter from its fury by throwing themselves flat upon the ground in the fields.

M. Laurent, the Governor, in a letter to M. Colbert, describes it thus:—There has blown here the most violent hurricane ever known; and I hold myself obliged to inform you, that this island is in the most deplorable state that can be imagined, and that the inhabitants could not have suffered a greater loss, or been more unfortunate, except they had been taken by the English.

"There is not a house or sugar-work standing, and they cannot hope to make any sugar for 15 months to come. As for the manioc (cassava) which is the bread of the country, there is not one root left, and is more than a year in growing.

"I cannot describe to you, Sir, the misery of this poor island, without wounding my heart. It is as a place over which a fire has passed!"

From the account of this storm, it appears to have been without the central calm;* the focus having passed directly over the island, with extreme severity. Its progressive course was due west.

1670.—On the 30th of September, Captain John Morris arrived at the Isle A'vache (St. Domingo), with a Spanish vessel of 8 guns, commanded by Immanual Rivers, who had burnt the houses on the coast of Jamaica. It appears that the noted "Admiral," Henry Morgan, was there, with eleven vessels, "on a roving commission." On the 7th of October, a hurricane drove all the fleet on shore in the harbour, except Morgan's vessel, three were lost.

1674.—Upon the 10th day of August, a hurricane passed over Barbados, blew down 300 houses, and destroyed the plantations, so that the inhabitants made but little sugar the two succeeding years. Eight ships were wrecked in the port, and 200 persons were killed.

1675.—Again! in August, a dreadful hurricane spread desolation in Barbados. The crops were destroyed, and the inhabitants were so distressed that they petitioned the British Government to relieve them from the impost of 4½ per cent upon their exports. The prayer of the petition was *most mercifully* refused!

1681.—The island of Antigua was destroyed by a tremendous hurricane.

1694.—On the 17th of October a hurricane passed over Barbados; most of the ships in Carlisle Bay were stranded.

1707.—The inhabitants of Nevis were this year, nearly ruined by a hurricane which passed over the island.†

* At least, it is not mentioned.

† In May 1704 Commander Wager's squadron encountered a storm between Jamaica, and Carthagena, Spanish Main.

1712.—A hurricane occurred at Jamaica, on the 28th of August; on which day the island was dreadfully shaken by an earthquake. Savana-la-Mar was overwhelmed by the sea, which in a few moments swept both man and beast from the face of the earth. Not an individual survived to relate the calamity, not a single habitation escaped the deluge! The town, with its inhabitants, and wealth, was, in the most literal sense of the word, washed away!

1722.—Upon the 28th, of August, a severe hurricane passed over Jamaica; this was the same day of the month on which the island suffered ten years before from the same cause, and from earthquake. The anniversary of the day, was by an act of Assembly, set apart for fasting and humiliation.

Port Royal was overwhelmed by the sea; 26 merchant vessels and 400 persons perished in the harbour! The storm commenced at 8 A.M., two days before the change of the moon, and gave 48 hours notice, by a noisy breaking of the waves upon the cays outside, very disproportioned to the breeze; a continued swell without reflux of the water; and the two nights preceding, prodigious lightnings and thunder; which all the old experienced men foretold would end in a hurricane, or that one had already happened at no great distance.

The rapidity with which the undulatory motion is propagated, seamen are familiar with, from observing the quick succession of the waves in heavy gales of wind; but the distance to which it extends has not been determined. Wherever the initial starting point of this storm may have been, it is probable that at the time the swell was first observed on the cays outside of Port Royal, the meteor was more than 300 miles to the E.S.E.!

The wind commenced in "flurries" from the N.E., "flew" quickly round to the S.E., and S.S.E., "where it continued, the stress of the storm bringing such quantities of water that our little island (Port Royal is here probably meant) was overflowed four feet at least."

Purser Atkins of H.M.S. *Weymouth*, whose account I follow, says: "I was regardless at first, suspecting more of timidity in the people, till finding myself left alone, proprietor of a shaking old house, the streets full of water and drift, with shingles flying about like arrows, I began to meditate a little more seriously upon my safety, and would have compounded all my *credit* in the victualling, (office), my hoops and bags, for one acre (as Gonzalo says in the Tempest,) of barren ground, long heath, or brown furze, to have trod dry upon! The water at eleven o'clock was breast high. A platform of 21 guns and mortars was driven from its position, some of the guns as far as the market-place. The two lines of houses next to the sea wall, with the church, were undermined and levelled by the torrent; "and in the ruin was our safety; for although we had a greater depth, they were by such a bank made motionless." The whole rise of the water was computed at 16 or 18 feet!, very admirable, at a place where it is not ordinarily observed to flow above one or two. At five in the evening the waters abated, and with so quick

a retreat, as to leave the streets dry before six; when every one was congratulating his own safety, in condolencies upon the loss of his friends."

Mr. Atkins states that, "of fifty sail in this harbour, only four men-of-war and two merchant ships rid it out, but with all their masts and booms blown away." He says also that a shock or two of earthquake succeeded the hurricane.

If we take the N.E., wind as the precursor gale, and S.E., as the first wind of the circle, the N.E., margin of the storm alone brushed this part of the island, yet the hurricane was extremely severe; but the reasons are plain for its having been so: the wind coming from the southward and eastward blew directly into the harbour, and as it was fleeting away on a parallel with the line of progression, (to the north-westward) it was at its maximum strength on that account.

If the changes of wind had been from the northward and westward, the effects would not have been so great, though the centre should have passed near the locality.

The focus of the storm went probably clear of the land to the south-westward.

DESCRIPTION OF THE MADEIRA ISLANDS.—*By Capt. Alex. T. E. Vidal, R.N., of H.M.S. Styx.*

(Continued from p. 354.)

THREE rivers which have their sources in the high lands near the centre of the island discharge their waters into Funchal Bay. Two of them, Joao Gomez and Santa Luzia have their outlets at a fort named Pelorinho, nearly midway between Santiago fort and the castle of San Lourenço. The third San Paulo enters the bay between that castle and fort St. Lazaro.

We insert the following account of the fearful storm which took place at Madeira in 1842:—

"Funchal, the capital of Madeira, and the whole of the island, has been visited with one of the most dreadful storms that has occurred since the flood in the year 1803, when upwards of 400 persons were swept into the sea; and had the late deluge occurred at night, as was the case in the former catastrophe, there is no doubt but hundreds of persons would have been drowned. However, as far as can be learnt at present, few lives were lost except in the distant parishes, were several hundreds of persons have been carried into the sea.

"The last summer was exceedingly hot, and almost without rain, the weather remaining beautifully fine until the 15th of October, when the clouds began to envelope the mountains, which brought on the following day severe thunder storms accompanied with heavy rain, continuing almost without intermission

During summer these streams are generally inconsiderable, but in the heavy rains which occur in winter, they have occasionally come down with overwhelming force, and caused much damage to the city. The depth of water in the bay is said to be gradually decreasing from the quantity of alluvium they bring down.

The soundings over the bay are regular, and the quality of the bottom a fine dark sand with some little mud.

On the meridian of fort Pelorinho, at 300 yards distance from the beach there will be found a depth of 11 fathoms, at 400 yards 18 fathoms, at a quarter of a mile 20, at half a mile 40, at nine-tenths of a mile 100, and at one mile 200 fathoms.

On the meridian of the Loo Rock at the distance of a quarter of a mile the depth is 25 fathoms, at half a mile 38, at three-quarters of a mile 58, at one mile 100, and at one mile two-tenths 200 fathoms.

In the summer months when land and sea breezes prevail vessels may anchor any where about the bay, as most convenient, but the best anchorage, especially during the winter months is off the Loo Rock, with the old citadel called the Castello do Pico bearing north, and exactly midway between the Loo and the Fort of San Jose on the Pontinha.

On this line of bearing steam vessels may anchor in 12 to 18 fathoms, and sailing vessels in 25 to 35. This latter depth is half a mile from the Loo Rock. The soundings extend further out in this direction, with fine sandy bottom; and should any vessel have previously taken up this position, it will be better to anchor to the westward of her.

A considerable surf very commonly prevails along the whole of the beach, and renders communication between vessels and the shore difficult. It is seldom attempted but in native boats. This is a very serious inconvenience, especially to the numerous invalids who resort annually to the island, and a good landing place is a great desideratum. Nevertheless nearly all mercantile business is carried on from the beach; and through

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until the morning of the 24th of October, when the rain partly ceased. At 10 o'clock the Royal West India Steamer *Dee* arrived, and landed fifty-two passengers for the island. She was, however, prevented from proceeding until the following day, as the Admiralty agent, who had come on shore with the mail, could not get on board again.

"About mid day the whole of the island appeared buried in a vast cloud, threatening total darkness; the barometer fell considerably. The air became very oppressive, with a strong sulphurous smell, and the wind veered about to nearly every point of the compass. At 1 o'clock the rain began to fall in torrents, and about an hour afterwards I perceived at a distance of about a mile from shore an immense rising in the sea, which was soon connected with a mass of dark clouds overhanging the bay, to all appearance charging themselves or drawing the water from the sea, for the space of about 10 minutes, followed immediately by a heavy swell or rising of the ocean, which swept towards the shore; and although I was at a considerable elevation above the level of the sea, it appeared high enough to sweep over the city; its force, however, was broken, and it subsided on the beach. The rain still continued in torrents, and at 4 o'clock the roar of the water in the river which was 40

the experience and dexterity of the boatmen, aided by the build and lightness of their boats accidents but seldom happen.

The boats of men-of-war and steam packets usually land at the steps of the Pontinha, but it is at rather an inconvenient distance from the city.

From the Pontinha to Ponta da Cruz the distance is one mile and a half, and the coast between them has a broken outline of rocky cliffs, points and bays. At the south-west point of the Pontinha a rocky spur projects to seaward about thirty yards, and in the bay to the west of it, 250 yards within the point, are two small flat rocks, a few feet above water. The bay is half a mile across, and the shore of it is composed of steep cliffs, which rise to a high bold bluff at its western extremity. Along the base of these cliffs there is a beach of sand and shingle of some breadth near the root of the Pontinha embankment, but narrowing gradually towards the centre of the bay, and terminating near the outlet of a watercourse. The whole of this bay is comparatively shallow, the depth not exceeding eight fathoms between its extreme points; and it appears to offer the best position that can be found at Madeira for any artificial harbour works.

Half a mile westward of this is a detached sugar-loaf formed rock, named Gorgulho; it stands about 130 yards from the shore in front of a little bay which has a fort upon its eastern point, and near the centre of it a pretty quinta. Four-tenths of a mile north of this rock is Monte da Cruz, with a telegraph on its summit, 862 feet above the sea, and from hence there is a succession of rocky cliffs for another half mile to the Ponta da Cruz, at the south-west extremity of which there is a semi-detached pointed rock with a small iron cross upon the top of it. The cliffs opposite are high and perpendicular. This rock forms the southern extreme of Madeira, and is in latitude 32° 37′ 18″ N., and longitude 16° 57′ 11″ W.

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feet in depth, began to give me some alarm, when looking out of the window of my house I perceived that the bridge was being swept away, and that the water was rushing into the streets. I immediately left the house, and on reaching the street the appalling sight that appeared in every direction was enough to make the stoutest heart quake with fear. The street in front of the garden of my house was upwards of three feet deep with water, and hundreds of men, women, and children, were wading their way up the stream, flying towards the mountains, whilst others were flocking to the town, not knowing where to go for safety, amidst the most dreadful shrieks and cries that can possibly be imagined. As I approached towards the river, the scene became still more awful, the water having burst open the wine lodges, and the contents being swept into the sea, whilst the streets in the neighbourhood were all overflowed with water, and the inmates of the houses escaping by ladders and over the roofs of the buildings. Upwards of 200 houses have been destroyed, or become untenantable by this disasterous flood, and the quantity of wine, corn, &c., swept into the sea and destroyed, is very great, but at present it is utterly impossible to state anything like an estimate of the amount of damage done. A meeting was called on the following day

The coast from the Pontinha to this point is steep to, and clear of danger; and the edge of the bank continues nearly parallel with it, at the distance of about a mile.

North 72° 15′ W., $\frac{85}{100}$ miles from Ponta da Cruz is Ponta d'Agoa a low point covered with large stones, at the base of some enormous cliffs. The greatest deviation of the coast from the line of the extreme points is four-tenths of a mile. Close round Ponta da Cruz on its western side is the Bay of Praya Formosa, formed by a shingle beach six-tenths of a mile long, and about two-tenths deep. The high land recedes from each end of the bay towards its centre, and leaves the space between filled with a large bed of shingle. At the west end of Praya Formosa is a small rocky islet, and from thence a line of rocky cliffs of small elevation, fronted by a stony beach, and many detached black rocks extends six-tenths of a mile further to the Soccorridos river. This mountain stream perhaps the largest in Madeira originates at the southern base of Pico Ruiva, amongst the group of highest mountains on the island; and drains the celebrated valley of the Curral. Immediately in front of it is a beach of shingle, and at its west end a small bold rocky point, round which is the village and little boat harbour of Camera de Lobos.

The eastern side of this inlet is formed by steep rocky cliffs, and the western side by a narrow wavy line of black lava, running out south at right angles with the beach for about 270 yards.

The town of Camera de Lobos is situated at the head of the cove, and behind it is a hill with a telegraph on its highest part. About 100 yards from the western point of this inlet there is a small fort built on a rocky cliff near the sea; and beyond the fort, a sandy beach a quarter of a mile in length, over which the Ribeira of the Jardim da Serra discharges its waters. At the west extremity of this beach commence the magnificent cliffs which terminate the ridge of mountains lying westward of the valley of the Jardim. The highest of them form the bold sea face

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(25th) by the Governor, and food distributed to the poor; at the same time an arrangement was made to open several forts, &c., for their accommodation, until such times as they could provide themselves with other houses. The authorities also made every arrangement to prevent drunkenness in the streets, and robberies at night, but as casks of wine were rolling about in every direction, and whole streets of houses open to any one who wished to enter, the inmates having fled, many robberies occurred, and many scenes of intoxication. The rain continued to fall during the night of the 24th, but the following day gave signs of the weather moderating, and in the afternoon it was fine, but with a strong breeze from the S.E., which continued until 3 o'clock P.M., on the 26th, when it blew a hurricane from the south, the sea rushing over the beach, and entering into the streets in the lower part of the city. Six vessels were at anchor in the bay, but to me it appeared utterly impossible for them to ride out the gale, as the sea broke with terrific fury over them, and the wind being dead into the bay, gave them no chance of escaping by making sail. At 5 o'clock, the American brig *Creole* dragged her anchor and was soon on shore—the whole of the crew were saved, and about an hour afterwards, I observed the English schooner *Wave* was doomed to the same

of Cabo Girao, and upon the high land which crowns the cape is a grove of pine trees, 2079 feet above the sea. From thence the hills continue rising until they reach the head of the valley, their highest point at which they attain an elevation of 4535 feet. At the base of these high cliffs is a narrow beach of shingle thickly strewn with large blocks of stone, with here and there some slightly projecting points, produced by the occasional fall of rocky masses from above.

North 70° 30′ W., 4 $\frac{63}{100}$ miles from Ponta d'Agoa is the outer rock off Ponta do Sol. Intermediate at the distance of one mile and quarter to the westward of Ponta d'Agoa is a conical shaped rock named Ilheo da Lapa. It lies in front of the village of Campanaris, detached from the shore though very close to it; and here the continuous line of stony beach covered with large blocks and boulders may be said to terminate; and from hence to the westward this characteristic alternates with *clean* black rocky points without any beach at all before them. The cliffs become more inclined, and there are some large land slips which are cultivated and inhabited.

One mile and quarter beyond Ilheo de Lapa is the rocky point of Ribeira Braba, with three small black rocks close off it; on the western side of it is a little bay a quarter of a mile across, with a beach of coarse sand, shingle, and boulders. A short distance from the beach is the village of Ribeira Braba; and near it the outlet of a mountain stream of the same name, which drains the valley of the Serra d'Agoa.

To the westward of this bay the coast becomes more varied, more irregular in height, and is again fronted with a narrow beach of shingle and boulders; and three-quarters of a mile beyond Ribeira Braba is the small Ribeira of A. Tabua. Like all these mountain streams its waters are discharged over a beach of shingle with rocky cliffs on either side of it. Six-tenths of a mile further is a large cultivated land slip, and from

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fate, the whole of her crew being saved by the exertions of Mr. Henry Crawford, who secured them ropes, &c., from a rock from above where the vessel struck. It had now become dark, but as I observed a blue light from one of the vessels, and as the gale still continued, I determined to attempt to get to the beach to give all the assistance I could, as I apprehended the whole of the vessels must come on shore. I had some distance to go ere I could procure a torch, and over a very dangerous passage, the flood having made such dreadful havoc in the lower part of the city; however, I reached the beach, and immediately heard the cries from another vessel approaching the shore. This proved to be the Portuguese schooner *Novo Beijinho*; and I must say, that with the few lights we had on the beach, every exertion was made to save the whole of the crew, but, unfortunately, four of them were drowned. Immediately afterwards a vessel approached burning a blue-light, and which came on shore alongside the *Novo Beijinho*; but as the rain fell in torrents and the wind was still blowing a perfect hurricane, it was some time before we could afford them lights or approach the vessel. She proved to be the brig *Dart*, of London; and by great courage and good management all the crew were saved, and I cannot but praise the daring conduct of the Portuguese on the beach, in rescuing the crew of this vessel, particularly

thence the coast trends a little more westerly for three-quarters of a mile to the rock at Ponta do Sol, and a small bay lies between them.

Ponta do Sol is a bluff rocky cliff with a few large fragments of rock lying close in front of it. The most conspicuous of these is pointed and has a small wooden cross upon its summit. Three small rocks lie off it to the southward about forty yards, and two-tenths of a mile N. 66° 30′ west of it is another. On the west side of the point is a Ribeira with a shingle beach in front of it about 300 yards in length.

The outlet is narrow with steep cliffs on either side, and a stone wall has been constructed across it, leaving a passage for the stream close along the foot of the western cliff. The source of the Ribeira is between four and five miles inland, to the N.N.E., of the point, amongst the high lands at the southern margin of the Paul da Serra. The village of Ponta do Sol is situated in the ravine a very short distance from the beach, and its church may be seen through the narrow gorge of the outlet, though to a very limited extent in consequence of the cliffs.

From Ponta do Sol the next extreme point seen to the westward is Ponta Galera bearing N. 57° 45′ W., and distant 5 $\frac{35}{100}$ miles. The coast between them nowhere falls back half a mile, but is formed by a long wavy line of narrow stony beaches, above which are cliffs of small elevation, much broken by mountain torrents into ravines. There are a few land slips, and in some places the land slopes to the sea without cliffs; these lands are always inhabited and cultivated, with numerous terraced vineyards. There is a remarkable piece of cliff standing between land of this description, one mile and quarter from Ponta do Sol; its west extremity forms a small black basaltic point. Three-quarters of a mile beyond it is the village of Magdalena at the outlet of a Ribeira.

About half a mile to the westward of Magdalena is a detached rock lying off 100 yards from the shore in front of a high rocky cliff, at the foot of which is a stony beach. There are six fathoms water alongside

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Senhor Jacinto de Freitas Lomelino, as well as the activity of Senhor Nuno Dias, Senhor Francisco Antonio Rodrigues da Silva, and of Mr. Unwin, all of whom were indefatigable in their exertions to save the unfortunate seamen. We got up a bonfire here as a signal for the vessels still at anchor; and then left to prepare another at the wreck of the *Wave*, where we found only a few boards left, which we soon had lighted, and was glad to find that the ship *Success* was still at anchor; but we here learnt that the Sardinian schooner *Gloria Madre Esperanza* had gone on shore to the east of Funchal, and not a soul saved or a vestige of her left. At 9 o'clock the wind veered to S.W., and at 10 P.M., I considered the remaining vessel, the *Success*, was perfectly safe, but I understand she owes her safety to the anchor of a large American ship which had gone to sea, and which anchor came in contact with that of the *Success*, as she was in the act of being dragged on shore. At 9 A.M., the following morning the *Success* got out to sea, and is no doubt safe; but a wreck of a three-masted vessel is found at Porto Cruz, (north of Madeira), without any of the crew, or even anything to distinguish her name. I apprehended this vessel must have come on shore previous to her having seen the island, probably in the night, at the commencement of the storm. Several

the rock. Again, two miles beyond Magdalena is another Ribeira; and in the space between is the Arco da Calheta. Arco, is a name applied to such hills as present a semi-amphitheatre open towards the sea with a gradual rise of the land from the shore towards their summits. They are generally well cultivated, and dotted with habitations. Six-tenths of a mile westward of this last Ribeira is the town and Ribeira of Calheta. Two or three white houses stand low down near the stony beach in front of it, but the ravine is so narrow that little of the town can be seen, unless when abreast of it.

Above the cliffs on the ridge of land a quarter of a mile west of Calheta there is a conspicuous long building like a monastery.

From Calheta to Ponta Galera the distance is seven-tenths of a mile. The point is formed of flat rocks of black basalt, which run out like a pier about 100 yards from the cliffs of the coast. There are 4¼ fathoms twenty feet from it.

At Ponta Galera, Ponta Jardim bears N. 56° W., one mile and $\frac{85}{100}$. The line of coast between them preserves the same general character; and about midway is the waterfall of Ribeira Funda. Ponta Jardim appears to be a land slip; some large boulders lie close round it, so as to render landing difficult. Upon the top of the point is a small village and a chapel. Here the coast scenery becomes more bold, and the rise from the shore to the mountains is very steep.

The soundings on this part of the coast are regular, over dark sand, and extend off one mile and three-quarters. On the meridian of the Jardim chapel at the distance of a quarter of a mile from the shore there are 10 fathoms, at half a mile 16, at three-quarters 25, and one mile 30. At Ponta Jardim the two next points beyond appear in line bearing 37° 50′ West. The first (Paul do Mar) being one mile — and the second Fajao d'Ovelha 2′ seven-tenths miles from it. There is a waterfall three-tenths of a mile north of the Jardim, and another at the Paul do Mar.

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ships and barques are expected here from London and Liverpool, and doubtless it will prove to be one of these. It is utterly impossible to describe the state of the streets in the lower part of the city; and having seen the river in its force as it swept down the ravine, I wonder that the greatest part of Funchal was not carried into the sea. At the north of the river N. S. do Calhao, a fruit market, and a part of a fort, with the entrance to the Praça Academica, are entirely swept away, and the bed of this river, formerly 30 or 40 feet deep is now filled up with immense rocks and stones brought down from the mountains, which I am afraid in the present poor state of Portugal can never be removed. Three rivers flow through the city of Funchal, taking their rise in the mountains, but the river N. S. do Calhao has now been the cause of the greatest part of the disasters, and the houses on its banks that are not swept away will remain untenanted, as the bed of the river is now nearly equal with the streets, and liable at any time to overflow. The news from the interior, or rather the coast—for from the interior we have none—is awful. Half of Machico is swept away, and all the fishing-boats belonging to the village. In the parish of Magdalena nearly all the houses and part of the population are gone; in Calheta many houses are washed away. Fayal and Porto Cruz

The coast between the Jardim and Paul do Mar consists of steep rocky cliffs fronted by a stony beach; but close to the waterfall at the latter point on the west there is a great land slip. The cliffs recede about two-tenths of a mile; and the land between them and the sea having a steep descent is cultivated in terraced vineyards.

The village of the Paul do Mar is built at the eastern end of the land slip close to the waterfall, from which a beach of shingle and large stones extends the whole way to Fajao d'Ovelha. At that point it is broken through by a little spur of black lava projecting a few yards to seaward, the cliffs become more elevated, and above them the land rises with a steep ascent to the highest peaks on the ridge of the western mountains 4270 feet.

Some idea of the bold character of the scenery at this part of the island may be conveyed by stating that a grove of pines upon the hills above the Paul do Mar is at an elevation of 2030 feet, or one-third of a mile, whilst its horizontal distance from the sea does not exceed half a mile. North 22° 30′ West $2\frac{66}{100}$ miles beyond Fajao d'Ovelha is Ponta Parga, the west extremity of Madeira, in lat. 32° 48′ 06″ N., long. 17° 16′ 38″ W., the coast between these points falls back into a bay 0·34 of a mile in depth. The cliffs are lofty and broken by several mountain torrents, and at their base are many large stones and fragments of rock; one in particular of a sugar-loaf form near the centre of the bay is 72 feet high; two-tenths of a mile north of it is another large rock, frequently used by the fishermen as a landing place, and they have a ladder from it to the shore.

Between the landing place and Ponta Parga the beach is wholly composed of stones, and there is a narrow piece of sloping land between it and

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have suffered much, entire vineyards having been swept into the sea. Santa Cruz has suffered less than others; but at Caniço the disasters are great. The excellent road to S. A. de Serra has disappeared altogether, and instead of travelling the distance, as formerly, on horseback in two hours, it must be taken on foot, and a person who arrived there since the flood was 22 hours on the journey. The village of Camacha is in a most deplorable condition; in fact, all the places have suffered more or less, and most of the roads leading from Funchal are utterly impassable. On the 28th the Bishop, with the Governor, and all the principal authorities attended prayers in the Cathedral, after which they had a procession, carrying the figure of our Saviour on the cross, the size of life, as the Saviour of Miracles, in having saved the city from being altogether destroyed.

We are still without news from the interior of the island, but from all places on the coast the intelligence is truly distressing. Another Sardinian schooner was wrecked at Porto Santo, and the *Aguia*, from Lisbon, which was eight days off the island, had a narrow escape. The *Success* has returned, and leaves to-morrow for Demerara, and the following vessels have also arrived since the storm:—English war steamer *Wilberforce*, from Sierra Leone; ship *Thames*, from London; schooner *Castle Loriam*, from St. John's; American schooner *Itho*, from St. John's; Greek polacca *Pelican*, from Gibraltar; and the Portuguese schooner *Aguia*, from Lisbon.

the cliffs, upon which are two or three fishermen's huts, and a few boats of a construction peculiar to this point. They are in fact a species of catamaran nearly triangular in form, with a bottom and two sides, but the stern or base of the triangle is wanting.

On the high lands above Fajao d'Ovelha point, about one quarter of a mile from the cliffs there is a church, and upon the heights one mile east of Ponta Parga another. The former is 1623, and the latter 1511 feet above the sea. The bold rocky cliffs of Ponta Parga bluff are 935 feet high; and the smooth round topped hill which is situated half a mile to the eastward of the bluff is 1380.

Some rocks and large stones lie scattered around the base of Ponta Parga, a few to the distance of 300 yards; and a ridge of rocky ground nearly a mile and a half in extent runs out from the point to the north-west. The soundings on it are very irregular, from 11 to 19 fathoms, and 33 close to its outer end. Strong westerly winds occasion a heavy sea upon it.

From Calheta, the bank of soundings in its progress to the westward increases considerably its distance from the land, and attains its greatest breadth 5¼ miles west of Fajao d'Ovelha point. From thence it sweeps round to the north-east and gradually diminishes. The edge of it passes little more than 1 mile south of Ponta Galera, 1¾ south-west of Ponta Jardim, 2¼ south-west of Paul do Mar, and 2 miles south-west of Fajao d'Ovelha. Thence it turns off to the west, and passes near the parallel of that point at the distance above stated. To the north-west of Ponta Pargo its extent is two and three-quarter miles.

All the bank west of Ponta Parga and Ponta d'Ovelha is flat, with 40 to 46 fathoms over it; and from those depths it goes off very suddenly to 200 fathoms. The bottom is generally a light brown or a dark grey sand, with occasional casts of rock.

At Ponta Pargo the next point seen to the north-eastward is Ponto Tristao, bearing N. 46° E., and distant five miles. The coast between them is formed by a wavy line of coarse stony beach, with high rocky cliffs rising abruptly from it. Above the cliffs the land has a very steep ascent to the ridge of mountains two miles distant, some parts of which exceed 4000 feet in elevation. The cliffs are broken by several mountain torrents, waterfalls, and deep ravines; and there are two extensive land slips which are for the most part terraced and laid out in vineyards; and a few huts shew amongst the vines. The shore is clear without any outlying dangers, and midway between the points, at a quarter of a mile from the beach there is a depth of 10 fathoms, at half a mile 22 to 25 fathoms, at three-quarters 30, at one mile 30 to 40 fathoms, outside 50 fathoms; the bank deepens rapidly, and the extreme edge of it is about one mile and a half from the land. The general quality of the bottom is a fine dark sand.

Notes on St. Lawrence Navigation.

I admire very much the accounts given by Capt. Bayfield of the winds, action of the barometer, currents, &c., in those parts. The latter, however, in one point he has left undetermined, that is whether the current ever runs to the *westward*. Of this I have had indisputable proofs. Having taken the *first* of an easterly wind just outside of St. Pauls island, I have found a strong westerly current between that island and the Magdalens, and taking a fresh departure from the east end of the largest of those islands, and proceeding up with steady winds and smooth water, though hazy and thick, I narrowly escaped shipwreck near the end of Point de Monts, having been carried to the *westward* fifty-five miles in thirty-two hours. This, however, was an extraordinary case, as I found that a friend of mine, a man of great experience in those parts, had felt a strong westerly current between Point de Monts and Green Island, at the same time, and which he deemed an unusual occurrence; as this current rarely extends above Point de Monts, the waters had probably been exhausted by long westerly winds; but from the experience of this and other passages under *similar circumstances* of winds, &c., I should recommend being upon your guard against a westerly current, say of one mile per hour, between St. Pauls island and Point de Monts; and to bear in mind that it has been experienced under certain circumstances much stronger and extending even to Green Island.

I would direct particular attention to Capt. Bayfield's accurate description of the sudden changes of winds; the easterly wind flying round after a short continuance to the north-westward, and as it abates veering to the south-westward. I have twice in September (homeward bound), and about fifty miles beyond the south-west point light and Cape Gaspé met with those winds; and the second time made the ship snug at once for the easterly wind, and kept her prepared (during the short interval of light airs and calm,) for the heavier N.W. wind that was to follow, which can be turned to good account in gaining the best position for running for St. Pauls when the wind has veered to the south-westward. There is a remarkable regularity in the action of those winds.

Light upon Anticosti east point.—I could never find a good reason for placing this light in that position, nor find any one to tell me, indeed few ever see it. I have seen it once only. However, at the best it could only be available to ships bound up, and the currents tend to set you from that danger, besides those parts of Anticosti are shunned by "saint or sinner." While you are obliged to approach the Bird rocks or Magdalens, I think it extremely desirable for the safety of this navigation, that a light should be placed upon the Magdalens or Great Bird rock.

Local attraction.—I believe that this is not so general on board of merchant ships as naval officers generally imagine, and when it does occur I think it frequently traceable to masses of iron being carelessly placed too near the binnacle, or by neglecting to get the compasses fre-

quently magnetized. However, it does occur on board of some. But I think that the quantity of iron is seldom so great that it cannot by proper care be obviated; it is a correction which varies with every course; therefore great errors are likely to arise in allowing for it, and the cause ought, if possible, to be removed.

In the Gulf and Strait of Belle Isle.—I have never found my compasses affected by magnetic attraction in the Gulf; but in June 1843, having met with strong southerly winds in the Gulf, and made the coast of Newfoundland far to leeward of St. Pauls, I bore away for the Strait of Belle Isle. I had thick weather part of the run down, and when it cleared away I found some icebergs in sight, and passed eight large ones before we reached the entrance, and they were placed like sentinels along each side of the Strait (aground), and much low broken ice in the eddy between Belle Isle and the Narrows, which could scarcely be distinguished from the break of the sea, even in clear weather. The island was surrounded with icebergs, and several passed afterwards to eastward of it.

In the Strait I had every reason to think that my compasses were attracted toward the Newfoundland coast to the extent of *half a point.* Have not all the accidents occurred upon that side? Although I shortened my passage ten days by going this way, the risk of ice, fogs, and magnetic attraction are formidable dangers, and I strongly recommend it being avoided, unless in case of necessity, especially during the time of the ice.

Newfoundland Banks, and approaches to the Gulf of St. Lawrence.—I trust that the valuable labours of Capt. Bayfield will be extended to the Banks, which are upon some charts very defectively laid down; and the action of the currents not well understood. Lieut. Hare mentions the "Banqueraour Bank" not being represented sufficiently extensive, and I have been credibly informed that less water has also been found upon that bank than the charts generally represent, and I know from my own experience that the "Green bank" is only *half* laid down, (that is the northern half,) upon the charts of Blachford and Imray, and their books are fit companions for such disfigured paper, as the charts of those publishers are. My account of their British Channel chart given in the *Shipping and Mercantile Gazette,* March 2nd, 1848, is fully better than I could give of their St. Lawrence and Newfoundland charts. The soundings upon the Green Bank are important in approaching the Gulf to check the latitude, should observations not be obtained.

The losses upon the south coast of Newfoundland have given rise to discussions upon the currents of those parts, and they have been attributed to the indrafts of bays, &c., while those on Cape Breton island are attributed to the Polar current. I shall here speak only of ships pursuing a fair track to the Gulf, and generally beyond the influence of tidal operations in shore; and I believe that those losses may with greater propriety be traced to the oversight of an intervening current between the Polar current and the out-setting current of the Gulf. Although those currents are mutable, and much influenced by local circumstances, yet three distinct currents are frequently in operation at the same time, and

successively encountered by ships pursuing this route; *first*, the Polar current along the grand bank, but not extending within the stream of Newfoundland; they may feel this to 54° or 55° W.; and *second*, a due west current along the south coast to the stream of the western coast of Newfoundland, (say in line with Cape St. George and Cape Ray); and *third*, the out-set of the Gulf deflected to the southward by its accessions from the north, along the western coast of Newfoundland; and also by the westerly current along the south coast.

I believe that the erroneous application of the Polar current (when they were to the westward of it) have led those vessels to estimate their position too far southward, and they have been unexpectedly brought in contact with the indrafts, &c., up the coast, and thus thrown on shore; whilst others have detected the non-existence of the Polar current, and imagined that they had no current, while the *westerly current* was carrying them ahead of their account, and bringing them unexpectedly in contact with the southerly out-set of the Gulf, and thus thrown them upon the coast of Cape Breton Island, when they thought themselves in a fairway to St. Pauls.

Polar current.—I have repeatedly found this current very regular, but not exceeding twelve miles per day, on outward spring passages, though no doubt it is at times much stronger at that time. In the month of August, during a continuance of very fine weather, I have found no Polar current, both by observation and fishermen at anchor.; but always found my latitude by account, and observation to agree between the streams of Newfoundland as before given, and frequently found myself carried to the westward within those limits.

Making St. Pauls Island.—What I have found the most dangerous to a stranger in those ports is, making St. Pauls Island with the *first* of an *easterly* wind, and thick weather. In this case the ship is likely to be ahead by the westerly current, while this current may cause a greater deflection to the southward of the outset current of the Gulf, so that it runs *almost directly across the entrance* at St. Pauls Island. Captain Bayfield's remarks would lead you to anticipate this, but those remarks do not extend to currents *beyond* St. Pauls, and seamen's suspicions are apt to be lulled by finding the account and observations to have agreed for several days. I have, under such circumstances, more than once found myself disagreeably near to Cape North, when I intended to have passed to the northward of St. Pauls, and in one instance I had advanced with light westerly winds to within fifty miles of St. Pauls, with *no error* in my latitude in the space mentioned, when the wind veered to the eastward with haze and fog. I kept well up to endeavour to get soundings on the parallel coast of Newfoundland eastward of Cape Ray, and got 80 fathoms; and kept away under the two topsails, intending to creep on by soundings to St. Pauls, but the weather clearing a little I was surprised to find myself passing between Cape North and St. Pauls, and at 1 P.M., by cross bearings I found my latitude by land 26′ S. of that by account in twenty-five hours. I do not consider those currents as permanent, but as being mutable, and much influenced by local cir-

cumstances, and some of those circumstances we cannot estimate the effects of. It is the erroneous extension of the Polar current, that I would have guarded against, and for strangers to be upon their guard (when they lose the influence of that current,) against the westerly current, and then the southerly outset of the Gulf.

I trust that I have said enough to shew that a new survey of those parts is very requisite, that the *soundings* may be relied upon, and they are too often the only available guide; celestial observations being prevented by fogs when they are most required. And that some data may be obtained for estimating the currents beyond the Gulf, as Capt. Bayfield has given for those within it.

Marine Barometer.—Knowing from experience that this valuable instrument can be made so that implicit confidence may be placed in it, I have been mortified at finding only one tube out of three (that I had in the same case) on which I could depend. And, again, another which would not fall until the gale was actually upon us, and was consequently useless, except that it would then pretty nearly when we had the weight of the gale. Thus having only one tube out of four which was good, I am anxious to know whether this arose from some negligence on the part of the opticians, or whether there be some nice point in the principle of their construction which is not well understood.

March 30th, A.M., civil time, overcast atmosphere with drizzling rain, in second reefs of topsails, jib, and mizen; but although the barometers did not indicate worse weather than I had prepared for, yet between 9 A.M., and noon it came on so heavy with hard squalls and rain, that we were reduced to the two close-reefed topsails, and it did not abate any thing before 9 P.M., when the wind had veered to N.W.b.N., and the atmosphere more clear, the barometers only fell to 29·20, while the same instruments under similar circumstances of atmosphere, direction, and force of the wind, had previously fallen as low as 28·50.

During the night of the 22nd, civil time, we were again reduced to the close-reefed topsails and reefed foresail; wind W.S.W.; cloudy with rain, and the barometers at 29·90. During this gale we had a heavy sea, about four points to the northward of the wind, or W.N.W. This wild weather was succeeded by light airs and calms, with foggy weather, position 50 to 100 miles northward of Cape Finisterre: again on the night of the 26th, civil time, it blew a heavy gale with violent squalls between the N. and N.N.W., which was not indicated by the barometers. They have been carefully attended to and found to rise and fall together; the only difference being that mine always stood half a tenth above the ship's. The Nautical Almanac shews full moon 19d. 9h. 19m., and the sun crossed the equator at about 23h. 10m. on the 19th, astronomical time.

Are those irregularities attributable to lunar and solar influences? the instruments have otherwise proved good in very wild changeable weather. Some seamen carry their ideas of lunar influences to an unlimited extent, and they are occasionally referred to by scientific men. I should like to

know through the medium of your Magazine, how far lunar influences are likely to affect the winds, and the action of the barometer.

The action of the barometer within the Tropic of Cancer.—We crossed the tropic at 30° W., and our course trending to the southward to 38° W. At 22° N., the trade winds south-easterly frequently very light with calms occasionally in the evening. I observed here that the barometer fell from ·08 to one-tenth of an inch *every afternoon*, between noon and 4 P.M., but the rise again was very gradual; it had generally risen half by 8 A.M., and got up by noon to the height which it had fallen from noon height 30·05 inches. Thence to 48° or 49° W.; at 21½° N. the winds were E. and E.N.E., more steady and fresher about No. 6; the same action of the instrument continued. But at that point or between 48° and 52° W., the tropic and 20° N. a remarkable baffle took place in the winds, flying about between the N. and S. round by E., in light breezes with calms, (I have twice before experienced the winds westerly in this space at a No. 6 breeze,) both the sea and sky in and after passing this space, thence to the tropic at 60° W., became less tropical. Very perfect and far-spread clouds No. 1, cirrus or curl clouds, with less perfect forms of Nos. 2 to 7 collectively cirrostratus or wave clouds. It occasionally became overcast with showers of rain. The regular action of the barometer ceased, it ranged between 30 and 30·10 inches, but quite irregular, although between 54° and 60° W. the strength and force of the winds were very like the first section between 30° and 38° W: At 26° N. and 62° W. we had the most perfectly formed No. 8 cloud cirrostratus that I ever saw, and with easterly winds light and moderate, we gradually passed into the regular northern sky, sea, &c.

Off Bermuda baulked by north-westerly after strong southerly winds and a dark rainy night, the light excellent: another on St. Davids would make it complete.

The defects which I have here pointed out, I have myself found very detrimental, and as others in the same position may experience the same defects, I trust these remarks may be useful. Should you think them worthy of a place in your valuable journal, from which I have derived much information and amusement, I should feel obliged by their insertion.

RICHARD LEIGHTON,
Commander of the Royal Adelaide.

To the Editor N.M.

PACIFIC NAVIGATION,—*From the Sandwich Islands to Valparaiso.* Extract from the remarks of Mr. H. Thompson, late Master of H.M.S. Talbot.*

(Concluded from page, 342.)

THE passage from the Sandwich Islands to Valparaiso occupied sixty

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*ON Sunday October 23rd, 1836 a destructive tempest occurred at Valparaiso. A succession of fine serene days had given promise of the arrival of that season wherein nothing but the usually settled dry weather and customary

days. As far as the equator the winds ranged between E.N.E., and S.E., but principally well to the southward of east which prevented our crossing the line farther east than the 154th degree of west longitude. We experienced a current more or less every day setting to the southward, after passing the equator the winds still continued to range as above, but somewhat stronger than when to the northward; the current now took a more northerly direction about W.N.W., and the rate about half a mile an hour.

Flints Island.—On the 13th of September we passed in sight of Flints Island, the position of which deduced from a compass bearing and the estimated distance, I conceive to be in latitude 11° 28′ 0″ S., and longitude 151° 48′ west of Greenwich, this I can venture to say is within five or six miles of the truth. It is very low and cannot be seen far off.

Peregrino Island.—On the 15th of September passed very near the spot where Peregrino is marked on the chart, but saw it not.

We began to lose the trade wind in latitude 22° south from which to Valparaiso the winds were exceedingly irregular. In latitude 31° south we had strong breezes for three days from E.N.E., and then from S.E., three days longer. In my opinion we were not far enough to the southward, if we had gone as far south as the fortieth degree we should have made a shorter passage. The best passage known from the Sandwich Islands to Valparaiso was made in forty-two days by a small American brig, she crossed the trades with a topmast studding sail set, then kept well to the southward, where she met with strong westerly winds, which continued with but little interruption till her arrival at Valparaiso.

Mas à Fuera.—On the 20th of October passed near the island of Mas à fuera. This island as I stated in my remark book of last year, is incorrectly laid down in all our charts, its position according to my observations in passing it on this occasion is in longitude 80° 56′ 30″

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southerly wind is anticipated; in full confidence of which, vigilance had perhaps become relaxed, the barometrical and other indications overlooked or disregarded.

On Friday evening October 21st, the lightning about the mountainous regions eastward of Valparaiso was most remarkably vivid and continuous, and accompanied with some thunder. The welkin in general remained free from cloud, but immense masses appeared stagnant upon the mountains, and a dense fog-bank settled along the sea horizon.

On Saturday the same weather continued; the wind light or moderate from the northward. At 3h. 30m. P.M., a smart shock of an earthquake took place, and in three minutes after a more severe one followed, which was general on the heights about the town, as well as on the low ground of the Almendral, which is not usual, for slight shocks are frequent on the plain, which are not felt on the elevated positons. The night set in cloudy, turbid and obscure, with a moderate northerly breeze, and falling barometer.

Before midnight the wind increased, the sea became much agitated, the surf on the beach unusually so; its hollow noise was deafening to a considerable distance, and so totally disproportioned to the wind, that it was considered more the effect of the afternoon shock than the precursor of a visitation

West of Greenwich. Error of chronometers corrected and reduced back on our arrival at Valparaiso four days afterwards.

From Valparaiso to Central America.

The *Talbot* sailed from Valparaiso on the 1st of November, and anchored in Port de la Union (Central America) on the 26th without any remarkable occurrence. The currents in the vicinity of the equator and crossing the bay of Panama varied considerably both in direction and velocity. The winds were favourable though light till after crossing the equator, which we did on the 16th in longitude 83° 30′ 00″ West of Greenwich. We then had light variable winds and calms, thunder, lightning, heavy squalls and rain till we had passed Cape Blanco, when we were favoured with a fresh north-easter out of the Gulf of Papagayo which took us to the entrance of the Gulf of Fonseca.

Gulf of Fonseca.—We entered this Gulf on the 26th of November and anchored off the watering place in Chicarene Bay for the purpose of completing our water with greater despatch, as by anchoring here instead of the inner harbour it saved the boats employed on that service a pull of at least three miles with each turn of water. This anchorage is perfectly safe during the fine season, viz: from May till November, as the only strong winds during that period are off the land from the northward, and consequently cause no sea, but during the remaining months the inner harbour of Port de la Union ought to be resorted to. Supplies of every kind are scarce and dear, except beef, which is tolerably cheap and good. Water is good and abundant.

Port Acajutla.

The distance from la Union to Port Acajutla is about 115 miles, a moderate day's sail, but owing to exceedingly light and baffling winds it cost us three days and a half.

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unknown for a number of years. His Majesty's sloop *Sparrowhawk*, then at anchor in the port, and some few of the merchant vessels, made proper precautions for bad weather, but far the greater part of the shipping were seen, when daylight set in on the 23rd, to have taken no precaution whatever.

At daybreak on the 23rd, it blew moderately at N.b.W., or right into the port; a very heavy swell rolling in, and two or three boats were swamped at the jetty in attempting to land. Towards eight o'clock some smart rain fell, and thick hazy weather set in. The wind also had rapidly increased to a strong gale. At this time the Chileno brig *Cinco de Abril*, at anchor off the Almendral, in about six fathoms, was surrounded with broken water, which in bad weather occurs some distance off shore, and her case was already hopeless; she commenced driving before 8h. 30m., and by 10h. A.M., was thrown upon the beach, amid a most furious surf, which in 84 minutes washed her to atoms. Her crew, except one drowned, escaped by means of a line secured on shore, which had been got there with great difficulty, although this vessel was thrown well up on the beach.

At 8h. 40m. the American ship *William Byrne*, on the point of sailing for Guyaquil, and lying in seven fathoms, a short distance from that part denominated Cape Horn, began to drive. She then sent down her top-gallant

The principal town of this port is Sonsonatte which is situated about fifteen miles inland. There is also a small village on the coast which gives its name to the port; it consists of about thirty habitations of various descriptions, most of them of the meanest order; they are constructed of bamboo open work at the sides, and the top is rudely thatched of palm leaves which latter is however made impervious to the heavy rains that fall almost perpendicular in the wet season. There is also still remaining the ruins of an old Spanish fort in which is situated the dwelling house of the Governor. This officer performs all the official duties of Captain of the port, Administrator, &c. I estimate the population at about one hundred and thirty individuals.

The port consists of an open bay, of which Point Remedios is the eastern boundary. There is anchorage all over it at a prudent distance from the shore in from seven to fifteen fathoms water; the bottom appears to be of sand with here and there a patch of mud. Large vessels should not anchor in less than twelve fathoms.

The surf breaks heavily on the beach which renders landing in ship's boats almost impracticable. The usual mode of effecting this object is in large canoes or bongoes which belong to merchants residing at Sonsonatte, and are kept for the purpose of discharging cargoes. There is generally one of these kept afloat, moored just without the surf in the north-east corner of the bay, near where the village is situated, persons desirous of landing usually pull in in their own boats, transfer themselves with a portion of their crew into the bongo and haul in through the surf to the beach by a line fast to the shore for that purpose. To get on shore dry they will then require to be carried out through the receding surf which is about a foot or eighteen inches deep. There is another landing place which is practicable only in the finest weather, on the rocks about

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yards, and let go a second anchor, when she appeared at the end of her resources. At 10h. 30m., her starboard chain parted, and the other anchor refusing to hold her, she passed within a few fathoms of the dangerous rocks of Cape Horn, and came on shore on the western part of the Almendral beach, with her larboard broadside to the shore, where she continued beating and rolling about until her masts were cut away, when she took a more fixed position in the sand. At this time it blew hard in squalls, and the rain was incessant. But though the surf beat most impetuously upon this ship, as well as upon the beach, yet no difficulty was apprehended in getting the passengers and crew on shore, until it was put to the test.

And now had arrived a moment of peculiar excitement,—disaster and distress were prevailing in every direction, the beach was crowded with spectators, among whom the foreign residents were most conspicuously assiduous, rendering at all points the most effective advice and assistance, particularly the British Vice-Consul, J. A. Miller, Esq., J. Waddington, Esq. F. Burdon, Esq., Messrs. M'Farline, Green, King, E. White, and Mr. Beecroft, late of his Majesty's ship *Blonde*.

The evening preceding this eventful day, Mrs. Cope, the lady of W. Cope, Esq. his Majesty's Consul at Guyaquil, had embarked for a passage to that river, and had been induced to go on board thus early in the persuasion that

a mile south of the village towards Point Remedios; but great care and judgment are required in attempting it.

Point Remedios.—Has a reef off it extending in a south-westerly direction nearly three miles in fine weather. This reef scarcely shows itself, therefore more caution is necessary in rounding it. Vessels of a light draught have frequently passed safely over the outer part of it unknowingly, whereas several others less fortunate have been brought up by detached rocks, and a total wreck has ensued. The point is long and low, thickly wooded, and from the eastward easily recognized. Its extreme is in latitude 13° 33′ 0″ N., and longitude 89° 44′ 0″ W., of Greenwich; variation 10° easterly.

Supplies.—Beef, poultry, vegetables, and fruit are plentiful and cheap. Water is plentiful on shore, but the difficulty of getting it off through the surf is very great; however, if much wanted, it may be had with a little extra labour and perseverance.

Port of Istapa.

We experienced some difficulty in finding this place, owing to the hidden position of the village, the similarity of the coast, and the want of instructions to guide us, therefore, I conceive the following simple description will assist a stranger in hunting it out.

The whole of this country is remarkable for its mountainous ranges,

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the ship was to sail forthwith. Having but lately arrived from England she had embarked a variety of valuable property, calculated for an extended residence in South America. Nearly the first intimation this interesting lady received of the perilous situation in which she was so suddenly placed, was the ship striking the ground with fearful violence; the fury of the sea that beat across her decks, the crashing of the masts and yards as they fell over the side, and other distracting sounds, followed in rapid succession. At this particular point of the bay it became a matter of infinite concern to releive this lady without delay.

With the intent of getting a line on shore from the ship a small boat, the only one within a mile of the spot, was hastily launched by Mr. Beecroft and five English and American seamen, who offered their services; but the boat was utterly incompetent for the occasion, and had hardly progressed ten fathoms when an enormous roller overwhelmed her, turned her over and over, and whirled her like a cork upon the beach, the people in her escaping with difficulty, chiefly by the assistance of the lassos thrown them by the numerous Chileno horsemen that assembled. All attempts at floating a rope from the ship were found fruitless by reason of a strong off-set.

In the next place an excellent and powerful swimmer was procured, and by the assurance of a large reward was induced to attempt this hazardous enterprise. With much difficulty he reached the ship by catching a line thrown to him from the bowsprit; the off-set had well nigh set him out; he was given up as inevitably lost by the spectators. His exertions led to no result.

Meantime Messrs. M'Farline and Green, the navy contractors at Valparaiso, with a promptness and zeal that elicited the warmest encomiums, appeared suddenly upon the spot with a powerful whale boat, conveyed from the port by a gang of their own people; she was immediately launched, manned, despatched, and succeeded in bringing a hawser from the vessel, and establishing a communication. This done, she brought the lady and her

which may be seen in clear weather from a great distance seaward, many of their lofty peaks and volcanoes, serving admirably as beacons to guide strangers to the various little ports and roadsteads situated on its coast, which otherwise would not be easily found. Such is the case when bound to the roadstead off the village of Istapa. There are visible from the vicinity of this roadstead, to many miles seaward, four conspicuous mountains which are situated as follows: commencing with the easternmost one, which is the volcano of Pacayo; next west of this is the water volcano of Guatemala; then the fire volcano of Guatemela, and the last and westernmost is the volcano of Tajumulco. The first and last of these volcanoes are of a moderate height, and flattened or scooped out at the top; but the two middle ones, which are the volcanoes of Guatemala, are considerably higher and much more peaked at their tops. The easternmost one of the two last mentioned is the water volcano; it has but one peak which at some periods of the year is slightly snow-capped, and from the holes and crevices near its summit ice is procured the whole year round for the luxurious inhabitants of Guatemala. The fire volcano is to the westward of the last mentioned, and appears to have two peaked summits which open and close according to their bearing. From the roadstead it has the appearance of one mountain with a deep notch in its summit. The upper part of this mountain has a whitish

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attendants on shore, for whose safety the most intense interest had been felt for the last two hours. She was landed half dressed, wet, terrified, and exhausted; but amid the heartfelt congratulations of the assembled multitudes, and was immediately conveyed to the residence of the Vice-Consul.

While on this particular spot the foregoing events were transpiring, other parts of the bay witnessed similar disasters; vessel after vessel continued to break adrift, and gun after gun, fired as signals of distress, implored assistance, which it was impossible to afford. Numbers of the large launches used in the discharging and loading of merchant ships were driven on shore in groups, where they beat each other to pieces; while others, more securely anchored, sunk on the spot. A great many ships' boats also drove on shore; but as no attempt was made to receive and haul them up, they also went to pieces.

About 1h. 50m. P.M., the Chileno barque *Serena*, deeply laden with timber, parted her cables, and came on shore stern foremost on the beach, near the Cape Horn rocks. She broke up instantly from abaft the chestrees, but the bows, with the bowsprit and foremast, resisted the elements for several hours before they also disappeared. About the same time the English brig *Sir John Kean*, the Chileno brig *Independence*, the Irish schooner *John Echlin*, and the Chileno schooner *Rosa*, drove on shore in a group on the east side of the jetty, where they lay beating with great violence, the sea making a clear passage over them. The Chileno vessel of war *Arequipana* drove, and was in danger of foundering; she fired repeated guns of distress, but to no purpose. In short, destruction and distress presented themselves in every direction.

Between 4 and 5 P.M., the weather partially cleared up, and gave some hope of a favourable night; but this delusive idea had well nigh been fatal to many, as it led them to lose the remnant of daylight, and the most favourable time of tide to land. Soon after sunset the storm recommenced with exces-

appearance which might be mistaken for snow; but I am informed that it is caused by the action of fire; smoke is constantly emitted from it, and may be seen from the sea in clear weather. From the anchorage at Istapa the true bearings of these four mountains are as follows; viz. volcano of Pacayo N. 22° E., water volcano of Guatemala N. 5° E., fire volcano of Guatemala N. 8° W., and the volcano of Tajumulco N. 28° W. The thatched roof of a large hut, in the village of Istapa, which was just visible over the high white beach, then bore N. 17° E., distant about two miles and a quarter, and the depth of water was about 17½ fathoms. The above bearings of either of the volcanoes of Guatemala nearly on will guide a vessel to within a few miles of the anchorage, and sufficiently near to make out the thatched roof of the above mentioned hut, which is the only object that marks the spot, the remaining small huts which constitute the village, being hidden behind the beach. There is also a small flag-staff close to the largest hut; but unless the flag be flying it is difficult to distinguish it in consequence of its being mixed up with the trunks of trees, that stand behind it. The entrance to the river is choked up by the sea beach, through which it has not strength enough to force itself. The village consists of about fifteen huts, which afford shelter to about forty or fifty inhabitants who occasionally find employment in discharging merchandise from the very few vessels that call here.

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sive violence, an impenetrable haze spread over the bay, the rain was impetuous and incessant, and before eight o'clock night spread her very deepest shade over the scene of devastation.

Messrs. Beecroft, M'Farlane, Green, and E. White were on the beach till a late hour—indeed till nearly the night through, but the above circumstances had now paralysed all further exertions, and the persons remaining on the wrecks had only their own resources to look to. It was under these circumstances that the crew of the *William Byrne*, worn out with the labour of the day, were thinking of repose, when their ship, no longer able to endure the accumulated force of the rising tide, commenced breaking up with fearful rapidity; leaving them no alternative but to attempt reaching the shore at the most difficult period since the forenoon. Their only reliance was on the hawser still fast on shore, but the difficulty of dragging themselves through the tangled kelp, and the tremendous surf, was most laborious and hazardous, and required that sort of courage and exertion which we have no idea we possess until extraordinary circumstances call it forth. Though more than half dead, yet they all landed, and it was here that the persons above named had the only opportunity of rendering any help since nightfall. Before midnight the *William Byrne* was beaten to pieces, and her fragments strewed the beach for many hundred yards. With her perished a cargo valued at 65,000 dollars.

Major Sutcliffe, ex-Governor of Juan Fernandez, with a party of dismounted cavalry, took charge of the beach, to whom were joined a large body of police; which latter is in Chili, perhaps, the best organised and most effective force of the kind in the world. Yet when daylight appeared they were found to be totally inadequate to the protection of the property thrown on shore during the night; and therefore free permission was given to the thousands of men, women, and children to carry off small articles, the authorities satisfying themselves with stopping such as were laden too heavily, or

In the bad season I should imagine this a very unsafe place to anchor at, owing to its being entirely exposed to the ocean swell, which, with the southerly winds is exceedingly heavy. Landing is only practicable in the finest weather.

No supplies whatever are to be had except a few plantains.

Central America.—At present it consists of five independant states, viz. Guatemala, St. Salvador, Honduras, Nicaragua, and Costa Rica: their principal exports are as follows, cochineal, indigo, logwood, and coffee; the latter principally from Costa Rica.

Climate.—The sea coast is unhealthy, and at times subject to fever; but the interior or elevated portion of the country is generally pleasant and healthy.

The fine season begins about November, and lasts till May, during which period the sea and land breezes blow alternately with a clear sky, and but little rain: strong winds rarely occur during this period, except at the full and change of the moon, when occasionally a strong breeze from the northward may be experienced.

The bad or rainy season commences in May, and lasts till November, during this period heavy rains, calms, light variable breezes with a close sultry atmosphere, heavy squalls, with thunder and lightning, and not unfrequently strong gales from the south-west are prevalent.

Sailed on the 18th of December for San Blas.

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attempted to remove bulky packages. Of the property of Mrs. Cope not a vestige was recovered. She had paid her passage also the day before, no part of which is likely to be returned.

It certainly exceeded all expectation that this ship should have separated and gone to pieces so speedily; but though a showy vessel on the water, yet the examination of her wreck proved that (like the generality of Americans) she was nothing but a flimsy piece of workmanship, put together more with a view of exhibition than for service or durability.

Storms of this destructive kind at Valparaiso, are of rare occurrence at this time of the year, and they are still more so at the full moon, having been constantly observed to take place at some other part of the lunation. But this summary narrative may afford a lesson to strangers visiting this exposed bay; and warn them at all seasons of preparation for bad weather, by having their spare anchors ready to let go, by veering cable in time, and by making their vessels as snug as possible; it is an up-hill drag, and a vessel in a proper berth, well found and attended, has nothing to fear from the heaviest norther ever known at Valparaiso.

Names of vessels thrown on shore:—1. English brig *Sir John Keane*, much damaged but expected to be got off; 2. Chileno brigantine *Felix Yntelligente*, much damaged, but expected to be got off; 3. Chileno schooner *Rosa*, the same; 4. Irish schooner *John Echlin*, bilged, and sold as a wreck by public auction for the benefit of the underwriters; 5. American ship, *William Byrne* wrecked, remains sold by public auction on the 26th Oct. 1836; 6. Chileno brig *Cinco de Abril*, was wrecked, and no part of ship or cargo saved. Chileno barque *Serena*, or *Chapuce*, wrecked, a small part washed on shore; Chileno brig *Independencia*, much damaged, but got afloat on the the 26th. The amount of damage is estimated at 368,000 dollars.

ANCIENT NAVAL RECORDS.—*Communicated by John Barrow, Esq.*

[The allowance of half-pay to the Commanders of Her Majesty's fleet appears by the following order to be first granted for reasons therein set forth ; that, to Flag Officers, Captains, and Masters, of first and second rates having been already established.]

By y^e^ Comm^rs^, &c.

Reasons for encouraging the Officrs serving at Sea, wth double pay while in Service, and half-pay when on shore.

1st.—That the Pay to the Offic^rs^ serving in the English Ships, is not equall to that allowed by our neighbours.

2nd.—The late King James did establish an encrease of Pay vnder the notion of Table-Money, and tho' 'twas never yett paid, it has putt the Command^rs^ in an expectation of some additionall allowance ever since.

3rd.—The flag office^rs^ as well as Captaines and Masters of 1st and 2nd rates have allready an allowance of pay on shore, and 'tis thought resonable that it should bee extended further, that the Supper to the Offic^rs^ may not determine, when there is no occasion for their Service after their haveing ventured y^e^ loss of their Lives or Limbs.

4th.—By this increase of Pay to the Command^rs^ their servants are retrenched, w^ch^ (considering the greate numbers allowed them) is in a manner equall to the same.

5th.—The benefit of Convoy-Money is allso taken away, whereby the subject will be very much eased.

That when this encouragem^t^ of double pay, and half-pay on shore is settled upon the Command^rs^ they may bee more strictly obliged to comply with every particular of their Instructions, which Instructions it has been allow'd, does conteyne the whole Discipline and Oeconomy of the Navy, and if strictly comply'd with, will both restore and preserve them, and since it is declared that whosoever shall bee turned out shall loose the benefitt of this establishm^t^, and that whoever shall take Convoy-Money shall bee for the future incapeable of serving. It is to be presumed, that the prospect of a certaine advantage, if they comply with their Instructions, and the loss of it, in case of a faileure, will bee suffitjent motives to induce y^e^ offic^rs^ to do their dutyes, to which end it is to bee made knowne to them, that upon any faileure therein, breach of orders, neglect of business, vnder their care, &c., they shall bee cashiered, and loose all benefitts intended by the aforementioned establishment.

Dated, &c.. Adm^ty^ Office, y^e^ 20th of Febry, 169$\frac{3}{4}$.

[The following regulations for the allowance of provisions to Her Majesty's fleet in 1690, contains various items which form an amusing contrast with those of the present day.]

By y^e^ Comm^rs^, &c.

Instructions for ye Commiss^rs^ for Victualling their Mat^s^ Navy.

1st.—The s^d^ Commission^rs^ are to receive into their charge and pos-

session all their Ma$_{ts}$ Houses, Brewhouses, Bakehouses, Mills, Granaryes, Storehouses, &c., as well at Tower Hill, as at Dover, Rochester, Portsm^{o}, Plym^{o}, and Kinsale in Ireland, or elcewhere, which have been vsually appropriated for the service of the Victualling the King's Navy, together with all Tenement, Grounds, and Profitts to them belonging or appertaining, and to make use of such of them as shall bee needfull for y^{e} service of the Victualling, and for the accomodatjon of themselves, and their Agents employed in that affaire, and such of them as they shall not have occasion to employ they are to improve by Rent or otherwise, as shall be best for their Ma^{ties} advantage, but not to Build, Alter, or Repaire any p^{t} of the same without order from the Lord Adm^{ll} or Lords of the Adm^{ty} for the time being, vpon a due Survey and Estimate first had thereof, unless it bee done for advantage of the said houses at their own charge.

2nd.—To receive into their chardg and possession all such provision of Victualls, Caske, Iron Hoopes, Biskett Baggs, and other Materialls and Vtensills for Victualling, as are remaining at any of the Victualling Ports, or in any Victualling Ships, or any otherwise in the charge of the late Comm^{rs} of the Victualling, or any of their agents or servants for the use of the Navy, the same haveing beene first duly surveyed and appraised according to the order allready given on that behalfe, w^{ch} they are to make use of in the Service of the Victualling, and to charge themselves therewth upon their acc^{t}.

3rd.—To take care timely and seasonably to provide all such good wholesome and serviceable Provicions of Victualls and other necessaryes fitting for Victualling the Seamen, Soldiers, and others which serve in their Ma^{ties} owne, or hired Ships or Vessells in their Service, either at Sea or in harbour in such proporcons; and in such Ports either in their Ma^{ties} own Dominjons, or in Foreigne parts, as they shall from time to time bee directed by warr^{t} from y^{e} Lord High Adm^{ll}, or Lords of the Adm^{ty} for the time being, or the princjpall offic^{rs} and Comm^{rs} of their Ma^{ties} Navy, which Provicions of Victualling is to bee made according as is hereafter expressed, viz. Every man to have for his allowance, one pound averdupoiz of good, clean, sweet, sound, well-boyled with a house cloth, well-baked and well conditioned, Wheaten Biskett, one gallon wine measure of good wholesome beere, of such a standard as that every guile of twenty tunns of iron bound beere shall bee brewed with twenty quarters of very good malt, as good as generally is to bee had at the place where the said beere is brewed and a suffitjent quantity of very good hopps to keep the same for the time of its warrantry, and eighteene quarters of the like malt, with the like quantity of the like sort of hopps to every guile of twenty tunns, of wood bound beere for sea, and the harbour beere to be good, sound, wholesome, and of suffitjent strength, and fitting for the use of his Ma^{ties} ships in Petty warr^{t} victualling. And if any complaint shall bee made, either of the sea or harbour beere, that the truth of the quantity and quality of the malt and hopps that shall have been used in the sea beere, shall bee evidenced by the oathes of the respective brewers, or other credible persons if the same shall bee

required. Two pounds averdupoiz of beef, killed and made up with salt in England, of a well fat oxe, not weighing less than five hundred weight for what shall be killed for sea victualling in the port of London and four and a half hundred in any other of the ports in England where victualls shall bee provided, for two of the fower days following, viz: Sundays, Mondays, Tewsdays, and Thursdays, and for the other two of those days one pound averdupoiz of bacon, or salted English porke, of a well fed hogg, not weighing less then three-quarters of a hundred weight, and a pint of pease (Winchester measures) therewith each of the said dayes, and for Wednesdays, Frydays, and Satterdays, every man besides the aforesaid allowance of bread and beere, to have by the day, the eighth p^{t} of a full sized North Sea codd of 24 inches long, or a sixth part of a haberdine, 22 inches long, or a quarter p^{t} of the same sort, if but 16 inches long, (provided that the haberdine that shall bee thus spent on their Ma^{ties} ships consist not of more than a fifth of one size, on board any ship) or a pound averdupoiz of wellsaved Poor John, together with two ounces of butter, and fower ounces of Suffolk cheese, or two-thirds of that weight of Chesshire, but they shall deliver cleane well dressed oatmeale, in leiw of a sized fish, (at the rate of one gallon of oatmeale for a sized fish) where the principall Offic^{rs} and Comm^{rs} of the navy shall direct their soe doing. This method in victualling to bee always duly observed, as well in harbour as at sea, only there is to bee this difference beetweene harbour and sea victualls, that the bread and beef to bee spent in harbour bee delivered, the former in loaves and the latter fresh, with salt to corne it. But if their Ma^{ties} shall order any ship or vessell to the southward of the lattitude of thirty-nine degrees North lattitude, each man is to be victualled in leiw of a pound of biskett, with a pound of rusk of equall fineness, in leiw of a gallon of beere, a wine quart of beverage wine, and to shipps goeing to Guines, or the East or West Indies, in leiw of a gallon of beere, half a wine pint of brandy, for halfe the proporcon at least of y^{e} drinke they shall bee ordered to take in. In leiw of a peece of beefe or porke with pease, three pounds of flower and a pound of raysins, halfe a pound of currons, or halfe a pound of beefe suett pickled, in leiw of a sized fish, fower pounds of Milan rice, or two stock fishes of at least 16 inches long each, in leiw of a pound of butter, or two pounds of Suffolk cheese, a wine pinte of sweete ollive oyle, to bee putt on board at all times in such particular speties aforementioned and in such proporcons and no otherwise, then as the principall Offic^{rs} and Comm^{rs} of the navy shall give direction, at the time of their sending their warrants for victualling the shipps.

4th.—They are to take particular care that all y^{e} S^{d} Provicons aforementioned shall bee Issued and delivered in such sort, order and manner, and in such good, sound, wholesome, and well saved victualls as that it shall continue fitt in all respects for their Ma^{ties} service, during the space of six months from the time of its being received on board. Namely for all that shall bee declared to bee spent on this side the Canary Islands or lattitude of twenty-seaven degrees North lattitude, and twelve months for what shall bee issued to be spent to the southward of y^{e} place or

lattitude. And in case any provicon shall prove defective within y^e^ aforesaid time, or beere leaked out by the badness of the caske, (and not through anny ill stoage or neglect of the offic^rs^ or seamen aboard) they are upon the purser's producing a regular survey thereof, according to the custome of the navy, to issue the like quantity of good provicons to him in the room of it, or to give him a rec^t^ for the same, for his discharge, which defective provicons they are to dispose of by sale, or otherwise to their Ma^ties^ best advantage, and to charge themselves therewith vpon their acc^ts^.

5th.—They are to pay unto the pursers of all such ships as shall be ordered to victuall towards the provideing of such necessaryes, such as wood, candles, dishes, canns, lanthernes, spoones, and other necessaryes usually provided by the pursers of their Ma^ties^ ships under the title of necessaryes, ninepence for every man pr mensem in each ship bearing sixty men and under, and sixpence in every ship carrying above sixty men, and two shillings for every ship loading charges by the month together, with the accustomary allowance, drawage beeing fourpence per tunn for every tunn of beer the purser indents for, and ten groates pr mensem for adz money, viz: for soe long a time as the ship shall be victualled for sea service, and also for the ordinary men, and extraordinary men in harbour after the rate of twelve pence pr man a month. And further they are to pay to the purser after the rate of eightpence for every man pr mensem for sea service, being soe much allowed them for extra necessary money, all which several sums are to be paid to the purser imedjately before the signeing of their indents for sea or warr^ies^ for harbour victualls.

ENCROACHMENT OF THE SEA.—The slow and unnoticed, but gradual variation which is continually taking place on our coasts is truly surprising. According to Mr, Lyell, when the inn at Sheringham, in Norfolk, was built in 1805, the spot chosen was at a distance of fifty yards from the sea, which was from previous observation of its rate of encroachment, calculated to take seventy years to reach it. No allowance was made for the slope of ground being from the sea, in consequence of which the waste was naturally accelerated every year as the cliff grew lower, there being at every successive period less matter to remove, as portions of equal area fell down. Between the years 1824 and 1829 no less than seventeen yards were swept away; and there is now a depth of twenty feet, sufficient to float a frigate, at one point of the harbour, where, forty-eight years ago, there stood a cliff fifty feet high.

As the Admiralty have arranged to despatch a Man-of-war to the coast of Africa Station on the 1st. of every month, taking Mails to Madeira and other islands, *en route* to Sierre Leone and Ascension, so their Lordships have ordered Commodore Sir C. Hotham, K.C.B. the Commander-in-Chief there, to send one ship of his Squadron, on the 1st of every month, with a mail for England.

REPORT TO THE COMMISSIONERS OF THE NORTHERN LIGHTHOUSES, *relative to the Summary Report by the Examining Commissioner on the Harbours of Scotland.*

(Concluded from p. 382).

The placing of lighthouses at St. Abb's Head (Summary Report, p. 19), St. Margaret's Hope (Summary Report, p. 23), Scrabster Summary Report, p. 42), Corran Point, (Summary Report p. 43), Hestan (Summary Report, p. 50 and 60), with many others, have been under the consideration of the Board prior to the date of the Summary Report.

Till the Act 6th and 7th Will. 4, c. 79, came into operation in January 1837, the Board had no power to apply the funds at their disposal to the construction of beacons or buoys, nor could they apply any considerable part of the funds to that purpose till the lighthouse at Skerryvore was far advanced towards completion. But in the year 1840 they remitted to their engineer to report on a general system of beacons and buoys for the entire coast of Scotland, the result of which was a report by him, pointing out almost every station on the coast were such sea-marks were required. The Board proceeded, as quickly as the state of their funds would permit, to place several beacons and buoys in the Firths of Forth and Clyde, where they were most urgently required. But a question was soon raised as to their powers (upon a technical construction of the statute) to levy duties for beacons and buoys, or to apply any part of their funds to this purpose; and this question was not authoritatively settled till the year 1846, when the Board, at their own suggestion, were authorised by the Privy Council to place beacons and buoys, on condition that no duties were to be levied on account of them. Since that time they have placed beacons and buoys in the principal estuaries of Scotland; viz. in the Firths of Forth, Cromarty, Inverness, and Dornoch, Oban Bay, the Firth of Clyde, Campbeltown Loch, and Loch Ryan, to the number of 16 beacons and 47 buoys. These sea-marks were all placed long prior to the date of the Summary Report (1st August, 1847), and except the two buoys in Oban Bay and Loch Fyne, were all included in the annual list published by the Board in January 1847. (See Summary Report, p. 62.) The two buoys in Oban Bay, and the two in Loch Fyne, were also made known to the public (See Appendix to Summary Report, No. 487, p. 652) prior to the date of the Summary Report. The Board have, since the date of the Report, placed all the requisite buoys in the Linnhe Loch, to the number of 10. They have also, in the course of last season, surveyed the Orkney and Zetland Islets for the purpose of placing beacons and buoys to the number of about 20, and are now waiting the approval of the Trinity-House to the positions selected, which the Board have been informed cannot be obtained till next season. The principal dangers in the Minch passage, between Skye and Harris, have also been surveyed and submitted to the Trinity House, and the next steps will be to supply beacons and buoys to the numerous harbours in the Long Island, and to the Sounds of the Mull, Islay, and Firth of Solway.

The Board expended in this department, during the year 1846 alone, no less a sum than £2,992. 19s. 11½d.

In reference to the complaint of the want of a beacon on the Vows Rock, it is proper to state that, in 1841, before any petition was presented to the Board on the subject, this beacon was included in the system of beacons and buoys proposed for the Firth of Forth; but that on being submitted in terms of section 42 of the last statute, for the approval of the Elder Brethren of the Trinity-House, it was rejected by them as unneces-

sary. But subsequently, on receipt of a petition from Elie for that beacon, the Board again brought the subject before the Trinity-House, who then gave their consent; and this beacon, as well as a buoy on the neighbouring rock, called Thill, was forthwith completed during the past season.

St. Abb's Head.—Summary Report, p. 19.—That an asylum harbour is much needed along the part of the coast between Holy Island and the Bass is proved by the fearful list of wrecks in this vicinity printed in the Appendix, and by the large and increasing traffic that daily passes along these shores. But when the subject comes under consideration (and it is ardently to be hoped that that day may not long be deferred) it must be viewed apart from all local bias; the safety of shipping and the lives of seamen, public benefit and national defence, must be held paramount to all other considerations. The long deep bay between St. Abb's Head and the Bass Rock is notoriously the most dangerous on this part of the coast; in north-easterly gales, when once embayed, vessels rarely escape from it, and we believe it will be found that most sailors, not influenced by local connection, will point to the immediate neighbourhood of Skateraw, lying about half way along the bight, as combining several natural advantages for such a harbour. In the meantime, without offering an opinion on the subject, it is submitted that it may be worthy of consideration, whether a light placed on St. Abb's Head might not be the means of saving a portion of the wrecks that occur in this bay. This prominent headland forms the turning point of the coast that is daily passed by the whole trade of Leith and the Firth of Forth with Hull London, and there is no coast light between the Farm and May Island, a distance of 45 miles, or rather between the Farm and Inchkeith, an extent of 60 miles, comprising the bay under consideration.

St. Margaret's Hope.—Summary Report, p. 23.—St. Margaret's Hope offers a large expanse of good anchorage above Queen's Ferry, and a harbour of refuge to vessels caught in an easterly gale off the entrance of the Firth, or when riding heavily in Leith Roads, and a few hundred pounds expended in lights and beacons for the upper part of the Firth, including a light at Battery Point, would double its value by rendering it available by night as well as by day, which at present it is not.

Thurso.—Summary Report, p. 42.—On the western side of the Thurso Bay a pier is now being erected at Scrabster, which will have a depth at its head of six feet at low water and 19 feet at high water spring tides, and thus afford a convenient shipping place for cattle and the produce of the surrounding district, and for supplying wind-bound vessels in the bay with provisions and water: the latter requisite is abundant, and easily might be, and ought to be, led down to the pier. Owing to the vicinity of this roadstead to the Pentland Firth, and the shelter it affords in the prevailing westerly winds, the anchorage is of good value, and the holding-ground is good if proper care be taken to anchor within the line of Little Head and the Old Palace. As many as 57 vessels have been seen here at one time, and the arrivals average about 500 annually; and when we consider the usually boisterous weather and rapid tides of the Firth, and the number of vessels that pass through it, officially reported at 4,178 loaded vessels of 664,064 tons annually, not including ships of war, revenue cruizers, ships in ballast, or fishing vessels, the value of this roadstead, is much increased. Were a light placed on Little Head, it would be a great benefit and safeguard to shipping, and materially add to the usefulness of the anchorage.

Hestan.—Summary Report, p. 59.—Balcary Bay, at the entrance of the large inlets of Auchencairn and Hestan Bays, which dry entirely at low water, offers shelter to small coasters that do not fear to take the ground. A small harbour light at Hestan would be a good boon.

Fort William.—Summary Report, p. 44.—A small but dangerous rock, having only nine feet water over it at low water, has recently been discovered in the usual anchorage in Cambusna Gaul Bay, in Loch Eil, midway between Maclean Rock buoy and the nearest shore; it should be well marked by a buoy, or be blasted away; the latter would be the safer plan.

At Corpach, a mile and a half further north, is the sea-lock, which forms the south-western entrance into the Caledonian Canal; it is said to have 20 feet depth of water over the sill at high water of ordinary neap tides. As before mentioned, the Caledonian Canal is again opened for traffic, and vessels are invited to make use of it in order to avoid the stormy passage through the Pentland Firth; yet Loch Eil, leading up to its south-western end, has neither lights nor buoys to mark the approach. A light is wanted at Corran Point at the Farrows, and probably leading lights to avoid the rocks at the upper end of the loch. Perches or buoys are required at Chlavoulin and Culchenna Spits, on the Corran Bank, and at least three buoys on the steep edge of the Lochy flat above Fort William.

Oban.—Summary Report, p. 44.—The Skerrat rock and shoal, on the western side of the bay, have at length been properly buoyed.

Cambeltown.—Summary Report, p. 45.—Campbeltown Loch, or Bay, is well known as a natural harbour of refuge, affording a large area of secure anchorage, much frequented by the trade of the Clyde, more than 500 vessels having sought shelter here during the last year. There is a good harbour light, and the necessary buoys and beacons to mark the dangers have recently been placed, but a coast light is still wanted on Devaar Isle to lead up to the bay.*

Shetland Isles.—Summary Report, p. 41.—It appears in evidence that there is no public wharf or landing place, no local lights, buoys, or beacons, although such would be very useful.

Solway Firth —Summary Report, p. 60.—There are two channels leading up the Solway Firth, on either side of the Three-Fathoms and Middle Banks. The southern, or English Channel, is now well lighted and buoyed, and with the assistance of the very complete Admiralty charts of this region of rapid tides and extensive sand-banks, is comparatively safe. But the navigation of the Scottish shores would be much improved by a small harbour light on Hestan Island, thereby affording a guide to the numerous coasters that run for shelter into Balcary Bay at tide time, as well as into the Water of Urr, both of which places offer good shelter when vessels are obliged to bear up against the prevalent south-west wind. A good bell buoy on the spit of the Two-feet Bank, off the south-west end of the Dumroof Bank, about half way across the Firth, between Kirkcudbright and Workington, to warn the mariner in hazy weather of his approach to a dangerous shoal, might also be very useful.

The Vows.—Summary Report, p. 25.—Immediately off the shore to the westward lie the dangerous half-tide rocks, called The Vows, right in the track of the numerous steamers that call at Elie in the summer time, and of vessels that run to this harbour for shelter. The wreck of the Wanderer, the Benledi, and of fishing boats, sufficiently attest the danger, yet no beacon

* See foot note to "Mull of Kintyre,"

marks the spot, and it is alleged that a petition, praying the Commissioners of Northern Lights to erect such a beacon, remains unattended to.*

(Signed) *Robert Thomson*, Convener, Sheriff of Caithness-shire.
Robert Hunter, Sheriff of Buteshire.
Adam Urquhart, Sheriff of Wigtonshire.

(A true Copy.)

Alex. Cuningham, Secretary.

Edinburgh, 28*th December*, 1847.

REGULATIONS FOR THE ENTRY OF SEAMEN RIGGERS.

Admiralty, *May* 28*th*, 1848.

THE Lords Commissioners of the Admiralty having taken into their consideration a proposal for the extension of Extra Seamen Riggers into her Majesty's Dockyards, for the purpose, and with the view, of forming a reserve of Seamen at such ports, have been pleased to issue the following Regulations on the subject.

1. The Seamen, who enter as Seamen-riggers, must have served for a period of not less than six years, in her Majesty's service with the ratings of Ordinary, and A. B., and must produce certificates of good conduct, and ability, from the Captain of the ship in which they last served. They will be entered subject to the express condition of being called upon to serve in any of her Majesty's ships, should any sudden emergency require their services; but it is not intended that the complements of her Majesty's ships proceeding to Foreign stations shall be filled up from such men, but only such ships as may be required to be suddenly manned, or fitted, for the Home stations, or to aid in the navigation of ships from one port to another, or in duties connected with the Home ports, or to complete the complements of the Experimental Squadron, during a few months cruize.

2. For every 25 seamen there shall be entered one Petty Officer; the pay of such Petty Officer to be 3s. 6d. per day.

All A. B.'s, who are willing to enter under such conditions, shall have the pay of 2s. 6d. per day; and the time of servitude of such Petty Officers and seamen, shall be considered as sea time, and be allowed to count for Pension.

3. All such Seamen Riggers shall be allowed to have the privilege of obtaining Slop Clothing from her Majesty's stores, at the same price as that now charged to the Seamen of the Fleet, on demands made out by the Master Attendant, and approved by the Rear Admiral Superintendent of the Dock Yard, but not to a greater sum than 20s. per month, the same to be deducted from their weekly wages.

4. If absent from the Port, to which they belong, their wives and families shall be allowed to draw weekly one half the pay due to the seaman himself, provided such seaman obtains a certificate from the Commanding Officer of the Ship, which must be counter-signed by the Master Attendant of the Dockyard, that such man is embarked on service.

5. The Seamen Riggers are to be under the directions of the Master Attendant of the Dockyard, and shall perform all such duties in the yard as may be required.

6. On going on board any of her Majesty's ships, on service, they are to be entered as "Dockyard Riggers on special service;" and, so long as they are

* A beacon is now in the course of erection.

so employed, they shall be granted the established allowance of provisions according to the regulations of the service, in addition to their pay as Seamen Riggers; but this privilege is not to extend for a longer period than two months, when they will then be placed on the Ship's books according to their respective Ratings, and be paid accordingly, when they may make out allotments according to the Admiralty Instructions.

7. The period of servitude as a Seaman Rigger shall not exceed 18 months at any one time, but if they have been at *sea* during any time of such period, such sea time is to be granted over and above the 18 months, at the end of which time they will be discharged.

8. During the time of servitude as Seamen Riggers, they may volunteer for any of her Majesty's ships fitting out at any of her Majesty's ports, and shall have the privilege of entry into the Ordinary, on vacancies occurring, or into the permanent Riggers, or Dockyard, or Victualling craft.

9. They are to have all the benefits of the Royal Naval Hospitals, as the seamen of the Fleet, and in case of death by accident, while upon duty, their widows shall be noted for entry as Nurses in the Hospital Establishments, and their sons shall have the privilege of entry as boys in her Majesty's service, provided they are properly qualified.

10. The Captains of her Majesty's ships paying off are to recommend men for entry.

11. Seamen Riggers refusing to proceed on board any of her Majesty's ships, when ordered to do so, shall forfeit all claim to Servitude, and Pension.

By Command of their Lordships,
H. G. WARD.

Form of Certificates for Half Weekly Pay to Wife or Family.

I hereby certify that (Petty Officer or A. B.) is now serving on board Her Majesty's Ship that he requests payment to be made to his (wife, mother, or daughter,) of the sum of being one half his weekly pay from the (date)

Signed In charge of Party.

I hereby certify the above person is embarked from this Dockyard, and I see no objection to the above request. Master Attendant Dockyard.

STEAMERS' LIGHTS.—TO PREVENT COLLISION.—"*By the Commissioners for Executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, &c.*

June, 29th 1848.

"Whereas under, and by virtue of, the Act of Parliament, passed in the Tenth Year of the reign of Her present Majesty entituled, an 'Act for the Regulation of Steam Navigation, &c.' We hereby require, in pursuance of the said act, that lights shall be exhibited by all British Steam Vessels between sunset and sunrise, of such description and in such manner as hereinafter mentioned, that is to say—

"*When under weigh.*

"1. Bright White Light at the Foremast Head

"2. Green Light on the Starboard Side.

"3. Red Light on the Port Side.

"*When at Anchor.*

"A Common Bright Light.*

"The following conditions are to be observed, viz.

"1. The Mast Head Light to be visible at a distance of *at least 5 miles* in a clear dark night, and the Lantern to be so constructed as to show a uniform and unbroken light over an arc of the horizon of 20 points of the Compass, viz., from right ahead to two points abaft the beam on each side of the ship.

"2 The coloured side Lights to be visible at a distance of *at least 2 miles* in a clear dark night, and the Lantern to be so constructed as to show a uniform and unbroken light over an arc of the horizon of 10 points of the Compass, viz. from right ahead to two points abaft the beam on their respective sides.

"3. The side lights to be moreover fitted with inboard screens, of at least 3 feet long, to prevent them from being seen across the bow. The screens to be placed in a fore and aft line with the inner edge of the side Lights.

"4.* The Lantern used when at anchor to be so constructed as to show a good light all round the horizon."

CONSTANTINOPLE, *June 21st*, 1848.—Admiral Maashouk Pasha, sailed on Thursday with a frigate, two corvettes, two steamers, and several other light vessels, for the purpose of hunting down the Pirates. [Extract from a Constantinople letter in the *Morning Herald July 10th*, 1848.

WAGES AND NON-SUPPLY OF LIME JUICE.—Mr. Edward Webster, the master of the ship *Sir Charles Napier*, from Callao, appeared before Mr. Yardley on Wednesday, to answer summonses at the instance of several mariners for balance of wages alleged to be due to them, and also for neglecting to supply lime or lemon juice and sugar daily, at the rate of half an ounce of each per day. between the 21st of March and the 20th of May, by which he had incurred a penalty of 5*l.* for each day's default.

Mr. Joseph Smith, solicitor, appeared for the seamen. The claims for wages were first gone into. It was endeavoured to be shown that when the men shipped at Callao, the master promised that the Colombian dollars should represent 4*s.* English money. Some of the hands shipped for 20 and others at 24 dollars per month, and if they could have established the fact that each dollar was to bear the value of 4*s.*. their wages would have been greatly increased. Their evidence on this head was, however, loose and unsatisfactory, and the master in reply clearly made out that he had shipped the men for a certain amount of dollars per month, in compliance with the usual custom at Callao, and that the dollar was to represent what it was really worth, 43*d.* only. He never made a promise that the dollar was to be valued at 4*s.* The seamen, in answer to the magistrate, said they received an advance at Callao, in dollars, and that the master in settling with them did not take the advance at 4*s.* per dollar.

Mr. Yardley, who took much pains with the case, was perfectly satisfied the men had no claim, their own evidence proved they shipped for dollars, and that they were to be taken at their real value, 43*d.* It was nonsense to suppose that the dollar was to represent 4*s*, when it was only worth 43*d.* One complainant had sworn he had received 24 dollars, a month's wages in advance, as dollars, not as 4*s.*, and he was quite satisfied. The master had already complied with the articles as far as the wages were concerned, and he dismissed the summonses.

The question relating to the non-supply of lime-juice and sugar daily was next discussed. J. M'Farline was the first complainant. It appeared from the evidence of M'Farline, and others belonging to the ship's company, who joined

the vessel at Callao, that the crew were very irregularly supplied with lime-juice on the voyage home, and instead of its being served out daily, in compliance with the provisions of the act of parliament, that a pint and a half bottle of lime-juice was served out on five different occasions with the week's provisions, but not in successive weeks. Some of the crew obtained "a sup or two" in a spoon out of a basin. The number of hands in the forecastle was 14, and the quantity of lime-juice required per week would be 49 ounces, but not more than one half of the "parliamentary allowance" was ever provided for one week's consumption. It was also alleged by one of the witnesses that the steward called him aft before rounding Cape Horn, and said he had only a small quantity of lime-juice in store, and intended to keep it till the ship got into hot weather, when it would be useful.

In defence it was urged by Mr. Webster, and supported by Mr. Kellis, the third mate, that a sufficient quantity of lime-juice was provided for the homeward voyage, and that the crew were daily called aft to receive it on the other side of the Horn, but the majority of them repudiated it, and said they did not want it, and that it was not worth coming for. Mr. Endersbee, the chief mate, also swore that ten days after leaving Callao, when the crew were entitled to lime-juice and sugar, they were ordered to come aft and fetch it. On the first day or two a few of the hands came for it, but subsequently when the chief mate went to the forecastle scuttle, and called to the seamen to fetch their lime-juice, they made no answer. After crossing the line, the crew were anxious to obtain the lime-juice, and a bottle of it was sent below every week, until the ship was within seven or eight day's sail of Cork, when the only remaining jar of lime-juice was capsized in a violent hurricane and broken. Off Cork the crew were supplied with fresh provisions, and it was alleged by the master and chief mate, that one man, examined for the prosecution, who had a slight touch of scurvy in the Downs, had no reason to complain, "for the fresh meat sent the disease out of his bones."—The seamen admitted they refused the lime-juice in cold weather, on the other side of the Horn; but when they required it, in hot weather they could not obtain it, and that five bottles were all that was supplied to them.

Mr. Smith contended, on the defendant's own showing, he was liable to a penalty of 5*l.* for each day's default, inasmuch as he had not supplied the crew "with lime or lemon-juice and sugar daily, after the rate of half an ounce of each per day."

Mr. Webster said he supplied the crew with fresh provisions, in the shape of *bouilli* soup, every seventh day.—Mr. Endersbee said the men were told they might have as much vinegar as they pleased on the homeward voyage.

Mr. Yardley said the defendant had not complied with the Act of Parliament, which provided that a ship's crew should be supplied with lime or lemon juice, and sugar daily, at the rate of half an ounce for each man. The law was not complied with, if it was served out weekly. He did not mean to say that the master of a ship was to force the lime juice and sugar down the throats of his crew, but it was his duty to offer them the legal quantity daily; if he did not, he incurred the penalty of 5*l.* for each default. It was a matter of great importance that the wholesome provisions of the Act of Parliament should be complied with, for upon it depended the health of ships' crews. The nation at large was interested in the keeping up of a healthy body of seamen, and the commerce of the country would suffer if mariners were deprived of antiseptics on long voyages. The defendant, like many other masters of ships, was labouring under a great error in supposing that he had no occasion to serve out lime juice and sugar, because he supplied the men with soup *bouilli* once a week, and kept them on salt meat the other six days. The law could not be evaded in that manner. The defendant had incurred very large penalties, but if he was to inflict them, the seamen would not reap any benefit. He thought the crew were entitled to compensation, and he would allow the master to retire with his men and come to terms with them.

Mr. Webster retired with the complainants, seven in number, and gave them 2*l.* each as compensation, besides paying the costs.

TOTAL WRECK OF THE ARIEL STEAMER.—It will be recollected that in the early part of June this vessel of 900 tons and 320 horse power, ran ashore on the Mal de Ventro reef, about four miles from the east coast of Italy and twelve from Leghorn. Immediately upon the information reaching London the surveyor of the Peninsula and Oriental Steam Company, Mr. Bailey, repaired to the scene of the disaster, for the purpose of rendering his skill and advice available in the endeavour to get her off the reef; and up to the morning of the first of the present month the most confident hopes were entertained that the exertions used would be crowned with success. With this view Mr. Bailey had made every practicable preparation, and had procured a number of pontoons and large lighters, with the intention of lifting her off the reef, the fore part of the ship having been filled with empty water-casks, as all endeavours to drag her off had failed, although the assistance of her Majesty's steam-frigate, *Sidon*, of 560 horse power had been obtained, together with the united force of more than 300 men hauling at the same time. Unsuccessful attempts were made both on the 22nd and 27th of June; and a third attempt was about being made on the evening of the 1st of the present month, when suddenly the barometer was observed to fall very rapidly, a circumstance very unusual on that coast at that period of the year, and which was judged to be but too certainly indicative of a coming storm. The captain of the *Sidon*, therefore thought it to be his duty immediately to recall the boats and all hands, giving orders for them to run for shelter to the nearest port during the prognosticated gale. During the night there was, as expected, tempestuous weather. On the following morning those who were on shore were unable to see any part of the *Ariel*, as a thick haze completely obscured her from their sight; and on reaching the shoal she was found to be a perfect wreck. A pointed portion of the rock appeared to have penetrated the cylinder, upon which the wreck was revolving as though upon a pivot, every part of the ship being completely in pieces, the cylinder retaining its position with a portion of the after-part of the steamer. The wreck had shifted from N. and S. to E. and W. One of the boilers had previously been landed, and the other was on the shoal at a little distance from the wreck, the water over which being perfectly clear all fragments could be distinctly seen. The reef was literally strewed with the plating of the vessel, various parts of which had been fished up for the benefit of whomsoever it might concern. The *Ariel* was worth about £40,000, but was only under-written for £15,000; the company's loss by the catastrophe will, therefore, be £25,000. The whole of her cargo was saved. As soon as the vessel had struck several application were made to the local government for protection; but how well that protection was afforded may be gathered from the fact that the greater portions of stores landed and placed in the government warehouses were afterwards discovered to have been broken into. In consequence, also, of the disturbed state of Italy, no dependence whatever could be placed upon the Livornese, who at the same time were most exorbitant in all their demands. The *Malta Times*, speaking of the disaster, says, "We are glad to find that the public feeling acquits Captain Caldbeck of any want of caution in regard to getting the steamer on shore, as it has been clearly ascertained that the course steered by the compass would have carried the vessel beyond all danger, had not the magnetic attraction, she being an iron vessel, deceived the captain, who it is supposed will be fully acquitted from all blame by the Company."—*Daily News.*

ROYAL NAVAL BENEVOLENT SOCIETY.—The quarterly general meeting of the members of this society was held yesterday, at the Thatched House

Tavern, St. James's Street, Admiral Lord Radstock in the chair. The minutes of the previous court having been read and confirmed, Capt. Dickson, the secretary read the quarterly account or receipts and disbursements, stating that the former had been £1,285 2s. 3d., and leaving a balance in hand of £676 5s. 8d. A question having been brought forward for appointing as honorary secretaries such officers on foreign stations as were willing to accept that office, and advocate the interests of the society abroad, the chairman thought it would be a bad precedent to call any officers honorary secretaries, except such as were settled ashore, at the dockyards, or elsewhere. After a short discussion, it was resolved that they should be called honorary correspondents. It was then announced that the voluntary subscriptions towards defraying the law expenses incurred in defending the actions brought by Miss Hoare had amounted to £425. 11s., about half the sum required. Capt. Allen, Capt. Bogue, and Lieut. Brook, having been appointed members of the committee to investigate applications for relief for the ensuing six months, and some further business disposed of, the meeting proceeded with the consideration of the memorials from the distressed widows and orphans of naval officers, and after awarding several sums in relief the proceedings terminated. —*Daily News*, 18*th July*, 1848.

Wrecks of British Shipping.

Continued from p. 503, in last volume.—cs. crew saved ; d. drowned.

VESSELS' NAME.		BELONG TO.	MASTERS.	FROM.	TO.	WRECKED.	WHEN.
Anne		Cowes	Marshall	Yacht	———	Shingles	May.
Ariel		———	———	Malta	Leghorn	Italy Coast	
Argo		———	Fearon	St John's	St. John's	Rivews	June 1. cs
Astoria		Sunderland	Richards	London	Quebec	St Lawrence	May 11.
Berlin	5	St. John's	Araham	St. John's	Liverpool	Seal Island	May 25. cs
Bessy Dryder		———	Comfort	Portsmouth	———	———	June 1. cs
Breeze		Blyth	Dunn	———	St. John's	Sable Island	all lost
Breeze		Blyth	Bruce	———	———	Domesness	May 4.
Chanticleer		———	———	———	———	Cowie	
Catherine	10	———	Shanda	Newport	———	———	Dec.
Commerce		Limerick	Halliday	Galway	St. John's	N. Scota	May 24.
Cove		Quebec	———	London	Quebec	47 N. 28 W.	April 27 4d
Cove		Quebec	Passed	abandoned	350° 8.8 W.	of C. Clear	May 11.
Elizabeth		———	Duckett	Mobile	London	abandoned	April 7.
Elizabeth Helen	15	———	———	St. John's	Figueira	41¼ N. 26 W.	April.
Fin McCoul		———	———	Liverpool	Youghall	Tuskar	June 29.
Gipsey		———	Lock	London	Bahian	70° W. Scilly	June 15.
Johanna		———	Falconer	———	London	Algoa Bay	April 5.
Jane		———	Pelham	Grace Hd.	Richibucto	C. Race	June 1.
Lady Elton	20	———	Spencer	Quebec	England	Brion Island	Nov. 2. lost
Lady Leith		———	———	———	———	Cape Recife	Feb. 27
Lady British		———	———	Lowther	Liverpool	Prince E. Id	May 16.
Lumley		———	———	———	———	English Port	
Majestic		———	———	———	———	Long Island	
Narcissus	25	Fife	———	———	———	———	
Royal Sovereign		London	Carter	Antwerp	Rouneckea	Foundered	June 23.
Steamer		———	———	London	Bahia	abandoned	June 22.
Susan		———	Dowley	———	———	St. Pierre N.	May 11.
Ulysses		———	———	Rochfort	St. Andrews	Jagged Hnd	May 3 cs
Waterloo	30	———	Wood	———	———	Cawood Bay	April 5. cd

A List of all the Masters and Mates in the Merchant Service, who have voluntarily passed an examination, and obtained Certificates of Qualification for the Class against each assigned, under the Regulations issued by the Board of Trade, between April 27th, and the 30th May.

Name of Party who has received the Certificate.	Class of Certificate.	Age.	Present or last previous Service.	No. of Register Ticket	Where Exam.	When.
						1848.
A. G. Wichelo	2nd	29	Santipore, 515 tons ...	46233	London	April, 27th
W. Cleet	2nd	25	Ellen, 240 tons	.....	S. Shields	May, 1st
S. Winchcomb	3rd	40	Cheapside, 621 tons ... (*as mate*)	198347	London	— 2nd
W. C. Bayes	2nd	34	Cassandra, 174 tons ...	.....	London	— 3rd
R. Biggar	3rd	41	Kinnear, 368 tons..... (*as mate*)	25642	London	— 3rd
C. P. B. Laing	2nd	33	Thomas Snook, 249 tns	.....	London	— 4th
J. Bruton	2nd	46	Strathedeu, 476 tons	.....	London	— 4th
R. Sellers	2nd	29	Sappho, 446 tons ..... (*as mate*)	240747	London	— 4th
G. Lodge	2nd	23	Enchantress, 164 tons (*as mate*)	138660	S. Shields	— 4th
H. Lambell	3rd	30	Northam, 221 tons ...	.....	S. Shields	— 4th
J. Maughan	2nd	54	Indian, 387 tons	.....	London	— 4th
J. Clarke	2nd	27	Lord Hardinge, 269 tns	109470	Dundee	— 5th
T. Hamlin	1st	36	Glasgow, 339 tons.....	.....	Glasgow	— 5th
J. J. Hammack	2nd	31	Rifleman, 404 tons ...	.....	London	— 5th
R. Hogg	2nd	32	Auricula, 387 tons ...	.....	London	— 5th
E. Pavey	3rd	30	Castle Eden, 930 tons (*as mate*)	29924	London	— 5th
H. T. Sharpe	2nd	37	Bucephalus, 700 tons (*as mate*)	25883	London	— 6th
W. Ward	2nd	33	Achilles, 448 tons..... (*as mate*)	5199	London	— 6th
E. Philipson	2nd	44	Ratcliff, 739 tons	.....	London	— 6th
D. Kerr	2nd	38	Fama, 279 tons	.....	London	— 6th
E. J. L. Ellison	2nd	28	Thames, 1845 tons..... (*as mate*)	354641	London	— 8th
G. W. Cole	3rd	24	General Palmer 565 tns (*as mate*)	6373	London	— 8th
Samuel Ruff	3rd	26	Elibabeth and Henry, 534 tons (*as seaman*)	389113	London	— 9th
R. D. Crawford	2nd	34	Collingwood, 743 tons	.....	London	— 9th
G. J. N. Symons	2nd	37	Onyx, 243 tons ..... (*as mate*)	22768	London	— 11th
J. Baker	2nd	30	Charles Walton 362 tns	.....	London	— 11th
Henry William Harmsworth	1st	32	Calcutta, 484 tons..... (*as mate*)	27889	London	— 11th
T. W. Thatcher	2nd	29	Thames, 1800 tons ... (*as mate*)	220694	London	— 11th
T. Hirste	2nd	39	Minerva, 424 tons.....	.....	Plymouth	— 12th
W. J. Ferris	2nd	41	Worcester, 635 tons...	.....	London	— 12th
M. A. Hill	2nd	27	Elliotts, 249 tons	.....	S. Shields	— 13th
W. Fleming	2nd	23	Humayoon, 530 tons (*as mate*)	256969	Dundee	— 15th
R. C. Paige	2nd	28	British Queen, 261 tns	.....	London	— 15th

						1848.
J. G. Weekes	3rd	29	Kinnear, 450 tons..... (*as mate*)	1282	London	May 17th
F. F. Maclean	1st	36	Susan King, 160 tons.....	.....	London	— 18th
Robert Heard	3rd	61	Kinnear, 368 tons.....	.....	London	— 18th
J. R. Brown	2nd	47	Onyx, 237 tons	.....	London	— 19th
F. Turner	2nd	33	Stratheden, 429 tons...	18640	London	— 19th
H. Burton	2nd	32	Duke of Argylle, 600 tons (*as mate*)	33813	London	— 19th
J. Forrest	2nd	33	Benjamin Greene, 400 tons (*as mate*)	163361	London	— 19th
W. Clark	2nd	26	Little John, 60 tons ...	.....	London	— 20th
R. White	2nd	43	Achilles, 900 tons.....	.....	London	— 22nd
J. M. Buckley	2nd	38	William Money, 835 tons	.. ..	London	— 22nd
W. Webber	2nd	30	William & Alfred, 337 tons (*as mate*)	326075	London	— 22nd
B. Dobson	2nd	33	Chieftain, 360 tons... (*as mate*)	392100	London	— 25th
D. Mallagh	2nd	23	Essex, 776 tons ..... (*as mate*)	33718	London	— 25th
J. Ginder	2nd	25	Fairlie, 756 tons..... (*as mate*)	14001	London	— 25th
H. Harrison	2nd	31	Glentanner, 610 tons... (*as mate*)	9002	London	— 25th
T. Jamieson	2nd	32	Sultan, 728 tons..... (*as mate*)	265025	London	— 25th
J. Fenwick	1st	37	Orestes, 650 tons	.....	Newcastle	— 25th
J.B.Blackbourn	3rd	37	Tasman, 563 tons.....	.....	London	— 25th
T. Heddle	2nd	35	Isabella Thompson, 382 tons	.....	London	— 29th
J. G. Ray	2nd	29	Etheldred, 420 tons...	.....	London	— 29th
A. Cheyne	2nd	30	Starling, 103 tons.....	.....	London	— 29th
William Lacy	3rd	28	Mary Mitcheson, 279 (*as mate*)	325658	London	— 29th
F. Coppell	3rd	44	Woodbridge, 516 tons	.....	London	— 29th

MATES.

						1848.
H. Chatfield	2nd	24	Dartmouth, 733 tons...	32682	London	May 1st
R. H. Lewis	3rd	26	Ellen, 408 tons	400370	London	— 4th
E. B. Bullen	2nd	19	Cato, 265 tons ..... (*as apprentice*)	10554	London	— 6th
W. Taylor	2nd	21	Earl of Hardwicke, 960 tons	34607	London	— 6th
E. S. H. Neale	3rd	22	Onyx, 270 tons ..... (*as seaman*)	29164	London	— 8th
R. F. Philps	2nd	22	Dartmouth, 733 tons	15622	London	— 11th
R. W. Morgan	2nd	22	George Gordon, 267 tons	18884	London	— 11th
J. A. C. Clark	3rd	20	Helen & Jane, 138 tns (*as apprentice*)	199223	London	— 15th
R. Copleston	3rd	26	New Zealand, 455 tons	193907	London	— 17th
G. S. Brooks	1st	19	Southampton, 971 tons (*as apprentice*)	22294	Portsmouth	— 30th

The *Collingwood*, 80, Captain Smart, flag of Rear-Admiral Sir G. F. Seymour, C.B., G.C.H., the late Commander-in-chief in the Pacific, arrived on the 8th of July at Spithead, with a freight, on merchants' account, of 1,000,000 dollars, which was consigned to Mr. Chambers, freight agent of Portsea and Portsmouth, for conveyance to the Bank of England. She sailed from Valparaiso on the 11th of April, arrived at Rio on the 12th of May, sailed on the 23rd and passed the Western Islands on the 1st inst. The *Comus*, 16, Commander D'Eyncourt, was at Rio, under orders for England. Sir Thomas Herbert, with the rest of his squadron, was at Monte Video. Affairs in Rio were in a very disturbed state, owing to the stagnant state of commerce consequent on the French revolution. The *Champion*, 18, Commander Hayes, had arrived at Rio, and sailed on the 17th of May for the Pacific, calling at Monte Video, to communicate with Commodore Sir Thomas Herbert. Mr. Loney, master of the *Juno*, 26, in the Pacific has come home invalided in the *Collingwood*. Mr. A. Dawson, Paymaster and Purser of the *Collingwood*, died on the passage between Rio and England, and Mr Foord, the clerk of the ship, was promoted to the vacancy by Sir George Seymour. The *Gorgon* had not arrived at Rio, nor did the *Collingwood* see or hear anything of the *Plover* discovery vessel.

The flag of Rear Admiral Sir George F. Seymour, C.B., G.C.H. was struck on Sunday at sunset, and he and Lady Seymour, and family, left the George Hotel, on Monday morning for town. On the same day the *Collingwood* was officially inspected by Admiral Sir Charles Ogle, and found to be in splendid order and a high state of dicipline. The powder was taken out after inspection, and at 7 p.m. the ship was towed into harbour by the steam-tug. She is dismantling rapidly, preparing to pay off.—*Nautical Standard.*

PILOT DIRECTIONS FOR ELYSIUM.—Care must be taken not to borrow too close on Hope Castle, which will be seen in perspective, beautifully suspended in the air based on a rainbow. The bold and promising Bluff is deceptive; the shore being surrounded with the shallows of patronage (through which light craft can ply), and terminating in a reef formed by the Rocks of Despair, with a strong current setting directly into the Dead Chest passage, called the coffin gap, from whence there is no hope of return.

THE ARCTIC EXPEDITION.—The Hudson's Bay Company have undertaken to use every exertion in providing for the boat's crews of the *Plover* at Fort Good Hope on the Mc'Kenzie, and increase the stock at their posts on the Mc'Kenzie river, with the view of maintaining them during the winter; and should it be deemed expedient to forward them to Great Bear Lake, to obtain guides for the purpose.

Letters have been received from the *Herald* 22, surveying vessel, Captain Kellet, C.B., dated at Sea, May 13th, in 7° 25′ N. lat., 87° 18′ W. long.; she was then on her way from Panama to Bhering's Straits, having with her tender, the *Pandora*, been towed from Loboga, out to the trade winds by the *Sampson*, steam frigate. The *Pandora* had parted company with the *Herald* two days before, and proceeded to Honolulu; and the *Sampson* was on the point of separating from the *Herald* on the day the letter was written. All were well on board.

Nautical Notices

Disposition of the Buoys on the Bar at the entrance of the River N Dvina to Archangel.

Translated from the *St. Petersburg Commercial Gazette*, No. 52 of 6 May, 1847.

The Hydrographic department of the Ministry of Marine publishes this present, that, in order to enable vessels bound to the port of Anchangel, to enter the river N Dvina with a S.W. wind, and to get out of the river with the wind N.E., by the *new* channel over the bar. There will henceforward be laid down 9 buoys, of which 4 will be on the N.E. edge of the channel with *black* brooms brush upwards, and 5 on the S.W. edge of the channel with *red* brooms, the brush downwards.

These buoys showing the new channel, in the direction of N.W., and S.E., will be at a distance of 400 fathoms (of 7 feet English) from each other, and do not in any wise interfere with the order in which the other buoys and signals are placed on the bar.

British Consulate Archangel.

N.B.—This communication would have been forwarded when I received it had I not applied for, and been promised a chart of, or sketch of the Bay, showing the new channel and the disposition of the buoys on it, which I have not yet received, and scarcely expect it now.

John Whitehead, *H.B.W. Consul.*

Extract of a Letter from Capt. Beechey, R.N., to the Hydrographer.—July 21st., 1848.

I have the honour to acquaint you with the discovery of a dangerous bank in the Bristol Channel bearing W.S.W magnetic five-sixths of a mile from Flatholm Lighthouse. There has been found as little as *eleven* feet water upon this shoal, and there may be less as I have not yet sufficiently examined it, and for the present all heavy ships coming up or down channel towards low water, should keep nearly mid-way between Flatholm and Steepholm whilst the Monkstone beacon is shut in with Flatholm.

As soon as I have thoroughly examined this dangerous bank I shall forward further particulars and marks for avoiding it.

New Books.

Cosmos: *A Sketch of a Physical description of the Universe.—By Alexander Von Humboldt.—Translated under the superintendence of Lieut.-Col. Edward Sabine, R.A., For. Sec. R.S.*

Our duty, as journalists, becomes rather to register the appearance of the work before us than to enter into any critical disquisition of its contents. Those contents are facts regarding the Universe, animate and inanimate nature, that have been collected during a long and well spent life. The venerable author adds much to the obligations which he has conferred on Society at large, in thus summing up before he quits a scene in which he has played so important a part, the results of his observations, his investigations of the phenomena of the physical world. Two volumes of these interesting truths are before us dressed in their English garb, and enriched with additional information by the Foreign Secretary of the Royal Society. We shall

find hereafter an occasional leaf or two for our own pages, fitting the taste of our readers, from the numerous subjects which they include,—for Cosmos abounds with sublime treasures of every kind.

RECOLLECTIONS OF BUSH LIFE IN AUSTRALIA *during a Residence of Eight Years in the Interior —By H. W. Haggarth, Esq.*

ADVENTURES ON THE ROAD TO PARIS *during the Campaigns of* 1813-14.— *Extracted from the Auto-Biography of Henry Steffens.*

The foregoing volumes form numbers 58 and 59 of Murray's Home and Colonial Library, a favorite work with the British public. The former is a cheap introduction to the secrets of Australian enterprise, and the royal roads to fortune, that have been found by many of her Majesty's liege subjects. It abounds in interesting anecdotes and valuable information to those who meditate emigration to that distant colony.

"The Adventures on the road to Paris" may be considered as an ominous title when the date is remembered. The notes of a German Professor taking his part as an officer in the Army in the war of liberation, down to the presence of the Allied Armies before Paris, will serve to give an idea of the interesting as well as historical nature of these 'adventures'.

NARRATIVE OF EVENTS IN BORNEO AND CELEBES *down to the occupation of Labuan.— From the Journals of James Brooke, Esq., Rajah of Sarawak and Governor of Labuan.—By Captain Rodney Mundy, R.N., Two Vols.*—Murray, Albemarle Street.

THE events here related by Captain Mundy, from the journal of the present Governor of Labuan, may be classed among the most important of the East: events, from which will flow gradually into Borneo the blessings of commerce and civilization. The origin and progress of these events are no less remarkable than their results, the cession of an island to the British Crown, not large it is true, but sufficient to become the source of future prosperity to a numerous and energetic people. We shall have ample occasion hereafter, (for these books as well as those of Sir Edward Belcher's furnish important matter for reference) to treat our readers with some passages of Bornean life and scenery, and for the present must content ourselves with a brief outline of their contents.

James Brooke, Esq., as Captain Mundy tells us in his introduction, undertook "a noble pilgrimage, prompted, not by the feelings of over-heated zeal, but by one of the best impulses of the human mind,—the desire to relieve and disenchain millions of our oppressed and enslaved fellow beings,—our semi barbarous brethren of the Eastern Archipelago," with which object he sailed from England in his yacht the *Royalist* in November, 1838, with a crew of nineteen persons besides himself, touched at Rio and the Cape, and finally left Singapore for Borneo on the 1st of August 1839. In a week he arrives at Sarawak, where finding civil war, in the form of revolt against the Sultan, and therefore an unfit time for commerce he returns to Singapore the following month, having narrowly escaped with his life off the Sadung river. He again departs from Singapore on the 20th of November, and coasts round the Gulf of Boni in Celebes, returning to Singapore in May 1840.

From Singapore, Mr. Brooke again proceeds to Sarawak (Aug. 1840) where he remains, and in July 1842 visits the Sultan at Borneo Proper,

returns again to Sarawak and sails for Singapore, where he arrives in the end of March 1843, and in July 1844 we again find him at Sarawak. From this time we need only observe that he is actively engaged in the events going forward, until the month of July 1847, when he started for England. In the mean time Labuan became a British possession on the 24th of December, 1846, the ceremony of which event was conducted by Captain Mundy, and Mr. Brooke having sailed in the *Meander* in the early part of this year, is by this time in possession of his governorship.

Our space will not permit us to introduce any extracts from these interesting volumes now, but we shall find ample occasion for returning to them hereafter.

THE NAVAL OFFICERS' MANUAL.—*By the late Capt. W. N. Glasscock, R.R. Second Notice.*—Parker & Co, Whitehall.

We recommended this work in a recent number, and the following is an extract from it on the important subject of—

"*Keeping a Clear Anchor.*—That part of seamanship which relates to the method of tending a ship to the tide, or, in other words, of keeping the cable clear of the anchor, may not be inaptly termed the *blind branch* of the mariner's art—the buoy floating on the surface being the only visible guide that the seaman possesses to point to the position of the anchor hidden under water."

"From being little understood, and, by young officers, seldom put into practice, the art of keeping a clear anchor is by many considered a difficult task. But were lieutenants to give more attention to the matter, and to place less dependence on the master, or the pilot, they would soon attain every necessary knowledge to meet the most difficult tidal case.*"

"*Anchor Turning in the Ground.*—In order to ensure the certainty of the anchor turning in the ground with the tending or swinging of the ship, it is recommended, whenever it is possible, to resort to the practice 'to shoot the ship on the *same side* of her anchor, at each change of tide; for, should the anchor not turn in the ground, the cable will get foul either about the stock or the upper fluke, and trip† it out of the ground."‡

"*To tend for a Weather Tide.*§—Let it be supposed that a ship is riding at single anchor upon a lee tide, with the wind in the exact direction of the tide and that it be required, upon the tide's setting to windward, to tend the ship clear of her anchor. To effect this, as soon as the ship begins to *feel* the turn of the weather-tide, and that the vessel brings the wind broad upon the weather-bow, the head-sails should be hoisted, and then *lee* sheets hauled aft, in order to shoot the ship from her anchor on a *taut* cable. The helm must then be put a-lee, and kept in that position till the tide settles the ship over

* Though this chapter is here inserted, to preserve the order of the work, it is not intended by the author to confine its perusal alone to the Master. The Master is supposed to be master of the subject.

† If the anchor be tripped, and the ground be at all "stiff," the probability is, (unless the upper fluke cast downwards, and occupy the position of that already displaced,) that the quantity of clay adhering to the other arm would prevent it again taking hold, or hooking in the soil; and possibly the first intimation the officer-of-the-watch has, that the *ship is walking away with her anchor*, is the awkward discovery of being close in the hawse of another vessel.

‡ Gower.

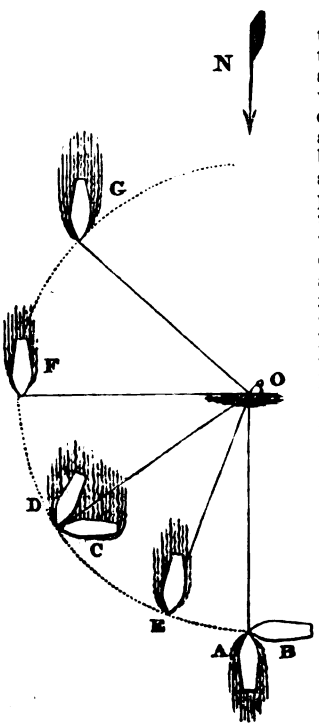
§ Abridged and corrected from Gower and Hutchinson.

to windward of her cable, and the buoy appearing on the same side with her helm."

"If from little wind, the buoy bears nearly a-beam, the head-sails may be hauled down; but if the breeze be strong, and it causes the ship to shoot in a direction nearly end on with that of her cable, bringing the buoy upon her quarter, it will be then necessary to keep the fore-top-mast stay-sail* set, in order to check the vessel should she be disposed to break her sheer against the action of her helm, or be inclined to drop to windward, and 'go over' her anchor in a broadside or lateral direction."

"*To tend with the Wind across the Tide.* When the wind is across the tide the simplest and most approved method of tending a ship on both sides, will be to keep the vessel to leeward of her anchor. At each slack water, the ship would become wind rode; and as she tends and brings the wind on either side, the helm must be put to weather, and the jib, or fore-top-mast-stay-sail set, with the sheet hauled over to windward, to force the ship at taut cable from her anchor. When the tide is set, and the ship upon her proper sheer to leeward of her anchor, the jib or stay-sail may be hauled down."

"The annexed diagram will serve to demonstrate the preceding rules, and to shew the ship's different tidal positions when riding at single anchor."



"Suppose the ship at *A* be riding on the lee-tide with the wind at north,—when the lee-tide is done, and the weather-one begins to set in the direction of *A O*, the coming tide will cant the ship with her head either to the eastward or to the westward,—say the latter, as at *B*. If the ship be left to herself, the probability would be, she would drift *over* her anchor in the direction of her buoy at *O*. To prevent this, it will become necessary to set the head-sails with full sheets in order to shoot the ship gradually over to the westward, clear of the stream of her anchor; but as the tide at the same time will be acting on the vessel in a different direction from that produced by the effect of the head-sails, the former taking her on the lee-beam, and driving her bodily to the northward, whilst the latter propels her head to the westward, it will be seen that a *two-fold* motion is produced till the ship arrives at the position of *C*. As, in this situation, the wind will be on the starboard, or weather quarter, whilst the tide will be acting on the larboard, or lee beam, it will, consequently, become requisite to change the vessel's position, and to cause her to pass with her *heel* over her cable. To effect this movement, the helm must be put to port, when the action of the tide on the *lee* counter, forcing the ship over her cable, will alter her position at *D*,—bringing the buoy *O*, on the larboard quarter, and the ship's head more immediately presented to the stream of the tide."

"Should it blow fresh, or the wind be stronger than the tide, the ship in all probability, will

* When weather tide slacks, and the ship falls wind-rode, the fore-top-mast stay-sail should be hauled down, and the helm righted.

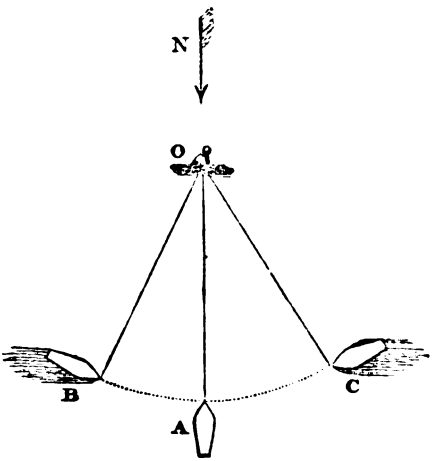
shoot to the southward, in the position of *E*; while, on the other hand, should the breeze lessen, and the tide become stronger than the wind, the ship will gradually drop with a taut cable in the direction of *F*, or that of *G*."

"So long as the ship retains her steady sheer when riding in the position of *E*, she cannot possibly, at slack water, approach her anchor, for she will then be immediately to *leeward* of it, and will, consequently, fall wind-rode in the original position of *A*. But should the ship be to *windward* of her anchor in the position of *G*, she will then require the jib, and possibly the stay-sails, to shoot her in the direction of *E*, when, as the tide slacks, she will gradually fall "wind-rode." Should there not be sufficient wind to shoot the ship in the position of *G*, the cable should be hove in to nearly up-and-down, and the helm eased as the tide slackens."

"When riding on the weather tide in the position of *E*, it would be necessary to keep the fore-top-mast stay-sail set, to counteract the effect of the ship breaking her sheer, or coming athwart the tide—the object being to prevent the vessel drifting to windward in the stream of her anchor."

"The subjoined diagram will serve to exemplify the rules relating to the case of tending when the wind is across the tide.*"

"Suppose the wind be at north and in a direction exactly across the stream of the tide,—at slack water, the ship will naturally fall to leeward of her anchor in the position of *A*. But when the tide makes from either the points of E. or W., the ship will swing to the position of *B* or that of *C*. A turn of weather helm, together with the fore-top-mast stay-sail set (sheet hauled over to windward,) are the only measures which may be taken to insure a *taut* cable to leeward of the anchor during the entire tide."



The Government had issued a decree on the 11th of April, with the object of attracting whaling vessels to frequent Chilion ports, which would produce a demand for the produce of the country. Permission is given to such vessels to land all kinds of articles of free commerce without payment of tonnage or light dues, and subject only to the laws and regulations of the customs; previous laws which would interfere with this new order having been cancelled. —*Nautical Standard.*

Consul to the Comoro Islands.—Mr. T. Napier proceeds immediately to Comoro Isles in the Indian Ocean, as Consul of Great Britain, the very great increase of our trade in that quarter demanding the residence of a British agent there.

* It is still a question whether we have the best form of anchor! all our late inventions can hardly be called improvements; the least complication (depending on *conditions*) is worse than useless. The *stock* is a positive and clumsy evil, could we but contrive to do without it! and iron would be better than wood; but the difficulties are great.

Births, Marriages, and Deaths.

Births.

June 6, at Hillhead, the lady of Lieut. E. J. B. Clarke, R.N., of a son.

June 24, at Blair, the lady of Capt. Blair, R.N., of a son.

June 25, at Kingston, the lady of T. W. Jewell, Esq, R.N., Surgeon to the Convict Establishment at Portsmouth. of a daughter.

June 9, at Hill Lodge, Freshwater, Isle of Wight, the wife of Capt. Andrew Snape Hamond, R.N., of a son.

June 11, at Pitt's Deep, Lymington, the wife of Lieut. Tracy, R.N., of a daughter.

June 15, at her father's house, Grove Dingle, the wife of Capt. Bower, R.N., of a son.

June 19, at Malta, the wife of Lieut. G. S. Gardner, commanding H.M. St. Oberon, of a son.

June 19, at Kingston, Canada West, the wife of Capt. Fowell, Commandant of the Navy-yard, of a daughter.

July 6, at Clifton, the wife of Capt. Claude Henry Buckle, R.N., of a son.

July 8, at Nantwich, the wife of W. Kent, Esq., surgeon, R.N., of a daughter.

July 9, at Lincoln, the wife of H. B. H. Long, Esq., R.N., of a son.

June 21, at Cushendeen, in the county of Antrim, the wife of Capt. Edward Holland, R.N., of a son.

June 26, at Oswaldkirk Rectory, near York, the wife of H. Woodhead, Esq., Navy Agent, London, of a daughter.

June 27, at Tavistock Place, Plymouth, the wife of Lieut. W. H. Symons, R.N., of a son.

June 29, at Tottenham, near London, the wife Mr. Arthur Octavius Miller, and daughter of Lieut. W. L. Blake, R.N., of a son.

Marriages.

June 26, at Reading, Lieut. Frederick Arthur Egerton, of H.M.S. Prince Regent, to Miss Juliet Burnett, daughter of W. Burnett, Esq.

June 29, at Margate, John George Dare, Esq., of Peckham, to Mary Jane, eldest daughter of Lieut. C. G. Clark, R.N.

June 30, at Stoke, Lieut. J. A. P. Price, R.N., to Jane, youngest daughter of the late R. Billing, Esq., of Wivellscombe, Cornwall.

June 14, at Trinity Church, Gosport, Lieut. Robert Willcox, R.N., to Ellen, fourth daughter of James Adams, Esq., of Gosport.

June 15, at St. Paul's, Southsea, Com. A. G. West, R.N., second son of Admiral Sir John West, K.C.B., to Jane, only surviving daughter of the Rev. J. Inman, D.D, Southsea, Hants.

June 20, at Carlisle, Capt. George Wodehouse, R.N., son of the Hon. and Rev. W. Wodehouse, to Eleanor Charlotte, daughter of Andrew Mortimer and Lady Emily Drummond.

June 30, at St. Mary's Fulham, F. R. Jago, Esq., of Trejago, Hammersmith, Surgeon, R.N, to Eleonor Page, only child of the late Rev. James Bordman, M.A., of Ickham, Kent.

July 6, at Clifton Church, Robert Osborne, Esq., of Berwick, near Henbury, Gloucestershire, to Emily Theresa, eldest daughter of Capt. Charles Warde, R.N., K.H., of Wetherell-place, Clifton.

July 11, at St. James's Church, Westminster, Burton Borough, of Holland, county of Derby, Esq., to Elizabeth Charlotte, only daughter of Capt. Gawen Roberts, R.N.

July 13, at St. Paul's, Deptford, A. J. S. Eames, Esq., to Mary Ann, daughter of Lieut. R L. Jones, R.N.

June 20, at Alverstoke Church, Mr. B Hobbs, jun., Brewer, Gosport, to Elizabeth, eldest daughter of Lieut. John Bowden, R.N.

Deaths.

June 22, at the residence of his father, Alfred Cottages, Northend, Fulham, Lieut. G. H. Thomas, R.N., aged 28.

June 27, at Beddington Park, Surrey, Capt. Hallowell Carew, R.N.

Official Quarterly Obituary.

Flag Officers.—Admiral Sir William Hotham, G.C.B.; Rear-Admiral Samuel Hood Inglefield, C.B.

Captains.—Charles Conrad Grey, Frederick William Burgoyne, Thomas Simpson.

Commanders.—Robert Scallon, James Stopford Hore, John Powell Tweed, James Richard Dacres, Frederick Blair, Hector Loring, Reginald Thomas John Levinge, John Ellis, Thomas Townsend.

Lieutenants.—Richard Pettman, Herbert Mackworth, Henry Snellgrove, Charles Rumbold Gordon, Thomas Lepard Knevitt, Robert Snow, William Hicks (b), Joseph Bates, Henry Richmond, Andrew Barclay Barclay, Henry Alexander Breedon, Charles Augustus Yolland, John Fitz Brand, George William White, George John Loch.

Masters.—William Jackson (a), Kenneth Mc Kenzie, Edward Gilling, Samuel George Jago Northcote.

Surgeons.—John Dickson (a), Thomas Henry Nation, M.D., Alexander Browning, James Little, Howell Jones Williams, Andrew Dods, M.D.

Paymasters and Pursers.—Stuteville Isaacson, Samuel Wilcox, George Kent, William Cuming, John Milner, Thomas Cole (a).

Royal Marines.—Lieutenant-Colonel Robert Ford, Captain Francis Wemyss, First Lieutenant Francis James Polkinghorne.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory. From the 21st of June to the 20th of July 1848.

Month Day.	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade				Wind. Quarter		Strength.		Weather.	
		9 A.M	3 P. M.	9 A.M	3 P.M.	Min	Max	A.M.	P. M.	A.M.	P.M.	A.M.	P.M.
		In Dec	In Dec										
21	W.	30·10	30·12	64	68	53	69	N	N	1	1	bc	o
22	Th.	30 05	30·02	65	72	56	74	NE	E	2	3	b	b
23	F.	29·84	29·76	67	70	57	73	E	E	4	5	o	qbcr 4
24	S.	29·61	29·75	62	65	57	67	SW	SW	5	6	qop 2	qbcp 4
25	Su.	29·70	29·80	58	63	53	65	SW	SW	4	2	od 1 2	bcp 3
26	M.	30·07	30·10	57	55	52	66	E	SE	1	1	or 2	o
27	Tu.	29·96	29·90	61	65	55	67	SW	SW	2	5	o	qor 3
28	W.	29·86	29·85	63	66	57	67	W	W	5	5	qd 2	qbc
29	Th.	29·78	29·68	60	66	54	68	SW	SW	5	6	qo	qbc
30	F.	29·66	29·62	60	58	52	64	W	W	3	5	o	qop 3 4
1	S.	29·56	29·64	56	56	44	58	W	NW	4	6	bc	qop 3
2	Su.	29·86	29·86	55	62	46	63	NW	W	4	4	bcp 3	bcp c
3	M.	29·80	29·78	60	64	51	65	SW	SW	2	4	o	op 3 4
4	Tu.	30·03	30·13	61	64	52	66	N	N	1	1	bc	o
5	W.	30·23	30·21	63	73	54	74	SE	SE	1	1	bc	bc
6	Th.	30·15	30·17	71	83	55	84	SE	S	2	2	b	b
7	F.	29·94	29 93	75	73	64	76	SW	SW	2	5	o	qbc
8	S.	30·05	30·08	62	64	55	67	SW	SW	6	5	qbc	qbcp 3
9	Su.	30·02	29·84	58	57	54	60	SW	SW	3	5	or 2	qor 3
10	M.	30·08	30·20	58	68	53	69	N	N	3	4	bc	bc
11	Tu.	30·46	30·48	60	67	50	70	NE	N	3	3	bc	bc
12	W.	30·52	30·53	60	70	53	71	E	E	3	3	bc	b
13	Th.	30·49	30·47	63	77	52	78	NE	NE	2	2	b	bc
14	F.	30·37	30·34	64	78	57	79	E	NE	2	2	bc	bctl
15	S.	30·28	30·30	64	69	60	70	NE	NE	4	4	bc	bc
16	Su.	30·30	30·28	59	71	47	72	NW	NE	2	2	bm	bcm
17	M.	30·24	30·20	64	73	55	74	N	NW	2	4	bc	bc
18	Tu.	30·13	30 09	63	75	53	75	W	W	2	2	bcm	bm
19	W.	29 80	29·74	65	65	55	67	SW	SW	5	7	qbc	qo
20	Th.	29·43	29·33	64	67	60	68	SW	SW	7	7	qbcp 2	qbopt 3

JUNE 1848.—Mean height of Barometer=29·780 inches; Mean Temperature=59·1 degrees; depth of rain fallen=3·96 inches.

TO CORRESPONDENTS.

THE LAWS OF SHIPPING AND INSURANCE also "THE SAILOR'S HORN BOOK" and the first three numbers of PHYSICAL GEOGRAPHY have been received, and shall be noticed in our next. We shall reserve for a fitting occasion the letter of our correspondent on ST. LAWRENCE NAVIGATION.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

That future pilgrims of the wave may be
Secure from doubt, from every danger free.

SEPTEMBER, 1848.

The Lights of Bass's Straits.—*Report of Capt. Stanley, H.M.S. Rattlesnake.*

Cape Otway.—The contractor's tender for the erection of this lighthouse was accepted in October 1846, but in October 1847 the Government foreclosed on his contract, and in November 64 men were shipped by the Government on board a small schooner; but from stress of weather were unable to effect a landing. They then proceeded overland to the Cape, and on the 1st of December, 1847, the works were actually commenced. At the period of Lieutenant Yule's visit the foundation of the lighthouse was completed, and the building had been carried up from two to four feet above the surface.

The quarters intended for the Light-keepers have already been erected, and the crest of a sandhill inshore of the lighthouse has been removed in order that the light may be seen from all directions to seaward. It was at first intended to place the lighthouse on this sandhill, but no foundation could be obtained.

The height of the cliff upon which the lighthouse is built, Lieutenant Yule found to be 248 feet above high-water mark, and the centre of the lantern is proposed to be 52 feet above the base. The entire cost of erecting the lighthouse, keepers' quarters and store-houses (exclusive of the lantern, but including the fitting of it,) will amount to about £3700, and the building is expected to be completed during the course of this year. The lantern at present is at Melbourne, and some little delay may

be caused by the difficulty of landing it; as it is far too bulky to be sent overland.

Port Philip, Shortlands Bluff.—This lighthouse is built on the extreme point of Shortlands Bluff, two miles within the entrance of Port Phillip. It is constructed of sandstone obtained in the immediate neighbourhood; and the Light-keepers' house, which forms the lower story, is so placed that it points to the end of the shoal off Nepean point, for which when seen on, it forms a leading mark.

The base of the lighthouse is 61 feet above high-water mark, and the centre of the light 109 feet.

The lamp was constructed at Sydney, and does not show a very good light, as it is not visible for more than 13 or 14 miles. The tower and Light-keepers' house are entirely white: there is no lightning conductor.

Fresh water can be obtained at Shortlands Bluff, and the soil is capable of producing a sufficient quantity of vegetables, for the use of the Light-keepers, and persons connected with the pilot station; all other supplies are sent from Geelong.

In consequence of the light being placed so far within the heads, it is only visible to seaward between the bearings of S. ½ W., and S. W. ½ W. A much better position might have been selected on Lonsdale point, 2½ miles S.W. ½ W. from Shortlands Bluff. A light there would be seen by vessels coming from the eastward, as soon as they rounded Cape Shanck, and would obviate the necessity of a lighthouse there. A light on Lonsdale point would also serve as a leading mark for navigating the southern channel; the only objection appears to be that unless the tower were raised to a great height, the light would not be seen over Shortlands Bluff by vessels inside the harbour.

According to the pilots' report, fresh water may as easily be obtained at Lonsdale point, as at Shortlands Bluff, and the distance from Geelong is not greater.

The latitude deduced from twenty observations with the repeating circle was 38° 16′ 00″ S. Variation 8° 40′ E.

Point Gellibrand.—On the extreme of Point Gellibrand which forms the western side of Hobson's bay, at the head of Port Phillip, a wooden frame work has been erected by Mr. La Trobe, the Superintendent, on the top of which 40 feet above high-water mark, a single lamp is placed which may be seen six or seven miles, and in very clear nights as much as nine miles. A shoal extends for half a mile to the S.S.E. of the point, which is dangerous to approach at night, as the beacon placed on the end of it is not easily seen.

The position of the lighthouse was found to be in latitude 37° 52′ 31″ S. Meridian distance from Sydney not determined; variation 9° 06′ 29″ E. Dip 67° 14′ 07″ S.

Port Dalrymple, Low Head Lighthouse.—This lighthouse is built on the Low Head which forms the eastern side of Port Dalrymple; its base is 92 feet above high-water mark, and the centre of the light 140 feet above the same level. The upper part of the lighthouse is painted red; the lower part and the Light-keepers' house white.

The light is a very good one, on the revolving principle, containing fifteen lamps, but in consequence of a want of ventilation in the lantern the windows are apt to become obscured by vapour and smoke. The light revolves once in a minute, and is admirably placed for leading vessels into the harbour.

Meridian distance from Sydney not determined. Dip 69° 24′ 04″ S. Variation 10° 29′ 25″ E.

Banks Straits, Goose Island Lighthouse.—This lighthouse is placed on the southern end of Goose Island, which is a rocky islet of granitic formation, with a thin coating of vegetable soil, perforated in every direction by the holes of the mutton bird. The islet is about a mile and a half long, by half a mile wide, and affords shelter for vessels wind-bound; the anchorage between it and Badger Island being protected from easterly and westerly winds. And should it come on to blow from north or south a ship would have no difficulty in getting away.

The base of the lighthouse is 30 feet, and the centre of the light 108 feet above high-water mark. The supporting column is 71 feet high, and 24 feet in diameter at the base. The upper part is painted red and the lower white.

The light is a fixed one, on the new principle, with a single lamp surrounded with lenses, and has been seen from a distance of 30 miles.

The lamp consumes about a gallon of oil per night taking a mean of winter and summer nights. The light was first shown in February 1846.

Goose Island affords but a scanty supply of water, and that not of the best description, so that the Light-keepers are in a great measure dependent upon rains. Firewood can only be obtained from the islands to the eastward, with which during the strong westerly gales, which prevail during nine months out of the twelve, it is often difficult to communicate. The supplies for the Superintendent and his three assistants, are sent up every six months from Hobarton.

Banks Straits, Swan Island Lighthouse.—A lighthouse has been built on the north end of Swan Island which forms the south-east part of Banks Straits. The base of the lighthouse is 24 feet above high-water mark, and the centre of the light 104 feet. The supporting column is 71 feet high, and 24 feet in diameter. The upper part is painted red, and the lower white.

The light is a very good one, being on the same principle as the one at Goose Island, showing a faint light constantly, and a bright flash of 2½ seconds duration every five minutes; it is seen at Goose Island (distant 30 miles) in clear weather.

Swan Island is about the same size as Goose Island, but is much better supplied with fresh water. Firewood also can be procured on the southern end of the island, and there is sufficient grass to support 200 sheep. Provisions and stores are sent from Hobarton every six months. There is very good anchorage during westerly winds, on the eastern side of the island off a sandy bay, but care must be taken not to anchor too close in, as the wind at times shifts very suddenly to the eastward.

It was at first intended to erect the lighthouse on a small mound near the north end of the island, which is 90 feet above high-water mark, but upon examination it was found to be composed almost entirely of drift sand, which must have been removed in order to procure a solid foundation; nothing could be better than the present position, as it is quite on the extreme point, and sufficiently high to be seen over the mount.

The light was first shown November 1845.

Kent Group Lighthouse.—The lighthouse is about seven-tenths of a mile N. 10° W., (true) from the southern extremity of Deal Island, which forms the eastern part of Kent Group, the foundation being laid on the bare face of a granitic rock, which, Mr. Watson the Architect, considers to be 20 feet lower than the highest part of the range on which the lighthouse is built. There would have been considerable difficulty in obtaining a solid foundation on the highest part of the range, in consequence of the loose stony nature of the ground.

The base of the lighthouse appears from Lieutenant Yule's measurement to be 829 feet above the sea; the height of the building from the base to the lantern is 52 feet, and the whole height 67 feet. The light consists of twenty-one lamps arranged in three sides, each containing seven lamps, it revolves once in 54 seconds, and was seen from the *Bramble's* deck at a distance of 37 miles. Within a few yards of the lighthouse two substantial stone buildings have been erected; one to serve as a store, and the other consisting of three apartments, forms the dwelling of the two men who attend the light.

The construction of the lighthouse was commenced in April 1846, and the expense has amounted to £1840 for the building, and £1500 more for the lantern, and five years stores, making in all £3340.

Being placed on the highest part of the island, or very nearly so, the light is visible from all directions; but, from the great elevation on which it is placed it is more liable to be obscured by fogs than it would have been in a lower situation, one instance of which happened during Lieut. Yule's stay, when the light could not be seen till within half a mile of it. The upper half of the tower is painted red, and the lower half white, and it forms a most conspicuous object.

The soil of the island appears to be productive both for raising vegetables and affording sufficient pasturage for 3000 sheep. Water can only be procured from wells, and is slightly brackish. Firewood may be obtained in abundance. The two coves in the channel between the islands form secure anchorage for small vessels, the western cove being the most sheltered one of the two.

Finding that the Superintendent was only allowed two assistants to trim the lamps and perform all other necessary duties connected with the lighthouse, I have written to the Governor of Van Diemen's Land to recommend that a third assistant should be allowed.

There is no lightning conductor.

Gabo Island Lighthouse, Cape Howe.—Gabo Island situated five miles to the south-west of Cape Howe, is so called by the natives, who not being able to pronounce the word Cape, have changed it into Gabo.

The island is about a mile and a half long, and three-quarters broad; its northern end is connected with the main land by a reef on which the sea breaks heavily. On the south-west side of the island there is anchorage for one or two small vessels, perfectly sheltered from all winds except south-west.

The island is composed chiefly of porphyry, and is covered in some places with drift sand to a considerable depth. The highest part of the island has been selected for the site of the lighthouse about to be erected, but upon examination the hill has been found to consist entirely of loose sand, through which it will be necessary to excavate to a depth of from 60 to 70 feet before a solid foundation can be obtained.

A far better site might have been chosen on the southern end of the island, where being at the outer point, the lighthouse would have been better placed for nautical purposes; no excavation would be required, as the solid rock is found at the surface, and quite as high above the level of the sea, as the rock they will reach when the excavation is finished. The building also would be half a mile nearer the quarry from whence the stone, which seems to be very good, is procured.

I represented the case to the Colonial Government, but the engagements entered into with the contractor were of such a nature that they could not be changed: a considerable time therefore must elapse, and a considerable sum of money expended before a single stone is laid.

Gabo Island affords plenty of very good water, but hardly enough firewood for the use of the people in charge of the light.

A Chronological List of the Hurricanes which have occurred in the West Indies, *Since the year* 1493; *with interesting descriptions.*

(Continued from p. 405).

1726.—On the 22nd day of October, about 9 A.M., a hurricane came on at Jamaica; it continued till half an hour after noon; so that its duration was only three hours and a half or four hours. The circle, therefore, was but a small one; and, from that circumstance, we may infer that its place of origin was not very remote.

Yet in the short period of its transit, the houses in Kingston, Spanish Town, and Port Royal, were well shaken, and many of them blown down. The east end, and the central parts of the island suffered most; and the effect of the storm is said to have hardly reached the western side. The winds are not given, but, from the above facts, we may infer that the meteor was moving well to the northward of west. Its small size, however, must be taken into consideration. At Kingston, Port Morant, Port Royal, and St. Ann's, above 50 vessels were destroyed; and, it is said that with the crews of these vessels, the unfortunate Ad-

miral Hosier re-manned his ships. Here it will be seen that the size of the meteor does not regulate the severity of the wind. That the storm may be as violent in a small circle as in a large one*.

1728.—August 19th, Lord Londonderry the governor of the Leeward Islands, landed at Antigua: he was detained on board the ship he arrived in, for 24 hours, in the harbour, by a hurricane, which did considerable damage on shore.

1734.—A hurricane at Jamaica did great damage on that island, and to the shipping.

1737.—The town of St. Louis in St. Domingo, was entirely destroyed by a hurricane upon the evening of September the 9th. All the sugar canes and cotton trees were destroyed, and all the ships there were stranded.

A hurricane, probably the same, did great damage at St. Kitt's and Montserrat. At the latter island it blew down all the windmills and houses, and carried away mules, negroes, and cattle into the sea. The sugar canes were all destroyed!

1740.—Antigua and Martinico suffered considerably from a hurricane.

Admiral Sir Chaloner Ogle was this year in the West Indies with a fleet of 27 sail of the line, &c., to reinforce Admiral Vernon's squadron.

1744.—On the 20th of October Jamaica was visited by a dreadful hurricane. It continued from 6 P M., and until 6 A.M., the next day. The wind was all the time from the south, (at Port Royal probably,) Musquito fort (Agusta) was demolished. Eight men-of-war, and ninety-six merchant vessels were stranded, wrecked, and foundered. Out of 105 vessels, only *H.M.S. Ripon* rode out the gale, and she without masts!

H.M.S. Prince of Orange, Bonetto, and Thunder, (bomb,) were wrecked, but the crews were saved. The *Montague* driven on shore and bilged. The *St. Alban* and *Experiment* also went on shore. The *Greenwich* sunk, and Captain Allen and 71 men were drowned. The *Lark* went down, and 110 persons perished in her.†

The eastern limb of this storm alone touched Port Royal; the body of the meteor, must, therefore, have been to the westward; yet considerable damage was done during the twelve hours of its continuance; which, no doubt, was principally caused by the exposed position of the Port.

The meteor was either a very large one, or its progressive rate must have been extremely slow, to have continued half a day, with the wind from one quarter. It will be seen from the accounts in the *Nautical Magazine*, that a storm of a similar character was experienced on the 4th and 5th of October 1844, at Montego bay; the wind from the south.

* The winds not being given I may be in error as to the size of the meteor; if the changes were between north and west, then only the south-west verge brushed the island, and the body of the storm being to the north-eastward, the meteor may have been a large one.

† Sixty-nine years afterwards another *Lark* perished on this station.

1744.—Oct. 20th hurricane at Jamaica.*

1746.—In January this year, Vice Admiral Townsend left St. Christophers to proceed to Louisburg, with a strong squadron. He reached the latitude of 40° N., when he encountered a severe hurricane, which obliged the squadron to return to the West Indies, except the *Princessa* and *Ipswich*, which bore away for England. The latter arrived at Plymouth, in great distress, April the 22nd, having lost fifty men during the passage, and had 200 dangerously ill when she came in, most of whom died in the hospital!

As there is no record of this storm having passed over the islands, it probably originated in the Variables.

It was experienced by a French squadron, under the Duc D'Anville.

1747.—Two violent hurricanes, one on the 21st of September, and the other on the 24th of October, created much damage among the leeward islands. Fourteen sail of vessels were lost at St. Kitt's, and thirty-six at the other islands!

1751.—On 2nd of September Jamaica was visited by a hurricane.

1754.— In September, a hurricane did great damage in St. Domingo, to the sugar and indigo plantations. Twelve ships were driven on shore, and 1700 hhds. of sugar destroyed.

1759.—In the month of September this year, a heavy gale of wind from the N.E., so greatly impeded the current of the "Gulf" stream, that the water forced at the same time into the Gulf of Mexico by the trade winds, rose to such a height that, not only the Tortugas and other islands disappeared, but the highest trees were covered on the Peninsula of Larga; and at the same time the *Liberty*, a snow, Captain John Lorrain, being caught in the gale, came to an anchor, as the master supposed, in Hawke Channel; but to his great surprise, found his vessel, the next day, high and dry on Elliott's island, and his anchor suspended in the boughs of a tree!

1761.—There is no entry of a hurricane this year, but I find two notices that appear so curious that I give them a place here. *Nevis.* The island was very sickly, *occasioned by the want of hurricane* and high winds.

Barbados.—Upon the 31st of March, at 4 P.M., the sea began to flow; at eight it appeared to ebb; but at ten it increased considerably, and continued so until six the next morning. A similar agitation in the water was observed there at the time of the earthquake at Lisbon, in 1755.

1762.—December 9th, at Carthagena, on the main, a storm from the southward, which was followed by an earthquake, destroyed great part of the walls of the town, and many houses: the flood from the mountains came down with a rapidity never before seen, and vast quantities of mud choked up the entrance of Bocca Chica. Two Spanish men-of-war were driven on shore, and the castle of Santa Maria was entirely destroyed.

* I have a note of one also in 1745, among the Isles.

This is unusually late in the year for a hurricane; but, there has been a recent instance of one, as late, at Vera Cruz.

H.M.S. *Marlborough*, 70, Capt. Burnet, on her way from the Havana to England, foundered in a storm on the 29th of November; the crew being saved by the providential aid of the *Antelope* of 50 guns, from Newfoundland.

The *Temple*, another 70 gun ship, and 12 transports, also foundered.

1765.—In July, St. Eustatia was visited by a hurricane: the storm reached Martinico, where thirty-three ships were lost, and at Guadaloupe six ships and small vessels perished. On the 1st of April considerable damage was done in Somerset parish, Bermuda, by an earthquake. Several shocks were felt at Dominica in April and May.

1766.—The provision grounds, and cane plantations at St. Eustatia were destroyed, on the 21st of September, by a violent hurricane: several vessels were lost.

The salt-works at Tortuga were also destroyed by a hurricane, and eight vessels driven on shore there.

On the 6th of October, five vessels were driven on shore at Dominica in a storm, and upwards of fifty sail at Guadaloupe.

During a storm on the 13th, 14th, and 15th of September, all the vessels at Montserrat, and thirteen at St. Kitts, were driven on shore and lost. At the former island half the town was destroyed, and upwards of 200 persons reduced to distress by the excessive torrents from the mountains.

On the 22nd and 23rd of October, a violent hurricane did considerable damage in the harbour of Pensacola. The Spanish fleet from Vera Cruz, for the Havana, and Old Spain, consisting of five large registered ships richly laden, were driven ashore in the bay of St. Bernard.

At Grenada, an earthquake destroyed several sugar works, and threw down the hills in several places, so as to obstruct the roads round the island.

At Martinico, upon the 13th of August a dreadful hurricane began at 10h. P M., with the wind from the N.W. At midnight the shock of an earthquake added to the horrors of the increased storm. At 3h. A.M., the gale abated, and at daylight the streets of St. Pierre's appeared covered with ruins. The roads were blocked up with trees blown up by the roots. The rivers had brought down fragments of rocks of large size, and the shore was covered with wrecks and dead bodies. At 5h. A.M., a waterspout burst upon Mount Peleus, and overwhelmed the neighbouring plains. At 6h. it was quite calm, and the sea smooth. Twenty-eight French, and seven English vessels were wrecked, besides twelve passage-canoes.

Ninety persons are said to have perished, many under the ruins of their own houses, and twice that number were wounded. On the 9th of June, a violent shock of an earthquake was felt in Jamaica.

1768.—On the 25th of October, a hurricane at the Havana destroyed 96 public edifices and 4048 houses! above 1000 persons perished almost instantaneously! The storm began from the *southward*, and

died away from the *north*: it did not continue more than *two* hours! The harbour also was much injured.

It is probable that in the annals of hurricanes none will be found where such damage was done in so short a time. It is remarkable, too, on account of the winds, if these are correctly given, being in a contrary direction to the Redfield theory.

Presuming it to have been a rotary storm! the meteor must have been progressing to the *eastward*, which is contrary to subsequent experience. There appears only one way of reconciling it to the theory,—that of considering the *north* wind to have been the "Accession" gale, and therefore, that it did not pertain to the circle; in which case we may assume that the eastern limb of the hurricane alone passed over the Havana; it may, however, have really been going to the east. There was nothing intervening in the course of the storm to deflect the wind; and if we suppose the meteor to have been moving to the north, that would account for the severity of the gale, as the course of the current of air would be going with, and parallel to that of the storm; and thus its force would be increased.

I find no entry in the records of Jamaica of a hurricane having been experienced in that island this year, which circumstance adds to our perplexity, because if the storm had come from the south-eastward it must necessarily have passed over that island, unless it was very small; in which latter case, its eastern margin may have passed clear of the island, and have struck the Havana; or it may have come up well to the southward of the island, and turned its course more northerly in the meridian of the Isle of Pines. I have been the more induced to enter into these particulars, as from the statement of the winds, the seaman may feel a doubt of the correctness of the Redfield theory.

1772.—On the 31st of August, H.M.S. *Chatham*, Rear Admiral Parry, *Active* and *Sea Horse* frigates, and *Falcon* sloop, were driven on shore during a storm in English harbour, Antigua. These vessels were subsequently got off.

Several ships foundered at their anchors in St. John's harbour.

At daylight of this day, the hurricane set in at St. Christopher's with the wind from the N.E., which blew down several sugar-works, and destroyed most of the plantations. At noon the gale abated, and the inhabitants thought it was over; but it was renewed again with the wind from the S.W.b.S., which blew with increased violence. Almost every house, sugar-mill, tree, and plant at Basse Terre, Sandy Point, and Old Road was blown down, or very much damaged; several persons were killed, and a great number dangerously wounded. The damage was estimated at £500,000 sterling!

At St. Eustatia, 400 houses, on the higher grounds, were destroyed, or rendered untenantable: all the plantation houses, except two, were blown down; and the Dutch church was blown into the sea.

At the island of Saba, 180 houses were levelled.

At St. Martin's, very few houses were left standing, and all the plantations were destroyed.

At Dominica, 18 vessels were driven on shore and lost.

Montserrat and Nevis had scarcely a house left standing.

At Santa Cruz, the sea rose *seventy feet* above its usual height, and carried away every thing before it! Large rocks were washed down from the mountains; meteors, like balls of fire, made visible the horrors of the night; 400 houses were thrown down at Christianstadt. All the houses in Frederickstadt, but three, were destroyed; and all the magazines and stores quite ruined. Every ship at the island was driven on shore; some of them 100 yards inland! The damage was estimated at 5,000,000 dollars.

At St. Thomas, the damage amounted to 200,000 dollars.

The *Dispatch* sloop-of-war was sent home express with an account of the hurricane, but unfortunately foundered on the passage; probably in the same storm after it had turned to the eastward. The crew were however, saved by H.M.S. *Panther*.

Such was the havoc of this memorable storm, the focus of which, passed directly over St. Christopher, Saba, St. Eustatia, and the Virgin islands, having a calm circle in its centre. The wind was probably from the northward at St. Croix; its progressive course was to the north-westward, whilst passing over these islands.

1780.—This year is memorable in the West Indies for the destruction occasioned by two hurricanes. The first occurred at Jamaica on the 3rd day of October; and the second, on the 10th of the same month at Barbados and other islands.

It had long been considered that these storms were one and the same, commencing in the west and proceeding to the eastward; but since Mr. Redfield's, exposition, and Colonel Reid's investigation, they have been proved to have been two distinct hurricanes moving in the usual course to the north-westward. The recorded account of the Jamaica storms gives the winds in directions which do not accord with the rotary theory, whilst the meteor was passing over Savana-le-Mar; but perfectly so in its transit over Lucea.

According to the statement the wind commenced from the south-east at 1 P.M. and at 4h. following, veered to the south, and continued in full force until midnight. At Lucea, the storm commenced with the wind from north-east, a calm for half an hour followed, and then succeeded by the wind from south-west; showing that the centre had passed directly over the locality from S.E. to N.W.

It seems probable that in the printing of the account a mistake had been made in naming the first wind at Savana-le-Mar, and it should have been north-east instead of "south-east." The damage done by this storm in one parish alone (Westmoreland) was estimated at £700,000 sterling!

The town of Savana-le-Mar, was entirely swept away by the sea that rolled in; and 300 persons perished!

Several men-of-war foundered, were wrecked, and dismasted. The merchants of Kingston subscribed £10,000, and the British Parliament voted £40,000, for the relief of the sufferers.

At 10 P.M. there was a smart shock of an earthquake at Savana-le-Mar when the waters subsided.

The hurricane of Barbados began on the morning of the 10th of October, and continued with little intermission for 48 hours! In the afternoon of the first day, all the ships were driven from their anchors to sea. In the course of the night Bridgetown was nearly laid level with the earth. Daylight presented a scene of desolation seldom equalled: not one house or building in the island, however strong or sheltered, was exempt from damage. Most of the live stock, and 4326 persons perished. The loss which the colony sustained was estimated at £1,320,564, sterling!

Some idea of the violence of the storm may be formed from the fact of a twelve-pounder gun having been moved a distance of 140 yards. Parliament voted £80,000 for the relief of the inhabitants.

The evening of the 9th, preceding the storm, was remarkably calm; but the sky was surprisingly red and fiery; during the night much rain fell. On the morning of the 10th it rained heavily with the wind (which appears to have been the precursor gale) from the north-west. At 10h. P.M., the wind was N.N.W., increasing. The following morning the storm was still raging.

The log of H.M.S. *Albemarle* appears to be at variance with the above account, with reference to the wind. Reducing it to civil time, we find that, A.M. on the 10th. it was blowing very hard from E.N.E.; at 1h. P.M. the wind was N.E.b.N.; at 2h., N.N.E.: and at half an hour after midnight (that is 0h. 30m. on the 11th,) a hurricane, with rain; wind shifted round to the westward. She did not slip from Carlisle Bay until 2h. P.M. on the 10th, at which time, the wind was N.N.E., which is more to be depended upon than the former account.

At Martinique the storm commenced E.N.E., and veered to the south and south-westward.

Many of the other islands suffered, and a great number of vessels were lost. This storm progressed to the north-westward, and it, as well as the hurricane which preceded it on the 3rd, created disaster among the shipping in the Atlantic, far to the northward of the islands. Colonel Reid, C.B., in his admirable work on the "*Law of Storms*," has given the routes of both these hurricanes, on a chart.

1781.—On the 1st of August, Jamaica was visited by another hurricane, H M.S. *Pelican*, Captain Collingwood, was wrecked on the Morant, Cays on the 2nd, whilst the gale continued. This storm is said to have commenced from the southward and veered to the south-east. This veering of the wind would give a south-east course to the meteor, disagreeing with the theory. The south-east wind was probably the "Accession" gale, unless there was a mistake, and we should read "south-east veering to south." A great number of small vessels were lost, two loaded ships were sunk, and 24 were stranded.

1782.—I find no entry of the hurricane which proved so fatal to Rear Admiral Graves' Squadron (in their passage home from Jamaica,) made

in the annals of the West India Islands; it probably originated in the variable latitudes.

The squadron was composed of the following ships: *Ramillies* (flag) 74, *Canada*, *Centaur*, *Pallas*, *Ville de Paris*, 104, *Le Glorieux*, *L'Hector* of 74 guns each; *L'Ardent*, *Le Jason*, and *Le Caton*, each of 64 guns; 100 sail of merchantmen. The convoy sailed from Bluefields, on the southern side of Jamaica, on 25th of July, in the latitude of 43° 33′ N.. and longitude 42° 20′ W., the squadron encountered a hurricane from S.W. to N.W.*

The *Ramillies*, *Centaur*, *Ville de Paris*, *Glorieux*, and *L'Hector* foundered; with many of the merchant ships. Captain Inglefield, of the *Centaur*, the master, a midshipman, and a boatswain escaped in the pinnace, and in sixteen days afterwards landed at the Azores.

The fate of the *Ville de Paris* and *Glorieux* was ascertained in a very extraordinary way.

A Danish merchant ship from the West Indies, fell in with a fragment of wreck, with a man upon it, who was quite insensible and for some time motionless! His name was Wilson, and he belonged to the *Ville de Paris*; and as she was foundering he adhered to a part of the wreck, which floated. He saw the *Glorieux* founder the day before the three-decker sunk.

L'Hector, Captain Bourchin, on the 5th of September had engaged, and beat off, the French frigates *L'Eagle* and *Gloire*; the action lasted three hours, and the gallant captain was desperately wounded.

The ship subsequently, was dismasted and lost her rudder, and was very leaky. Indeed, she was so shaken that, part of the orlop fell into the hold. Some of the crew died at the pumps, having been three days without water or spirits.

The ship foundered but happily the crew were rescued on 3rd of October by the *Hawke* letter of marque, and conveyed to Newfoundland.

1784.—30th of July, Jamaica was visited by a hurricane. During the night every vessel in Port Royal, excepting four, was sunk, dismasted, or driven on shore, and numerous lives lost. The barracks at Up-park camp were blown down, and five soldiers killed; other disasters occurred. The storm began at 8h. 30m. P.M., and continued till past 11 P.M. Two severe shocks of earthquake were felt.

St. Domingo suffered severely from a storm during the 1st, 2nd, and 3rd of August.

1785.—On the 27th of August, Jamaica again suffered from a hurricane.

1786.—On the 20th of October a hurricane passed over Jamaica. The trees were stripped of their leaves, and appeared as if fire had destroyed their verdure. The shores were covered with aquatic birds that had been dashed against the trunks of the mangroves and killed.

In August, a violent storm laid waste the southern coast of Española.

* Meteor moving to the east.

At St. Eustatia, it drove all the shipping to sea, and destroyed most of the small craft in the harbour.

Upon the 10th of September, Guadaloupe was swept by a hurricane, which destroyed most of the plantations, and wrecked three ships in the harbour.

On Saturday the 2nd of September, an alarming hurricane threw the inhabitants of Barbados into the utmost consternation. At 11h. P.M., when the storm was at its height, a meteor in the S.E. quarter, issued up with a dark cloud, and spreading its diverging rays to a vast circumference, continued with unabated splendour nearly *forty* minutes!

On the morning of the 3rd, Carlisle Bay was a scene of desolation, not a vessel had ridden out the storm. In the country great damage was done to the houses and the crops: many persons were killed in the ruins of their own dwellings.

This year Prince William Henry (afterwards King William the 4th,) arrived in the West Indies in command of the *Pegasus* frigate.

1787.—September the 23rd, at Belize, Honduras, between the hours of 4 and 5 A.M., a hurricane came on from the N.N.W. About 10h. it shifted to the S.W., and blew with increased violence. At the same time the sea rose and prevented the running off of the land floods. The low lands were consequently overflowed: not a house, hut, or habitation of any kind, on either side of Belize, was left standing; more than 500 dwellings were thrown down. One hundred persons perished; dead animals and logs of mahogany were floating about in every direction, eleven square rigged vessels, besides small ones were totally lost.

This storm was progressing to the W.N.W.

On the 3rd, 23rd, and 29th, of August this year, the island of Dominica was visited by hurricanes, which destroyed all the vessels at the island.

The barracks and all the buildings on Morne Bruce were blown down, and destroyed, and several houses in the town shared the same fate.

1790.—At Nevis, in August, 20 vessels were driven on shore by a hurricane and completely lost. Mr. Hamilton's sugar works and all the stores were destroyed.

His new mansion, which had been built upon pillars, was lifted up by the wind and removed to some distance, but being well made, did not go to pieces. Mrs. Hamilton, two ladies, and five children, were in the house, and suffered little or no harm! Mr. Hamilton being absent from home, knew not what had happened; but returning in the night, which was excessively dark, and groping for his door, fell over the rubbish left near the spot, and so far hurt himself, that he was confined for a week. An old uninhabited building which stood close to the house, was lifted from the ground, and thrown upon the new habitation; so that they expected every moment to be buried in the ruins of both!

1791.—On the 20th of October, a hurricane passed over Jamaica.

1792.—Upon the 1st of August, several plantations at Antigua were destroyed by a hurricane. Most of the other islands also suffered.

1793. In August St. Christopher's was considerably damaged by a

hurricane. On the evening preceding the storm, there were nearly 30 vessels at anchor in the roads, but in the morning none were to be seen, except those stranded at different places along the coast.

1795. On the 10th of August a hurricane passed over Jamaica.

An Eye to Windward.

"Time! [is] the corrector where our judgments err.
The test of truth,***—sole philosopher,
For all besides are sophists."

If we look back and take even a hasty view of the progress of knowledge and enlightenment of the human mind during past ages, we shall be struck with their slowness. One reason of this gradual development may, perhaps, be traced to the incessant wars which desolated Europe, and which sprang from the ambition and jealous rivalry of princes, rather than from the passions of those whom they governed.

A long interval of peace, which afforded leisure for reflection, has given rise to a considerable advance in general knowledge, and one effect of this augmentation of mental power is, the spurning of the slow hand of innovation.

The tyranny and oppression of absolute monarchs over subjects, whose ignorance and habitude of subserviency kept them from vindicating their natural rights as men,* have been gradually undermined by the force and irresistible increase of the power of knowledge; and the consequence is that, a new order of things has suddenly burst forth: an occurrence which the stubbornness, or the blindness of the former would not, or at all events did not avert, by timely concessions.

That the change may ultimately prove of benefit to the world is to be ardently hoped; but such a great revolution in the sentiments and feelings of millions, cannot be expected to settle down into quietude in a short space of time. It is remarkable, but true, that the art of governing large communities with justice, had not, on the continent, kept pace with the strides which the governed were making in general knowledge: hence the present condition of Europe.

Happily for Great Britain she appears to have been in advance of the nations of the continent in the perfection of her institutions, and especially so with reference to civil liberty, and consequently has been free from those serious agitations which have shaken, and still continue to shake those of other less favoured countries; and whilst we rejoice at this, and hope that her internal tranquillity will be preserved by the good

* Such as are enjoyed in our own happy country.

sense of her people, and the wisdom of their rulers, let us not be unmindful of the probability that, at some future day, the jealousy and ambition of those nations whose constitutions are now being remodelled, may induce them to combine for the purpose of humbling her pretensions to the "supremacy of the sea".

It is true, our immediate neighbour has "preached peace", albeit, with the glove cast down, and the glave drawn; but admitting sincerity, it would appear that the La Martines are but ephemeral! A martial spirit is on the ascendant now; its sphere of action is however, from necessity, confined to home; how long it may be so, who can tell? Such a spirit is a very Proteus, it is capable if assuming all shapes,—a friend to day, to-morrow, perhaps, an enemy,—it is not to be trusted. The principal object of this paper however, is the introduction of an interesting extract from a French author on naval matters, which appears to be worthy of the calmest consideration; for, if the "*fas est ab hoste doceri*" was not disregarded during the last American war, surely we may now ponder on the words of an old rival, in amity ? We have still a few more remarks to note before giving the extract.

We know that gigantic Russia has a large navy, divided by two points wide apart by sea, but which may be communicated with on land and interval navigation,

The Dutch, Danes, and Swedes, what of them? Have they no remembrances, no jealousy of England's maritime power? The mutation or reciprocal exchange of diplomatic or political courtesies is no proof that envy, and a desire to resent old wrongs, do not exist in one party, whatever may be the feelings of the other. Combined, their squadrons would form a good fleet, the seamen of all are excellent. We may leave out the Spaniard who has little left him but his pride. The Portuguese, naval? they were, but are not. Our trans-atlantic brethren quietly "go-a-head" with their monster ships. Would they back us for consanguinity sake "against odds"! It is an important question not answerable, but less weighty, than—, would they join the odds against us? quite as unanswerable; relationship, no! trade is the tie that would fasten them to neutrality, provided, their old motto was respected; but if we choose to be liberal and careful of our blue-jackets, the Americans will have to breed up their own seamen to man their fleet, ere they can hope to make a show in the line, to any purpose; and that in all probability, would not be before the praries became peopled; and a war against England would probably, too, be the signal for a *Black* "episode"!

Italy, Greece, Egypt, and Turky, maritime still, but that is all: the spirit of Genoa and Venice has seen its day long ago: Athenian "glory", dead; how many ages since? The Alexandrian light, (commercial;) Vasco de Gama extinguished; Navarino spoiled the Musselman's conceit; the Cresent! owns no longer a Soliman; "the magnificent of Tyre and Sidon," ask the fishers; Carthage "the mighty? a watery grave "full five fathoms beneath" the wave! Toulon? aye we are taking care of Malta, the prestige of Aboukir is respected, the name and the deeds of a great man survive the grave. But, nearer home, a voice has sounded amid

the turmoil for universal liberty, which, if not portentous, would seem to demand our attention; not that the present generation of Englishmen would have any thing to apprehend should the proposal be realised.

When a state is heavily in debt, and the expenditure is greater than the revenue, retrenchment, where it will not risk the defensive arm of the nation's power, becomes a pressing necessity. That is an undisputed point, but economy may take a wrong direction; in which case, we should fall into a greater evil than that which previously pressed upon our consideration. No doubt the weight of taxation is a heavy burden upon the industry of the mass, but the relief should not be made by the reduction of the naval estimates. The real patriot however, looks beyond the present; there is a selfishness in shutting out the future from our consideration, because our pockets may suffer; the lover of his country will ever deem it an imperious duty to leave nothing undone which may benefit posterity: leave nothing for the suceeeding generation to reproach their predecessors with in the way of an efficient *defence* from foreign *league*.

Among other points which the confederate regal states of Germany contemplate as essential, is, the formation of a national fleet! This is, the voice alluded to. If effected, can we doubt but that next to that of Great Britain, it will be the most formidable, numerically, of any single power of Europe?

In a future war, such as England once had to sustain against the great powers of the Continent combined, what the result would be, it is impossible to foresee, but the aim, it would not be difficult to pronounce.

A war of that description levelled against our "supremacy of the ocean" would come with alarming odds, when such a vast power as Germany united, added its quota of ships of the line and steamers, to those of Russia, France, Holland, Sweden and Denmark! A strange coalition; strange, without a doubt, but quite possible nevertheless. France may now watch Russia and Germany, and Germany France; Denmark and Sweden, may not feel very easy with so potent a neighbour in their own pent-up sea, as the Autocrat of the North; and Holland may not have forgotten the "Consulate and the Empire," but they all agree in one point: a thorough repugnance of England's maritime "supremacy".

We may be prepared to meet any single power, or even more than one, at the present day; but, if we desire that our successors should retain independance and freedom from foreign yoke, we must increase our navy of large ships, and encourage and protect our seamen, instead of selfishly and unwisely paring down the naval estimates to the smallest possible sum, because no immediate danger is apparent. A liberal annual outlay carefully applied, for the perfecting in every way that arm of our collossal power, which has been, and always will be, if properly supported our safeguard, is a policy paramount to all others. Even under the present condition of the Continent. our vigilance may be put to the test: "*Proximus a tectis ignis defenditur ægre*",—To save your house from neighbouring fire is hard.

Those who pertinaciously demand the reduction of naval expenditure, are no doubt influenced by something more than an habitual feeling of

economy; their sincerity, patriotically, may not be doubted, but unquestionably there is a wide difference between "mean-well" and "wisdom".

Let us not disregard the fact, because an arm of the sea separates us from the Continent, that, the European world is up in arms, shouting for freedom for political and social regeneration; and that the elements of strife have suddenly and unexpectedly been scattered over almost the whole superficies of the most civilized portion of the globe. We are fortunately exempt from the immediate consequences. But a year, a month, nay a day, may not pass 'ere we find ourselves involved! The union of states is being effected—"union is strength". When this shall be gained, the next step probably will be the levelling of any ascendency of one great power over another, or which may have a bearing upon all others, such as England's "supremacy at sea" is assumed to be and to have, by foreigners. That, perhaps, will be the sequel to the present "move"; at least it is a fair inference from the well-known fact, that Great Britain is more feared than loved by the rest of the world, and that, however, smoothly, from her power, riches, and resources, words of amity and deference may flow from the lips of other nations, towards her, jealousy, envy, and a hearty desire to see her naval superiority lowered rankle in their hearts.

There are a thousand things to call up the remembrance of the past, when the pendant of England floated over the ocean as a symbol of her supremacy.

If other nations look back, we, in like manner, may bring to our recollection, profitably, the cry of our relatives on the other side of the "great waters", "free trade and sailor's rights" just before the banner of the "stars and stripes" unfurled its folds beside the warrior's (Guerrier's) flag, that flag which, had "braved a thousand years the battle and the breeze!" as strange an event, if not stranger than the coalition adverted to. The result, who would have previously believed? Not the gallant captain who so bravely and devotedly fought his ship to the last. Then let us not be too incredulous on the former head. We do not pretend to the *clairvoyance* of a Joseph Balsamo; but, it is not necessary to be a sorcerer to predict that, what has once happened, may happen again, and under more critical circumstances.

Here is the promised extract; it is from "De la Gravier's Sketches of the last war."

"The battles of Aboukir and Trafalgar have overturned the olden ideas of naval tactics. Have they substituted rules of an infallible strategy, a strategy which it is the interest of our admirals to study? There are, doubtless, circumstances wherein they might profit by those daring examples. But those tactics, we think it has been sufficiently proved, can only be used by the strong against theweak, by veteran against unpractised navies; and it is not against such that *we have to prepare*:* it is against an enemy who remembers the lessens of Nelson, and will be ready to practise them again if we only oppose him with a new order of battle, instead of with better squadrons."

* The Italics, throughout, are ours, excepting "Victory."

The sense of this passage appears rather obscure. We imagine it is meant to infer that, if the French offer some new order of battle, the ready resource of the enemy (British) will meet it by defeating the object comtemplated, but that well constituted squadrons are necessary to admit of the chances of success against those who remember the lessons of Nelson. We resume:

"The last war presents subjects more worthy of our study than tactics. The English did not owe their triumphs to the number of their ships, to the greatness of their maritime population, to administrative wisdom, nor the wise combinations of the Admiralty. The English beat us because their crews were better trained and the squadrons better diciplined than ours. That superiority was the fruit of some years cruizing; and was the work of Jervis and Nelson." We may safely add, and of many more devoted spirits, not in the Admirals' list alone, but in the Captains: but, was there nothing more, nothing in the nautical genius of the people who won?

"It is the secret mechanism of that silent and gradual work which we must investigate; for we must study Nelson organising his fleet, 'ere we can understand him fighting with such rashness; we must examine the means before we can comprehend the end.*** The things which Nelson attempted with his ships during his remarkable career, the risks and perils to which he exposed them in his adventurous Odyssey, will strike every seaman with astonishment. Not to speak of Aboukir bay, into which he led his squadron at sunset, with no other guide than a wretched sketch found in a French merchant ship, without recalling his perilous expedition in the Baltic, where is there an officer who will not admire his last cruize in the Mediterranean, wherein he conducted his fleet, and that old *Victory*, accustomed to more careful treatment, through unknown passages, which even in the present day appear impracticable for such ships?"

With nearly similar admiration, may not the run across the Atlantic to the West Indies and back, denoting enthusiasm unparalleled, be considered?

"There were no difficulties of navigation which, in such a school, the English did not learn to surmount. Such is, in part, the secret of those persevering cruizes which even in the depth of winter kept our ports blockaded, and our shores alarmed. Such is the best explanation of those rapid movements which disconcerted our projects, those unforeseen circumstances by which the English squadrons seemed to be multiplied over the face of the globe.

"That which we most profitably study in Nelson, that man of such prodigious energy, as well as of such uncommon valour, is still more his nautical activity than his military daring. It is by taking this view that we recognise all the importance of that collection (*Nelson's Despatches, &c.*,) which has served as the basis of this work. The monument which has been raised with religious care to the hero of England is also an historical monument. These semi-official despatches, the unstudied effusions, affording unquestionable proofs of the ardent love of the ser-

vice, the professional enthusiasm which distinguished Nelson above all his rivals, transport us into the heart of the enemy's camp, and enable us at this day to enter the tent of Achilles.

"For our own part, we rejoice to say we return from this excursion more *tranquilised as to the future*, more *assured*, even by our reverses during the late war, since they neither arose from the character of our population, nor from the nature of things, but from the *temporary* inferiority which circumstances had imposed upon us."

It would, perhaps, be in bad taste to dispute this conclusion; or to say, "*Ipsi sibi somnia fingunt*",* as whatever may be thought or expressed, the truth lies in the future as the proof of the conclusion. The peroration, however, embraces very patriotic sentiments encouraging to the French marine, and by no means offensive to that of England: we have no wish to disturb the pleasing inference of the author, but we may express our obligations to him for the compliments he has so honestly and honourably paid to our great Sea-Captain, and to the merit of the British Navy. The hint he has thrown out of assurance for the future, may not be disregarded by us, however much we may be satisfied in ourselves, that the spirit, the tact, and the practical seamanship which closed the naval campaign of the last war, on the 21st day of October, 1805, still remain with us in their full, and therefore, undiminished strength. We have therefore nothing to apprehend, as far as officers and seamen are concerned; and no doubt those whose province it is to watch, and provide for the means of defence will be "*toujours prêt.*"

ARGONAUT.

DESCRIPTION OF THE MADEIRA ISLANDS.—*By Capt. Alex. T. E. Vidal, R.N., of H.M.S. Styx.*

(Continued from p. 413.)

PONTA Tristao, the north point of Madeira is a high bold bluff 1070 feet above the sea, in lat. 32° 51′ 31″ N., and long. 17° 12′ 25″ W. At the foot of it are a few sunken rocks which extend off 130 yards; but 240 yards north of it there are 7 fathoms, at a quarter of a mile 8, at half a mile 27, at three-quarters 36, at one mile 42, and two miles 200 fathoms, fine dark sand.

On the heights three-quarters of a mile to the southward of the bluff, at an elevation of 1709 feet is the parish church of Magdalena.

North 60° 30′ E., 0·86 of a mile from Ponta Tristao, and about half a mile from the beach abreast of them, is a singular little cluster of flat rocks, a few feet above the sea, called the Rochas de Rabaçal. The northern one forms a crescent, its horns pointing towards the shore. Other narrow rocks fill up the space in front of the horns, leaving the

* With voluntary dreams they cheat their minds.

centre open. In strong winds or with any swell the sea rolls over them with heavy breakers; but they are steep to, with 10 fathoms within a boat's length of the surf; have no outlying dangers, and in the channel between them and the coast the greatest depth is 17 fathoms.

From Ponta Tristao to Ponta Moniz is one mile and a half. The coast between the points consists of very high cliffs, with a narrow stony beach along their base, which is broken through by two bold rocky bluffs, the first three-tenths and the second five-tenths of a mile from Ponta Tristao. Nearly midway between the latter bluff and Moniz point there is a deep break or gap in the cliffs and a Ribeira ; and in front of the Ribeira a few rocks lie out about 100 yards from the beach. A little further eastward, and one mile from Ponta Tristao is a low cliffy point of very rugged black lava, with a rocky flat extending from it seventy yards to seaward ; and at the extremity of this flat are numerous small detached rocks, which lie around it to about the same distance. From hence it is three-tenths of a mile to the outer extreme of Ponta Moniz.

Ponta Moniz is formed by a mass of lava running out north-east about 470 yards from the general line of coast, and looks as if it had flowed over the cliffs into the sea from the heights above them. The base of the point, which is its most elevatad part, is about 420 yards broad: from thence it slopes to the outer extreme, and becomes low and narrow.

The shores of the point have a very irregular broken outline, especially on the west, where the action of the sea appears to be most violent and the most continued. The cliffs on that side are of a steep iron-bound character, sharp and craggy, and have several rocks lying at their base. On its eastern side about 160 yards from the extremity of the point, there is a small fort, having a circular tower at its entrance, which is built close to the shore on a little rocky bluff. On either side of it are detached rocks ; and right off the bluff are four others lying in a strait line from it. Alongside the outer one there is a depth of 9 fathoms, 140 yards south-west of this is another rocky point and another round tower, at which is the best landing, as at a jetty, with 4½ fathoms close up to it. Here the low rocky cliffs terminate, and beyond is a sloping shore of rock for about 120 yards, on which the fishing boats are hauled up. A narrow coarse shingle beach then succeeds with high bold rocky cliffs towering above it to the Janellas.

The town of Moniz is situated on the higher part of the point, the chapel being about one-third of a mile from the landing place ; but there are several small detached dwellings on other parts of it, and nearly the whole point is covered with stone enclosures, and devoted to the cultivation of the vine. A tedious zigzag road leads from the town to the height above it, where there is a village and some good farms.

In front of Ponta Moniz at the distance of 120 yards is an islet bearing the same name, composed of yellow tufa, resting on black lava. It measures nearly 300 yards from east to west ; about 110 from north to south, and is 205 feet in height. Its shores are precipitous and its summit, which is difficult of access, is the favorite resort of sea-fowl. The soundings off it are deep, and there are 16 fathoms close up to it. The

channel between the point and the islet is obstructed by a large black mass of rock of some elevation, and by various smaller ones, both above and under water. The bank of soundings on the meridian of Ponta Tristao extends off two miles from the land; but after passing the Rabaçal rocks it turns to the south-east, and becomes more contracted, approaching within 0·65 of a mile of Ilheo de Moniz, and continuing to the eastward about the same distance from the Janellas, and nine-tenths of a mile from Ponta Seiçal.

The little bay, locally designated Porto Moniz, has much foul ground in it from Moniz islet along its shore to the eastward, for the distance of half a mile, or half its extent, and to about a quarter of a mile off the beach. It is in fact a rocky bank, varying in depth from 2 fathoms near the shore to 10 on its margin; and outside 10 fathoms: the quality of the bottom generally is fine dark speckled sand.

On the summit of Ilheo de Moniz, Tristao low extreme point bears N. 87° 55′ W., and is distant one mile and a half; and Ponta San Jorge, the extreme point seen to the eastward, bears S. 81° 41′ E., distant 13½ miles. In this latter space the coast forms a bay, which at St. Vincente is 2¾ miles within the points.

The first objects to the eastward which attract attention, on quitting Point Moniz, are a group of rocks called the Janellas, lying near the outlet of that Ribeira. They are five in number, and the outer one which is largest, bears from the summit of Moniz islet S. 41° 41′ E., distant one mile. Like that islet it is composed of yellow tufa upon a base of black lava, and is about 133 feet in height. The top of it is covered with coarse grass; seventy yards eastward of it is a breaking rock surrounded by deep water; 100 yards west of it is a high narrow shaft of naked black lava with a hole through it, which viewed from the north-east appears like a lofty column; the three other rocks lie near this on the south, and are small and low, the inner one about sixty yards from the beach. The two largest rocks are steep to, at their north end, having 11 fathoms within fifty yards of them, and there are boat channels between them all.

The coast from Ponta Moniz to the Janellas is a wavy line of narrow stony beach, surmounted by high cliffs, with lofty hills above them. The beach is broken through in two places by clean rocky points, the first three-tenths, and the second seven-tenths of a mile from Moniz landing place, and two-tenths of a mile further is the great Ribeira of the Janella. The outlet of this Ribeira is a narrow gorge from 70 to 80 yards across, situated a short distance (50 or 60 yards perhaps,) from the beach in front of it, which the stream in its progress to the sea commonly flows over without displacing. S. 52° E. 2·65 miles from the outer Janella is the point and village of Sieçal. In this distance the coast falls back nearly half a mile. The beach as before is narrow and stony with several small rounded points; much of the land is cliffy, precipitous, and very high, with a few streams of water falling down it; and there are several small slopes of land at the foot of the heights which are inhabited and cultivated. A bold rocky point breaks this general feature four-tenths

of a mile eastward of the Janella; and the stony beach ceases on reaching Seiçal point.

Seiçal Point is a comparatively low rocky piece of land, projecting about three-tenths of a mile from the general line of coast, on either side of it. It has great variety of feature, being broken into several little rocky bluffs and coves, studded with numerous detached rocks, some large, some small, which lie close about them, embracing in their whole extent six-tenths of a mile. The cliffs of the point are highest on the west side, gradually declining to the eastward. The land from the top of the cliffs, towards the interior, shews a steep, but gradual slope, which is cultivated and dotted over with dwellings. The town is built on the top of the point, a short distance from the cliffs, surrounded by vineyards, and the Ribeira of Cocado passes through it, and has its outlet nearly in front of the church.

Between the western extreme of the point, and a waterfall, nearly half a mile beyond it, there is a low cultivated piece of land, apparently a land slip, and several habitations. A small round stony point lies in front of it, and the heights behind receding from the coast, afford a more open view of the country.

The best landing place at Seiçal Point is on the largest rock, at its eastern extremity, which, on that account, is connected with the shore by a wooden bridge. The point is steep to, having 9 fathoms close to the outer rocks; from thence to the N.E. it deepens gradually to 50 fathoms fine dark sand, at seven-tenths of a mile off; and beyond that, it goes off rapidly to 200 fathoms, at the distance of nine-tenths of a mile from the point.

From the outer extreme of Ponta Seiçal, Ponta del Gada, bears N. 88° E., distant $5\frac{9}{10}$ miles. Close to the S.E. of the former point, are two small bays. The nearest is surrounded by a stony beach, the further by a wall of cliffs, and each is terminated by a bold steep rocky point. The eastern one, which is four-tenths of a mile from Seiçal Point, is the most prominent, and on the east side of it, about 70 yards off, is a large rock, with a small one lying out 100 yards to seaward of it. Beyond this, a coarse narrow stony beach surmounted by high bold lands, broken by mountain streams from the northern declivities of the Paul do Serra, extends about $2\frac{1}{2}$ miles to the Ribeira of San Vincente. In the first nine-tenths of a mile of this distance, there is a piece of low land at the foot of the mountains, with a few huts upon it; and on the west of San Vincente, another of greater extent, with houses and cultivated enclosures. The stony beach in front of it forms a round point, making a little bay to the eastward, in which is the outlet of the Ribeira of Vincente, marked by an isolated sugar-loaf rock, standing a few yards within the beach. This rock has been excavated, and converted into a chapel. The waters of the Ribeira flow over the shingle beach to the sea, without producing any change in its outline.

One quarter of a mile to the eastward of San Vincente, is another round stony point, with several large flat rocks, and stones in front of it, 150 yards from the shore. From this point it is three miles to Ponta

del Gada, and the coast line is very much similar in character to that last described, though the high land above the stony beach, for about a mile and a half along the sea face of the great Lomba, east of San Vincente valley, is more bold and precipitous. At this distance, too, the beach is interrupted by large fragments of rock lying close to it. Three-tenths of a mile further is a black rocky bluff, near which the very high lands recede from the coast; and, from that bluff, a coarse stony beach continues to Del Gada, with cliffs still rising from it, but of little elevation.

Ponta del Gada, is a comparatively low point, projecting out three-tenths of a mile, and composed of rocky cliffs, with a beach of rocks and boulders lying at their base. There is a town upon the top of it situated near the cliffs, from which the land rises towards the interior of the island, and shews a considerable extent of country, dotted with houses, and overspread with enclosures and other indications of cultivation, amongst which the vineyards are most conspicuous.

Close round the point on its eastern side, is a small bay, with a little bit of fine shingle beach in it, which offers the best landing. The ground about the point is foul, with rocks and large boulders extending from it under water, to the distance of about 300 yards, upon which there is generally a little swell, and at times tremendous rollers, and heavy breakers.

On a N.W. bearing, the edge of the bank passes round it at a distance of one mile and four-tenths, and on a N.E. bearing, two miles and six-tenths. One mile and four-tenths eastward of Ponta del Gada, is a bold black point, named Ponta do Arco. The coast between the two points is formed by lofty cliffs, which commence at the little bay, on the east side of del Gada. Some large stones lie at their base as usual, but several small bold points are to be seen projecting through it, and three or four mountain streams. Nearly midway, are a few large detached rocks, the outer ones lying nearly 400 yards off-shore, with 7 fathoms close up to them. The largest of them named Rocha de Boa Ventura, is pointed, and of a reddish-brown color. A group of low rocks lie off about 230 yards to the W.N.W. of it, and there are several low isolated rocks between it and the shore.

Abreast of this rock are two Ribeiras; the larger named Entroza, has its source amongst the great mountains, a mile and a half west of Pico Ruivo; there are two white houses at its outlet. A quarter of a mile to the eastward of Boa Ventura, there is another and much larger rock, named Bacha; a mass of black lava of some little elevation, about 50 yards from a sharp rocky point on the shore. Ponta do Arco, is a bold rocky bluff, with a few low rocks at the foot of it, and a run of water on the west. Nearly three-quarters of a mile inland from it, there is a very conspicuous sharp wooded peak 2746 feet above the sea, which proved a most valuable station in the survey of the island, from its unmistakeable peculiarities of feature. It forms the summit of the Arco de San Jorge. The mountain from its base, to a considerable height up

the seaward side of it, contains a good deal of cultivated land, and numerous very humble dwellings embowered in trees and vineyards.

From Ponta do Arco to Ponta de San Jorge, the distance is about 2¾ miles. The coast between them is high, bold, and precipitous, with rocky cliffs of varied elevation; and between them there are a few patches of cultivated land on some slopes below the heights, near the sea. Along the whole point of it, is a narrow beach of stones, broken through at intervals by small clean black rocky points, and about midway is a small Ribeira: but there are no outlying rocks, and the whole coast is clear and free from dangers, with 4 fathoms water within 200 yards of it.

Ponta de San Jorge is in lat. 32° 39′ 44″ N., and long. 16° 54′ 47″ W. It may be termed the N.E. extreme of the island, and is a high, bold, rocky bluff, nearly 700 feet above the sea. The perpendicular cliffs which face it are of a dirty red color. At the base of it is a little low rocky spur which extends out about 100 yards, and is steep to, and clear without any rocks or stones, so, that, it is not difficult to land on when the weather is favorable, though there are no means of ascending from the spur to the heights above it. On the western side of the point the high cliffs extend without any interruption for half a mile, and are crowned by hills 1142 feet in elevation. On the south-eastern side of the point, at the distance of a quarter of a mile, the cliffs are intermingled by a bold but narrow rocky point, with a very high cliff on its eastern side, and a land slip at the foot of the cliff. Two-tenths of a mile in front of this point is a small low rock just seen above water, on which the sea commonly breaks. It lies S. 81° E., three-tenths of a mile from Point San Jorge, and is surrounded by deep water.

On the meridian of Point San Jorge, at the distance of a quarter of a mile, there is a depth of 19 fathoms; at half a mile, 30 fathoms; at three quarters of a mile, 40 fathoms. Beyond this it deepens rapidly to the edge of the bank, which is one mile and a quarter from the shore. The next point to the south-eastward is Santa Anna, bearing from San Jorge S. 59° E., and distant one mile one-tenth. Upon the same bearing there is a large isolated rock (Ilheo de San Jorge) 134 feet in height. It lies three-tenths of a mile from Santa Anna Point, 270 yards from the shore. There is a depth of 7 fathoms alongside of it on the N.E., and of 3 fathoms between it and the land abreast. The coast from Point San Jorge to Santa Anna Point, forms a bay a quarter of a mile in depth, bounded by a stony beach, and in the centre of it is the Ribeira of San Jorge, with a few houses, and a small fort, built on its western side. There are also some fishing, and large wine-boats belonging to the place, usually hauled up near the houses. The Ribeira has its head waters near the Ruivo and Canario Peaks, five miles inland; and from its breadth and the large stones in the bed of it, there must be a great body of water occasionally discharged; yet, the figure of the beach in front of it, over which it flows is not at all changed. The land on either side is high and precipitous, and there are some steep cliffs between the Ribeira and the Ilheo, to the S.E. of it.

Consular Papers.—No. I.

Sir.—Permit an old subscriber to request your co-operation for the benefit of a service, to which your pages convey most useful information, while part of its office is to attend to all those matters relative to navigation to whose illustration your labours are devoted. A connexion thus maintained by identical objects may have some claim to your advocacy, and I have reason to believe that such an advance on your part would be properly felt by those to whom you may make yourself useful, and be a great inducement to them to contribute much local information, required by your readers, that does not now find its way to the public.

I allude to the Consular service, so important to the British trade, yet so little known at home; which, charged with such high interests in all parts of the world, has no organ of public representation; and requiring the highest qualifications, has no instructor, keeping pace with the continual progress of all knowledge, to lead it down the stream of improvement.

So important a branch of the public service ought not to be without a periodical organ in whose pages its routine may be simplified by approved example; its efficiency ensured by declaration of its rights; its errors prevented by elucidation of its omitted cases; and its sphere of utility enlarged by direction of its researches. Consuls resident in the same dominions are frequently unacquainted with each other; and, as strangers, are unwilling to request that reciprocal advice and enlightenment which, in their varied existence, they are competent to afford. What these officers might imperfectly be, and sometimes are, in their correlative position, a home publication like yours, which is found in all quarters of the globe, could be made to the whole service.

I have heard too many complaints from Consuls of the want of such an aid, to doubt for a moment that its appearance in your periodical will be seen by them with the highest satisfaction; and I am confident that, while they gladly take advantage of your guidance to communicate information interesting to their own service, they will, on other points, be among your most useful correspondents.

To the Editor N.M. B. C.

[We entirely concur in the justness of our correspondent's remarks. and assure him that our part shall not be wanting to render the pages of the *Nautical* as useful to our country's representatives abroad, as we know it is to her seamen everywhere.—Ed.]

A Glance at Rhio.

We left Singapore in the H. C. steamer *Hooghley*, for the neighbouring Dutch Town of Rhio, (we call it neighbouring, in this part of the world, though distant 50 miles), on the morning of the 1st of July. Daybreak found us off the Pan Shoal, a large coral reef, situated in the centre of the channel, and a stumbling-block to mariners; there being no

good land marks or transit bearings for clearing it, nor beacon to denote its position. As the morning advanced, we found continually disclosed to view the numerous bushy islands which stud the calm waters of the strait, until at noon, we anchored off the small island of Piningat which fronts the settlement and fort of Rhio.

From the anchorage, we could not help admiring the neat appearance of the town and its vicinity, with the well-built fort crowning a grassy eminence, the white walls of which, standing out from the surrounding verdure, helped to give variety to the picturesque scenery. The town of Rhio does not stand on the island of Bintang, but on a small island adjoining it, called Pulo Pinang, from which it is divided by a narrow strait. It is to the produce of the large island that Rhio owes its importance, having been long known for its gambier and pepper cultivation. The island of Bintang, lying on the high road between India and China, seems to have been of early importance, affording excellent harbours and shelter from the storms of the China sea, in the north-east monsoon; and we find Marco Polo, in his celebrated travels, mentioning it under the name of Bentan, while Singapore is passed unnoticed. The shape of Bintang is not, as its name would denote, that of a star, though the untutored Malayan voyager, who could only view its shores in detail, might be led to fancy such a resemblance in the numerous long points and capes which radiate from the body of the island. The shape is more a cresent, whose convex side stems the waves of the China sea, and in the concave side of which the calm harbours already noticed are formed.

On landing at the wooden jetty, we found the European town hidden from view by groves of fruit trees, and were only convinced that we were in it, when, on stepping ashore, we found ourselves in front of the public offices. To a Singaporean the change is striking. In five hours from an English town, surrounded by everything as nearly English as the climate will allow, and where English customs and manners prevail, you step into a place where every thing appears strange and foreign. It was midday, but nothing was stirring. Every thing was death-like in comparison with our own busy commercial square. The Dutch sepoy, with his conical long-peaked hat, lounging in front: when asked if mynheer was in office, responded with a yawning "Traada," which spoke volumes. He and all had retired to their siesta.

We took the opportunity of looking about us. The town, small as it is, we found to be laid out with a truly Dutch neatness and regularity. The houses of the Europeans, embowered in groves of oranges, mangosteens, and other tropical fruit trees, imparted a cheerfulness to the otherwise dull and lonely settlement. The residency house is a handsome building, whose facade is ornamented with bold pediments, supported by coupled columns of the Roman doric. It was only a subject of regret to us that a building, which would so much add to the beauty of the place, is hidden entirely from the principal approach to the settlement by closely planted trees. The fort on the hill, commanding the town, is approached by a drawbridge thrown over a dry moat that surrounds the works.

The plan is square, with bastions at each corner. It was built from the remnants of the immense fort which protected Malacca; the stones having been brought in ships from that place during its brief occupation by the Dutch, prior to 1824.

After paying our respects to the resident and his assistant, we sallied forth to view the Chinese and native part of the town. In proceeding, we passed the chapel, a small building, nearly a fac-simile in minature of the protestant church of Malacca, whose style is that which used to prevail in Holland and some parts of England 200 years ago. The Chinese town is built on each side of a semi-circular street, and presents a considerable contrast to the European. The same attention does not seem to be bestowed on the cleanliness of the thoroughfares as in Singapore, the drains being full of filth, with the usual accompaniments of swine, ducks, and geese luxuriating to their hearts' content. It had been generally reported that the Chinese of Rhio were more respectful and less surly to Europeans than those of Singapore; but our observation did not confirm this, as no difference could be noted, nor had they the same idle inquisitiveness of this class in Malacca as might have been expected in a small town. Gambling is allowed, and we were informed, farmed out by the government. The gambling shops were all adjoining and open to the street. They could not fail to excite our curiosity, seeing how vigorous the Singapore police are in rooting out the evil in the British settlement. The shops seemed generally to be but thinly attended, but there was sufficient to convince the observer of the ill effects which this propensity entails on the Chinese. The gamblers consisted of the debauched opium smokers and the leprous, whose wan countenances, lighted up now and then by intense anxiety as to the result of their venture, were only to be contrasted by the forlorn and reckless looks of others.

This picture might be thought overdrawn perhaps, were it not mentioned that, all Chinese are strongly addicted to this vice, so much so, indeed, that it is their ruling passion, and persons of all classes attend the gambling table. The miserable appearance of those who are seen there would mark them as ruined and the dregs of population, who, useless for other employment during the day, idled, until night brings about its usual revels and company.

There has been much diversity of opinion regarding the propriety of the government deriving a revenue from this source, and without expressing an opinion, it will suffice to note the arguments on both sides. First, say the opposers; government, by sanctioning, lend their support and countenance in maintaining the vice, thus ruining their subjects for revenual purposes; keeping an open door for the ruin of the young and unvitiated, and causing a general demoralization of the people. The advocates of the farm, on the other hand, say, government by taxing gambling directly, discountenances the vice, in the same way as it does by taxing opium smoking and spirit drinking; and instead of having a shut door where the addicted may pursue their vices, beyond the pale of public opinion, it wouldforce them to attend the farmers' tables openly, which those only who had no regard for character would do; a policy

which particularly recommends itself in such places as Singapore and Rhio, with a migratory, shifting and mixed population, where, if any good is effected at one time, it is lost when the places of those who may be ameliorated are supplied by others having all their native vices about them; and where the total suppression of gambling will always remain an engine for corrupting the police.

We took leave of Rhio at 3 P.M., and paid a visit to Pulo Piningat, or Pinigat, as Begbie has it, in the evening. This island possesses a considerable population, and is of some note in the Malayan annals of Johore. It contains the palace of the Raja Muda, one of the officers of the former court of Johore; and it was here that the regalia attached to the sovereignty of that once powerful kingdom, and now in possession of the Sultan of Lingin, were deposited. The possession of these relics was considered of much importance to the British interests, previous to our treaty with the Dutch in 1821, but they fell into the hands of that nation, whose commissioner, it is related by Capt. Begbie, wrested these insignia of royalty from their keeper, Tuanku Putri, in 1823, to bestow them on the chief who sided with them. The first object of interest that attracts the eye is a new fort, which the Raja is building for protection against the Illanuns, as we were informed by his gunner, who conducted us over the place, not contented until we had seen every thing, and who was very careful to impress on our attention its similarity to the fort of Rhio. It is a harmless way of spending money at all events, as it is flanked by a higher hill on one side, and another of equal height on the other. Beneath the fort stands the Raja's palace, or rather house, and close adjoining, a remarkable mosque, which is being built by a Chinese covert to Mahomedanism, called Haji Momen. The plan is said to be the same as one at Mecca.

The Raja was busy celebrating the nuptials of his son, and on advancing into the enclosed court, we found several thousands of Malays and Chinese assembled, creating as much sound, discord, and music, on various instruments, as can well be imagined. In the centre of the court, hung a large bell. To the north, was placed a balei or audience chamber, and near the south, what was taken to be the house of the Raja. From the audience chamber to the house, there extended a double line of natives, dressed uniformly, and carrying a musket each. Others were in the Malay garb, carrying spears, adorned with red hair, called tombas. The balei was crowded with people. After the ceremonies were over, the bridegroom, a boy of fourteen, dresssed richly for a Malay, was carried on men's shoulders to the house, accompanied by the principal people attached to the Raja. On passing, he was saluted by the quasi soldiers *á la militaire*. Next came the bride, enclosed in scarlet curtains, held extended by a frame, and excluding her from view. Immediately followed what we infer to be matrons of noble blood, whose handsome appearance, fair complexions, and peculiar gait, betokened them to be inmates of the Raja's harem. Then came groups of all sorts of ladies, young and old, black, brown, and yellow, to the number of at least six or seven hundred. This stream of feminity poured from the audience

chamber and filled the dwelling-house, where no more could be seen of them.

Now commenced the roar of cannon created by our friend, the gunner on the hill. The imitation soldiers formed into a circle, with great activity, and led on by an ugly drummer and fifer, with conical glazed hats and long peaks; they commenced a slow march round and round. Their native leader was now discovered amongst the motely crew, bearing in his hand a staff of authority, and though bare-feeted, wearing a cap with a gold band, military frock coat, and dirty white trousers. First, he heads his gallant band with staff erect, and toes well pointed; now he breaks off into the centre to admire the intoxicating whirl; then advances the Panglima prang, taking a crease from under his sarrong, with which he describes a small concentric circle round and round, keeping time in short steps with his troops, until well tired of the amusement, when he stops on a sudden, throws up his crease in the air, catches it by the hilt, halts his bare-feeted monsters, and marches them off the ground with great eclât. The din of gongs next commenced, and the screeching of Chinese wyangs, the busy hum of which was long heard after leaving the scene.

These Malays all wear their creases by their sides, as in independant states, and their women display the same shyness of strangers as in other Mohamedan countries, running away at your approach, but, at the same time, displaying, notwithstanding their sham modesty, that species of coquetry, so well described by Scott, of the two maids on Waverley's approach to the house of Tully Veolan. At dusk we reached the steamer, tolerably well satisfied with our six hours visit to Rhio.

Although it may appear out of place in a description of this kind to touch on the physical nature of the islands and vicinity, still, having examined a considerable part of them on previous occasions, we will give a slight sketch before concluding. The island of Bintang has been visited on various parts, between its eastern and most western points along its northern shore, as well as in the vicinity of the town of Rhio; and, geologically considered, it may be said to present a continuation of the features that prevail on the southern part of the Malayan peninsula. The same iron stone or laterite covering is to be met with, spread over the surface of the country in a greater or less degree, as is seen in Malacca and Singapore; at some places the laterite diminishing to a thin stratum of gravel, three or four feet beneath the upper soil, and at others protruding itself, and spreading out on the surface, in blocks and stones.

Along the northern shores from Blanah bay to Pulo Panjang, the formation was observed to be of granite, of coarse grain, containing little mica. In many places the blocks are of enormous size, and rear themselves up in fantastic shapes out of the sea, on the shores, in the vicinity of Round island and Pulo Panjang. On the western extremity of this latter island an immense pyramidal rock rises out of the sea, towering to what we guessed to be about 150 feet from the surface of the ocean, while others we observed to have a columnar structure, resting on a

small base. On the eastern point of Bintang, the rocks take a stratified appearance, and it is difficult to decide, for want of sections, whether they are of plutonic or sendimentary origin. This rock again protrudes from the bottom of the sea, at a distance from the shore, with a strike N.W. and S.E., and dip nearly perpendicular, rising within 10 feet of the surface of the water, and forming the dangerous reef called the Postillions Shoal, a cause of destruction to several English ships, until laid down by a Dutch man-of-war, of that name. This rock is clearly visible from the surface in clear and calm days.

While the northern part of the island is all of granite rocks, the centre where Rhio is situated, is composed of shales of different degrees of induration, their strata being much titled up and devoid of regularity. They appear to be non-fossiliferous, as far as been observed, so claim little attention from the geologist; but, they contain quarries of clay slate, that are used in buildings, for flags to be laid in flooring, &c.

The island of Bintang as noted before, contains many projecting headlands, between which, are frequently deep bays, and wide creeks, and there being no large rivers to deposit their alluvium, we find that what otherwise would long ago have formed into valleys, are still claimed by the waters of the sea. Some of those bays nearly divided the island, and one we noticed on our approach to the harbour of Rhio, penetrated its wide surface as far as Large Bintang Hill, whose wooded slopes rose abruptly from the edge of the waters. The surface of the country is generally low, and can seldom exceed 80 to 100 feet in height, as is the case with Singapore, and a great part of the territory of Johore, and those elevations that become conspicuous are isolated. The highest of those is Large Bintang Hill, about 1200 feet in height.

The soil, as far as observed, was found to be poor, being a reddish clay, mixed with vegetable matter, and unfit for any general cultivation, excepting gambier and pepper. The production of these articles of commerce we are informed, has been considerably curtailed, owing to the plants and vines being worn out in the older cultivated districts; and the Chinese, who are the cultivators, have consequently, in great numbers, abandoned the soil for fresh locations in Battam and Johore.

ANCIENT NAVAL RECORDS.—*Communicated by John Barrow, Esq.*

(Continued from page 429.)

6. The beverage wine to be furnished to ships upon Foreigne voyages as above to bee good sound wine (not vinegar), and of such strength as it shall bee able to preserve the water from stinking when three times the quantity of wine shall be added to it in water.

7. They are also to allow to each shipp they shall bee ordered to victuall for the seas, fower hogsheads with eight iron hoops on each, the said hoops to bee hamered hoopes of good substance and well wrought

or milld hoopes where they shall thinke them suffitjent for their Ma^ties service, for water caskes, with one bundle of wooden hoopes, and another of flaggs for every one hundred men a month, and soe proportjonably for a greater or lesser number of men, and such quantity of water caskes as the shipp can convenjently stow with such further provision of hoopes and staves as shall be judged necessary.

8. That the warr^te by which the s^d Comm^rs are from time to time to issue the aforesaid provicon for the vse of their Ma^ties ships are to bee as followeth viz: for all victualls to bee spent at sea, the warr^t of the Lord High Admirall or Comm^rs of the Admiralty for y^e time being, or of three or more of the principall Offic^rs and Comm^rs of their Ma^ties navy, or of a Comm^r in chiefe of a fleet or squadron, or of the particular Commander of any shipp, (in case only not admitting of the time requisite for the procureing any of those before recited,) as allso the demands of the pursers of any of their Ma^ties shipps, tendring to the s^d Commander or their agents a rec^t under the hand of any other purser to whom hee had by order of his commander delivered supplies at sea, which receipts and order is to be taken up by the s^d Comm^rs, and shall bee a suffitjent warr^t vnto them, for issueing the value thereof vnto the purser that did supply the same. And for victualls to bee spent in harbour by the extra, the warr^t of y^e clerke of the cheque of the port, where the same is to bee issued, and for what shall be spent in harbour by the ordinary, the warr^t of y^e clerke of the cheque and Ma^r Attend (where any is) and in the executjon of every of y^e s^d warr^t the s^d Comm^rs are to cause to be delivered on board shipps y^e full contents of y^e s^d warr^te in kind, unless y^e Comm^r and Ma^r shall under their hands certifie to y^e s^d Comm^rs the incapacity of their ship to recejve the same, in which case, (and that only) y^e s^d Comm^rs are to make good y^e remainder thereof by such creddits as will be readyly answered unto them, on behalfe of their Ma^ties at y^e very next victualling port, where the same shall bee demanded, unless the shipps victualled be ordered in foreigne voyages, in which case alone the purser shall receive from y^e s^d Comm^rs ready money for soe much of the s^d victualling, and at such rates and in such manner as they best can for their Ma^t service without lessening the proporcons, or goodness of victualls allowed by their Ma^ties to the seamen serving in their shipps, and that a distinckt acc^t shall bee from time to time kept by y^e s^d Comm^rs for victualling of all creddits by them soe issued, and of the time and place of answering the same to the end that vpon passing their acc^te they may be able to satisfie the principal Offic^rs and Comm^rs of their Ma^ties navy, that the said creddits have been by them effectually made good, all which victualls as well for harbour as for sea, the s^d Comm^rs for victualling are to take care to bee delivered on board their Ma^ties shipps to the respective Pursers thereof without any charge to the s^d Pursers for lighterage, portage, or otherwise, and without their comeing or attendance for it, so as that each Purser shall have his warr^t or demand supplied at the ships side within twenty-four hours for harbour victualls, and forty-eight hours for sea provicons, or as soon as possibly it can bee done, and that the Ma^rs of the hoys, lighters or other vessells, by whom y^e s^d provicons

shall be sent on board their Ma^{ties} ships shall deliver the same into the slings and tailes of the ship on board which the same is to bee put, and they are from time to time to informe themselves of the state of each shipps victualling to enable them the better and sooner to comply with such orders as they shall receive on that behalfe.

9. They are allso to cause to bee delivered in iron-bound casks hooped with iron hoopes of good substance, hamered and well wrought iron as aforesaid, One compleate moyetie of the proportjon of beere ord^{d} to each ship designed for the channell, or any other voyage then for Guinea, or the East or West Indjes and for each designed for Guinea, or the East or West Indjes, three-fourths of their proporcon of beere is to bee put in iron-bound caskes, hooped with iron hoopes of good substance, and well wrought iron as above.

10. The Indents to be taken by the s^{d} Comm^{rs} of the Pursers for victualls which they shall issue to them shall bee made in y^{e} same forme and manner as was directed, in the contract with the late contractors for victualling the navy, which indent shall bee dated in words at length, and not in figures, by the hands of the Pursers who are to signe them, before theire signeing thereof. And the provissions which are therein menconed to bee upon creddit shall bee repeated at the bottom, or on the back side of the said Indents, and against each of the s^{d} speties the true quantity thereof which was not delivered in kind, but remains to bee made good by creddit, is to be expressed in words at length and to be attested by the persons signeing the s^{d} Indents ; likewise the true speties delivered, and the quantities of each are to bee expressed in y^{e} s^{d} Indents, and not one thing for another as hath been two often practised, and moreover the s^{d} Comm^{rs} are to demand one or more duplicates of y^{e} s^{d} Indents, or Rec^{ts} signed by the Pursers at the time of their Indentinge, and to send the same to the Comptroller of the Victualling, viz: within seven days after its date for what shall be delivered at the ports of London, Harwich, Dover, and Portsmouth, and three days after their receiving any from remoter ports.

11. And in case any of their Ma^{ties} ships shall returne from sea to bee laide up, haveing any Provicons of Victualls remaining on board, the s^{d} Comm^{rs} shall imediately vpon notice given to them by the Purser of the said shipp, send hoys, lighters, and other fitting vessells to fetch away the same, together with the caske, iron hoopes, and biskett baggs, and cause the hoyman and lighterman, or of the other vessell as rec^{d} y^{e} s^{d} victualls, caske, iron hoopes, and biskett baggs, to take an exact acc^{t} of the same, and to give the Purser or his Instrument a receipt for what hee shall receive on board him, before his sailing away, or bee debarred his freight till the same is adjusted, and hee produceth a certificate of what the Purser chargeth him with, which certificate the Purser is obliged to deliver to y^{e} said hoyman, lighterman, &c., at the time of his loading; for w^{ch} victualls, caskes, staves, iron hoopes, and biskett baggs, so returned, the s^{d} Comm^{rs} are as well to give a receipt to y^{e} s^{d} Purser, as to transmitt without faile to the Comptroller of the Victualling, within twenty dayes after laying up of each shipp, a duplicate of the said receipt

together with the full charge vpon y^e^ Purser, and an exact state of the acc^t^ between themselves, and him for caske, hoopes, biskett baggs, &c., all which Provicons, caske, hoopes, biskett baggs, &c, soe returned shall bee disposed of by y^e^ s^d^ Comm^rs^ to their Ma^ties^ best advantage, such part thereof as vpon due survey made of y^e^ same shall be found sound, sweete, wholesome, and fitting for their Ma^ties^ service to be issued againe either for sea or harbour Victualling, for which the same shall bee found most proper, and the remainder thereof which shall be found defective, to bee sold at the best rates y^t^ may be procured for the same, and for prevention of any disputes, touching the number of staves, of which each sort of the caske shall bee reputed to consist in their returnes, which his Ma^ties^ Pursers are obliged to make thereof. It is hereby declared, that each of y^e^ butts soe to bee returned, if shaken, shall consist of noe less than twenty-six staves, and every barrell seaventeene staves (the heading included,) whereof two pieces of each to be accounted a staffe, allways accounting each staffe about forty-five inches long for a butt staffe, each staffe of thirty-eight inches long if y^e^ same bee of old stufe to bee reckoned for a punchion staffe, and the like for every staffe betweene thirty-eight and forty-four inches long, and each staffe above thirty-two inches long unto thirty-eight, including allso y^e^ thirty-eight inches, if it bee a new staffe to bee reckoned to a hogshead, and each staffe under thirty-two inches long, as low as twenty eight inches to be reckoned as a barrell staffe.

12. That the s^d^ Comm^rs^ are allso to take care to pay all Bills of Exchaing which shall be drawne by the Command and Pursers for Victualls, provided for any of their Ma^ties^ shipps abroad in ports where noe Victualls shall have beene order'd to bee provided, when the necessity of their Ma^ties^ service shall requier the taking vp of Victualls, in the s^d^ ports, as allso that they defray y^e^ charge of the freight of all such Provicons as shall at any time bee order'd to attend their Ma^ties^ fleete. or to bee sent to any of their Ma^ties^ ships abroad, or at home, to provide such water shipps for the service of the s^d^ fleete, as shall bee directed to bee taken vp, to pay such bills as shall bee made out, and assigned vpon them by the Navy Board for the ballancing of any Victualling Accounts, and sattisfie all other expenses whatsoever relating to the Victualling of the Navy, that so the whole charge thereof may appeare in that Office.

13. They are to take care that no beere bee issued for Victualling their Ma^ties^ shipps in any port where a sworne guager is to be had, in other caske then what shall by such sworne guager have its contents in gallons (Winchester measure) marked on the head of it, and that all other caske of Provicons have the contents of the Provicons in each caske marked on the head thereof by the same person (that can if there shall bee occasion) testifie vpon oath that there is in the said caske the quantity marked by him on the head thereof. They are allso to take care that y^e^ beefe and porke which they shall at any time Victuall their Ma^ties^ ships w^ch^ shall allways hold at such weight, as y^t^ every twenty-eight pieces of beefe cut for fower pound pieces, tooke out of the caske as they rise, and the salt shaken off it shall weigh one hundred pound nett averdupoize.

ancient authors regarding them. Beyond Egypt and Assyria, indeed we should imagine the fashion alluded to never to have extended, and in all likelihood in the latter country it existed only for a season; and it is most singular that while the Greek, the Roman and the Jewish writers described with minuteness almost every article of arms or attire employed or worn by the people of whom they write, decorations so very remarkable, as the artificial beard of the Persians should nowhere be noticed. Now, for the first time, do we become accquainted with the attire of the most luxurious court of the age in which it existed.

Our theatrical critics of the present day laugh at the idea of the representatives of Cato and Mark Antony, appearing on the stage, in full-bottomed wigs; in any drama referring to the history of Persia, of the age of Belshazzar, the costumes of the characters would have been incomplete without them. A Bactrian coin with a Greek inscription, was laid on the table of the Society, along with casts of the marbles, and singular it was, most certainly, that a Greek ruler was here found to have adopted the artificial wig and beard, for the repudiation of which they were so much despised by the Egyptians. The appearance of a parasol on a sculpture two thousand years old, has nothing, perhaps, in it very remarkable, excepting it be the circumstance of its perfect similitude to the large parasols used in India at the present time. The Egyptian delineations more resemble the feather flabella carried behind the Pope, than the parasols now most familiar to us.

Xenophon mentions wigs as having been common at the court of Persia in the time of Cyrus the Great; and Elian also adverts to the matter. Livy states that they were common in France. Juvenal and Martial notice the wearing of them amongst the roués of Rome. Our correspondent adds that the visitors of the Italian galleries will recollect many busts with wigs on, detached from the head. "Wigs also," continues the writer, "were much used in Bhuddist times, and the pictures at Ajanta provide excellent representations of the full-bottomed wig." We must at once admit that, the allusions of the parties just named to wigs, as existing in Persia, Greece, or Rome, had escaped our recollection altogether. With the exception of the notices we quoted above, we were unable to find any allusion at all to wigs, as worn by the ancients. On looking over the very interesting work "On the history of Perriwigs, with an account of their origin, use, form, and abuses,"* we find a number of notices of them so remarkable, that we shall give some of them, for the amusement of the reader.

Our author states, that according to Rangone, principal of the college of Berlin, false hair was first made use of by the ladies, and that the flagatious example thus set, was followed by the men. There is an ungallant saying, that there never was mischief yet but that a priest or a woman was at the bottom of it; and here the priest lays the blame of wigs on women, to whom,

* We subjoin the title as it stands in the Italian; we do not recollect even so much as to have heard of the learned Bovicelli, until his work on wigs was placed in our hands:—

Istoria delle Perruche, in cui si fa vedere La loro origine, la usanza, la forma, l'abuso, e la irrogolarita di quelle degli Ecclesiastici. Tradotta dal Francese per ordine dell' Eminentiss. Arcivesco vo Orfini Vescovo Tusculano, or a Vescovo di Porto. D. A. Giuliano Bovicelli, Priore della S. Basilica, S. Bartolomeo, gia Segretario di S. Eminenza. Dedicata All Illustriss e Reverendiss. Signore Mons, Sarnelli Vescovo di Bisegija. Non amat falsum auctor veritatis; adulterium est apud illum omne, quod fingitur; Tert. lib. de Spectac. cap. 25.—Benevento Nella Stamperia Arcivescovale 1722.

if the clergy are to be believed, we owe all the mischief the world contains. The creed of the laity luckily lies somewhat in the opposite direction, and considers the world not worth having without women. The general reader will scarcely be prepared for the assurance quoted by our author, as given by a theologian of Lovaine, whose authority he accepts as unquestionable, that the earliest allusion we have to wigs is to be found in the 3rd chapter of Isaiah, and the 17th verse, where are the words, "The Lord will smite with a scab the crown of the head of the daughters of Zion," meaning that the Jewish ladies should be exposed, by having their wigs taken off. Clearchus, the disciple of Aristotle, assures us, it seems, that the Iapigiian girls of evil fame were, in their own country, the introducers of the wigs which they were compelled to assume when their wicked courses, prematurely denuded them of their hair. Xenophon mentions wigs as common at the court of Cyrus the Great, a statement materially affecting the theory that they were brought from Egypt by the prisoners of Cambyses, the son of Cyrus. They were, at this time, also common in Medea, as well as Persia. Aristotle mentions that the Lieutenant-General of Mousolo, had orders from his chief to collect a huge quantity of hair from the heads of the Greeks, he being willing to accept of this instead of tribute, for the purpose of having it manufactured into wigs. What was asked was most willingly conceded, and a large amount of obligation thus very conveniently discharged.

It is very obvious, indeed, that in a nation where the whole community shaved their heads, and wore wigs and artificial beards from early youth, that the difficulty of finding the raw material for this species of manufacture, must often have been very embarrassing; and the contributions from foreign parts must have been eminently desirable. The spoils of the heads of the long-haired Greeks, must have been very acceptable to their bald-headed neighbours when they could be come by. Unhappily for the wig-makers, their office was a good deal of a tartar-catching sort of a process. Marathon could bear witness, that the Persians, who went in quest of hair, in this direction, were considerably worse off than the wool-gatherers, who return home shorn; they sought for materials to cover their heads, and lost their heads in the adventure.

Titus Livius, it seems, assures us, that the great captain of the age, General Hannibal, wore a wig of brown hair, to conceal his years, and that, to disguise himself from the swords of the Gallic chiefs, he sometimes changed his clothes, sometimes his wig; a practice still occasionally resorted to by robbers, on a smaller scale, when averse to attracting attention in their own character. Ovid recommends some of his fair frail friends, who stand in need of extra covering for their scalps, to purchase golden, red, or yellow hair from the Germans, and shine amongst Roman ladies in borrowed colours. Juvenal mentions that Messalina, mistress of the emperor Claudius, had her own dark tresses removed, and in their place put on a wig of golden hue. Martial speaks of the sandy hue of the wigs of Germany, having their effect heightened by being sprinkled with gold. This practice was said to have been resorted to by the emperor Nero himself. The satirist speaks of the sudden change of the hue of hair, from the colour of the swan, to that of the crow, so cunningly brought about, as to cheat any one but——. Proserpine would play the deuce with them, pull off the meretricious curls, and leave the real person undisguised; and he twits the lady Lilia, that, having purchased hair and teeth, she could not provide herself with artificial or borrowed eyes.

The reader will probably think this enough; it still was nothing half so strange to find wigs occasionally worn, as to find, as we do in ancient Egypt and Assyria, a whole bewigged population. The work of Bovicelli, is not

written to give a history of wigs, so much as to show how shameful it was for ecclesiastics to wear them, by collecting all the notices he could find calculated to bring them into discredit. They were denounced by the prophet Isaiah; they were general amongst heathens; they were resorted to by rakes and courtesans, whose evil lives had rendered them necessary We have seen the forced interpretation of one sacred writer, that he might be brought to bear witness against wigs; the 14th verse of the 11th chapter of the 1st of Corinthians is brought in to shew that, if it be a disgrace for a man to cultivate long hair, it is forbidden him to wear a wig as an ornament. Then follow all the more direct and dreadful threats of the apostolic fathers. Tertullian is astonished that any one should indulge in the enormity of false and woven hair. If wig-wearers are not ashamed of these enormities, they ought to be alarmed at the peril of their indulgences; their wigs are, perhaps, the exuviæ of the heads of criminals, condemned to a place of torment. What can the wearers of such coverings expect? He taunts wig-wearers with having sheaths for their heads. Clement Alexandrinus maintains the wearing of false hair to be most impious. Gregory Nazianzen reckons it the highest praise of a good man that he had not ornamented himself with false hair, or proclaimed his own ignominy by a fraudulent covering for his head. St. Jerome speaks in scorn of the hairy turrets built on the top of the head. St. Augustine maintained that wig-wearing was specially forbidden by the Apostle Paul. From the times of the Apostles, in short, till long after the reformation, wig-wearing seems to have been one of the pet aversions of the Catholic church, and the utmost length the most generous could go, was to give sanction to the use of wigs for health, not for shew, "*ad sanitatem, non ad vanitatem.*"

We have said that one reason against them was, that they were heathen devices; and it says more for the warmth than for the consistency of the writer, that he adduces the vestal virgins as authorities on his side, their plan as described by Pliny, being to cut off their hair, and bestow it on the lotus plant, that they might be denuding their heads in this world, to ensure themselves a crown of glory in the next.—*Bombay Monthly Times.*

DESCENT OF THE MAIL STEAMER "GILDERSLEEVE" DOWN THE NORTH CHANNEL OF THE LONG SAULT RAPIDS.—Those who have travelled on the St. Lawrence are aware that between Dickenson's landing and Cornwall, a distance of from 12 to 14 miles is a long rapid, called the Long Sault. This Rapid is divided into two channels, by an island in the centre. The channnel on the south side being the one which has heretofore been descended by steamers and other large craft passing down the river. Captain Maxwell, the enterprising commander of the mail steamer "*Gildersleeve,*" having sometime ago become impressed with an idea that the channel on the north side of the Island, was not only practicable for vessels of a large class, but that it was much safer, and easier of descent than the channel on the south side, made with much trouble, soundings and observations, for the purpose of ascertaining whether such was really the case. Having well satisfied himself in the matter, he (with Mr. Hamilton's permission) made a descent down the north channel last Tuesday afternoon in the mail steamer "*Gildersleeve,*". The passage was magnificent. The grandeur and beauty at the Rapid at the Cedars, the Cascades, or Lachine,—owing to the great rapidity of the current, the water was much rougher than on the south side of the Island, but the channel is straighter, and, in every respect better than the one heretofore adopted, and there is little doubt that ere long the north channel will be the one which the main traffic of the river will pass through.

Great credit is due to Captain Maxwell for the ability and perseverence he has exhibited in exploring this new channel. The thanks (at least) of the country are due to him for his exertion and enterprise, and the smallest tribute that can be paid to him, is, that the channel which he has thus been the first to prove is practicable for large vessels, should bear his name, and be called "Maxwell's Channel."—*Quebec Paper.*

LIST OF CHRONOMETERS purchased in the last five years by the Admiralty, for the use of Her Majesty's Navy, from those on the annual trial at the Royal Observatory, Greenwich; with the prices paid for each expressed in guineas.

	1844.		1845.		1846.		1847.		1848.	
Makers' Names.	Chron	Price	Chron.	Price	Chron.	Price	Chron	Price	Chron	Price
Appleton	468	50	484	40	474	50				
"	464	45			485	50				
Arnold	1542	40	Died							
Baker	1083	40			1093	45				
Birchall	342	45	348	40	351	40				
"			347	45	361	50				
Carter			345	40	410	45				
Clark					1198	45				
Connell			399	45						
Cotterell	933	45								
Cribb	66	40								
Dent			1797	45			1967	55	2035	50
Dixon	157	45								
Eiffe					525	45			280	45
Fletcher					1188	40			1164	45
Frodsham, C.			1482	40	1485	40	2074	65		
"			1540	40			2066	50		
Hewitt									1117	55
Hutton					138	65	149	45		
"					145	40				
Lister					400	40				
Loseby			101	45	108	50	111	50		
"			104	40	107	40	113	45	115	55
"							119	45		
Massey, E. I.			125	50	126	50	120	50	132	55
Mc'Gregor							138	45		
Muston			948	40						
Norris & Campbell			474	40	475	40				
Parkinson, H.					625	55				
Park & Frodsham	2614	45	2955	40	2595	40			2661	45
"			2630	40	2958*	30				
"			2791	40						
"			1886*	35						
Poole	1086	40	1155	50	1176	55	1181	55	1256	50
"					1179	50	1241	45		
"							1168	45		
Porthouse	65922	40								
Reid and Son	1048	50	1160	50			1075	45	1083	50
"			1056	45			1074	50		
Shepherd			441	50	479	45			228	50
Webb	5016	45	5536	50			5552	55		

* Pocket.

Nautical Notices.

The following have been given by the Trinity-House, dated the 22nd of August, 1848.

Harwich Harbour.—With reference to the advertisement from this House, dated the 9th of February last, that for the purpose of further facilitating the entrance of vessels into Harwich harbour in the night time, a light as hereinafter described, is in course of preparation to be exhibited, with the permission of the Board of Ordnance, in Landguard Fort.

Mariners are to observe that the arrangement of the several lights for the said harbour of Harwich will be as follows, viz:—

The lights in the high and low light towers as heretofore exhibited; and in the lower part of the high tower a light appearing of a Red colour, or White, according to the line of direction on which it is seen.

The light about to be shewn from Landguard Fort will appear to vessels entering the harbour in succession as they proceed, first Red, second White, and third Green.

Masters of vessels, Pilots, and other persons, are requested to attend carefully to the following instructions, viz.:—

Having arrived with the high and low light at Harwich in one, steer the usual course, until the Red light in Landguard Fort (which will not become visible until the vessel is to the northward of the Ridge) is seen bearing N. Easterly, and having opened the same, a W.b.N. course must then be steered until the lower White light in the high tower shall have been opened to the south westward of the Red light, and which White light being so kept will lead to the south-westward of the Beach-end buoy, and between the Cliff-foot rock on the port or larboard hand, and the Altar Shoal on the starboard hand:—when abreast of the Beach-end buoy the Red light in Landguard Fort will disappear, and be immediately succeeded by the White light therein, which will continue visible up to the Altar buoy, on arriving at which it will in turn disappear, and be succeeded by the Green light, on the appearance of which it should be brought to bear E.b.S. for the anchorage.

Note.—The White, Red, and Green light in Landguard Fort will be first exhibited on the evening of the 1st of October next, and the whole of the arrangement above described is to be regarded as temporary only, pending such alterations as may be judged advisable upon the completion of the pier now in course of construction.

Prince's Channel. Notice is hereby given, that in compliance with the request of numerous owners and masters of vessels, and other persons using or interested in the navigation between the North Foreland and the Nore, two floating light vessels are about to be placed in the Prince's Channel, the lights on board of which will be first exhibited on the evening of Sunday, the 1st day of October next, and thenceforth continued every night from sun-set to sun-rise.

Mariners are to observe, that one of these vessels will be moored in the eastern part of the said channel, near to the East Tongue Sand, and will exhibit two lights, one at the mast-head, which will be White, and one at a lower elevation, which will be coloured Red.

The other vessel will be placed at the western end of the said channel, near to the Girdler Sand, and will exhibit one bright revolving light.

Further particulars in relation to the exact positions of these respective vessels will be published in due course.

Admiralty, 4th August, 1848.

HALIFAX HARBOUR, *Nova Scotia.*—Sir, I am commanded by my Lords Commissioners of the Admiralty, to acquaint you for the information of the Committee for managing the affairs of Lloyd's, that Vice-Admiral the Earl of Dundonald, has, at the request of Mr. Cunard, Senior Commissioner of Lighthouses, placed a bell on the buoy of the Rock Head Shoal, at the entrance of the harbour of Halifax, Nova Scotia.

(Signed) W. A. B. HAMILTON.

Capt. G. A. Halsted, R.N., Secretary, Lloyd's.

Hobarton, 10th April, 1848.

DEAL ISLAND LIGHTHOUSE, *Van Deiman's Land.*—Sir, The following notice has just been published by the Post Office here, and we beg to forward the same for the information of the subscribers to Lloyd's.

(Signed) T. D. CHAPMAN & Co., *Agents to Lloyds.*

The lighthouse on Deal Island, forming one of the cluster of islands, called Kent Group, in Bass Straits, lat. 39° 29′ S., long. 147° 21′ E., having now been erected, a light is burning, and will continue from sun-set until sun-rise.

The lighthouse is erected on a hill 900 feet above high-water mark. The supporting column is 46 feet in height. The upper part of the column (like all the lighthouses within the Government of Van Diemen Land,) is coloured Red, and the lower part White. The lower part of the column is built of granite, each block worked to a mould. The cornice and blocking are 6 feet high of freestone.

The lantern is 7 feet high, having a revolving catoptric light, with 21 lamps and patent pipes, smoke consumers, working in three groups, each group containing 7 lamps with reflectors, and revolves round once in five minutes, showing fifty seconds of light, and fifty seconds of darkness.

The light may be seen thirteen leagues, has been set by cross bearings at a distance of 12 leagues, and is visible all round the compass, unless the light be intercepted by being close in with any of the surrounding islands.

(Signed) W. MORIARTY, *Port Officer.*

Danish Consulate General, London, 8th August.

BLOCKADE.—Sir, By direction of the Royal Board of Trade at Copenhagen notice is hereby given, that in addition to the harbours of Swinemunde, Wolgast, Cammin, Kiel, with the mouth of the Sleswig Canal at Holtenau, now under blockade, the following places will be blockaded by His Danish Majesty's naval forces from the 15th inst., viz.—Griefswalde, with the Eastern Entrance to Stralsund, the rivers Elbe, Weser, and Jahde.

This announcement has been communicated to the representatives of the Friendly and Neutral Powers, accredited at the Court of his Danish Majesty, and will likewise be notified by the officers of the Customs to every vessel passing through the Sound and Belts.

(Signed) F. WILSON.

Capt. G. A. Halsted, R.N., Secretary, Lloyd's.

COTTONS.—The Supreme Board of Health having renewed the disposition that cottons arriving from England may be freely admitted, have ordered that the said cottons must be accompanied with a certificate, either directly, from the Consular Agents, or by the Local authority; in which case the sig-

nature of the same must be certified by the Consular Agents, who will attest that the said cottons have been manufactured, or at least unpacked in England.—*Naples 4th July*, 1848.

STRUIS BAY NEAR CAPE AGULHAS, *South Coast of Africa.—Extract from the Remarks of H.M.S. Rosamond, Commander J. Foote.*

STRUIS Bay is formed by Northumberland Point and Struis Point in the vicinity of Cape Agulhas. With any northing in the wind vessels may find good holding ground in Struis bay in 7 fathoms (sand) Northumberland point bearing S.W. by compass; with any southing in the wind the anchorage is exposed. There is an excellent boat harbour formed by a reef of rocks, to enter which you must pass over a bar, which when the *Rosamond* was there did not break at all heavily, and we were informed by an inhabitant of the bay that by keeping close to the rocks to the northward of Northumberland point, boats might enter at any time, and we found by following this direction we entered by the smoothest channel; when once in the boat harbour, the water is perfectly smooth and the landing excellent.

Sailing vessels should not anchor within two miles of this landing place. Her Majesty's steam sloop under my command anchored in 5½ fathoms, about one mile and a quarter distant from it. Vessels entering this bay should give Northumberland point a wide berth, the rollers break occasionally in 10 fathoms, and the reef extends fully 2 miles in a S.E. direction. There is only one house or building in the bay, rented by a Mr. Barry, upon which a red ensign was hoisted. There are several wells in the neighbourhood, but the water is brackish. Sand hills studded with heath and brush wood are the prominent features of the surrounding country, but upon the hilly ground near Agulhas and Northumberland points lime stone is found.

Remarks upon the position selected for a lighthouse on Cape Agulhas.

Firstly, as to the opinion of a Mr. Bell that a lighthouse placed on Agulhas point would be of little or no service to vessels coming from the eastward.

Secondly, as to the eligibility of Northumberland point for a lighthouse, and the extent of a reef running off that point.

With regard to the first question raised, we are of opinion that all vessels coming from the eastward would derive the utmost benefit from a lighthouse erected on Point Agulhas, for we find that it extends two miles farther to the southward than Northumberland point, and is the southernmost extreme of Africa. We also find that Northumberland point is only 3½ miles distant from Agulhas point, bearing N. 62° E., (true bearing) and that a light on Agulhas point would be seen by all vessels coming from the eastward, provided they were not actually in the western part of Struis Bay, and it would be a leading mark for vessels clearing Quoin point, off which a dangerous reef extends; moreover we do not conceive it probable that a vessel could run on Northumberland point, with a powerful light within three miles of it.

With regard to the eligibility of Northumberland point for a lighthouse, two objections present themselves,—the first: that this point does not extend so far to the southward as Agulhas point, and the second that a light so placed on Northumberland point would be masked to vessels approaching from the westward by Agulhas point,—moreover we find that the reef off Northumberland point does not extend more than two miles. Under these circumstances and having minutely examined the different points, we have,

in conjunction with Colonel Michell determined upon the site of a lighthouse ro be erected on Agulhas point, the position of which is about 35 feet above the level of the sea, 340 yards from the extreme point of Agulhas, and 200 yards due north of high water mark, and we recommend that the face of the building should be painted with white and red stripes alternately, that it may be more easily seen by day in a fog or mist.

MEACOCK'S PATENT FOR THE PREVENTION OF SPONTANEOUS COMBUSTION, *and extinguishing of Fire in Vessels carrying Coals.*

During the last few days a model of the above has been placed in the Captain's room at Lloyd's. The apparatus is extremely simple, consisting merely of layers of perforated tubes placed fore and aft on the coals at certain periods of the loading, and communicating with the hatchways by upright pipes; the gas, generated by the coals, finds escape through these tubes, and passes off to the atmosphere, thereby removing the cause of fire, and keeping the cargo perfectly cool. In a large ship fitted with the apparatus a short time ago, the escape of gas was plainly perceptible, and after the apparatus had been laid down for two or three days, the temperature of the cargo was reduced to *two degrees below* that of the between decks, and in the course of a week after, it was brought down to *five degrees*; thus shewing the efficiency of the apparatus.

In case of fire however, (but which is almost impossible) the means used to extinguish it are most effectual, by merely pouring water down the pipes at the hatchways, which, passing through the perforations, distributes itself over the whole cargo. This in itself, is well worthy of attention.

The loss of property (and at the same time of life) has of late been immense, and we therefore hope the matter will meet with the earnest attention of all parties concerned, as it is richly deserving of it.

Tower Chambers, Liverpool, July 1st, 1848.

I beg respectfully to apprise you that I have received the appointment of Agent for the supply of Meacock's Patent Apparatus for the prevention of Spontaneous Combustion and extinguishing of fires in vessels carrying coals.

The apparatus which is most simple in construction, is applicable to vessels of all sizes, and can be fitted with little or no loss of time or stowage by the porters loading the cargo. The expense is very moderate the apparatus being supplied at the manufacturer's prime cost, with a patent right of 6d. per ton on the cargo.

As a stock is now constantly on hand at the Manufactory the apparatus can be supplied at once.

Trusting to be favoured with an order for any of your vessels requiring the apparatus.

I remain, &c.

R. IRONSON.

GREAT CIRCLE TABLES.—We stated in our last that a second Edition of Mr. Towson's Tables for Great Circle Sailing had been published by the Admiralty. Subsequently to the first edition Mr. T. communicated a method by which the Tables may be applied to the computation of Azimuths; and also added directions for making the Tables still useful, should the Linear Index be lost or rendered unserviceable.

In order that purchasers of the first edition may derive the benefit of the improvements in the later one, an extract from the latter containing the above additions has been printed, and which will be delivered *gratis* to such parties, on application to the Agent, or Sub Agents for the sale of the Admiralty Charts.

A List of all the Masters and Mates in the Merchant Service, who have voluntarily passed an examination, and obtained Certificates of Qualification for the Class against each assigned, under the Regulations issued by the Board of Trade, between June 1st, and the 31st July.

Name of Party who has received the Certificate.	Class of Certificate	Age	Present or last previous Service.	No. of Register Ticket	Where Exam.	When.
F. Goote	2nd	21	Ajax, 776 tons ..... (*as mate*)	34231	London	June, 1st
H. B. Benson	2nd	26	Strathaden, 429 tons (*as mate*)	27919	London	— 1st
R. Dowman	2nd	29	Bussorrah Merchant, 530 tons (*as mate*)	3906	London	— 1st
A. Bisset	2nd	24	Agincourt, 669 tons ... (*as mate*)	377409	London	— 1st
G. W. Barton	3rd	34	Lady Fitzherbert, 386 tons (*as mate*)	272664	London	— 1st
M. Webster	3rd	31	Lady Fitzherbert, 394 tons	....	London	— 1st
J. Lindsay	3rd	29	Janet Boyd, 230 tons	.....	London	— 1st
J. Laughton	1st	30	Camilla, 201 tons	.....	Leith	— 3rd
C. W. Oglivie	2nd	26	Agnes, 300 tons ..... (*as mate*)	325457	London	— 6th
T. Scott	2nd	31	Agincourt, 650 tons ...	23134	London	— 6th
C. Gibbs Peterbridge	1st	25	John Ormerou, 187 tns	.....	Plymouth	— 6th
A. Ellis	2nd	33	John William Dare, 291 tons	.....	London	— 8th
L. T. Fillan	2nd	30	British Tar, 309 tons	.....	London	— 8th
W. A. Elder	2nd	22	Elizabeth Ainslie, 495 tons (*as mate*)	391670	London	— 8th
G. W. Slorach	2nd	25	Dominica, 381 tons ...	36113	London	— 8th
S. Howes	3rd	44	Albion, 68 tons	5457	London	— 8th
C. Cockburn	3rd	32	Conquering Hero, 319 tons	89051	London	— 8th
T. Coe	3rd	41	Arabella, 275 tons..... (*as mate*)	377054	London	— 8th
C. Williamson	3rd	26	Pilgrim, 181 tons ..... (*as mate*)	16531	S. Shields	— 8th
H. Neatby	2nd	43	Agincourt, 669 tons...	.....	London	— 9th
N. Thomas	2nd	54	John Pink, 293 tons...	.....	London	— 12th
A. Rousby	2nd	26	Franyee Cawasjee, 950 tons (*as mate*)	.....	London	— 12th
W. Darby	2nd	44	Louisa Campbell, 287 tons	.....	London	— 12th
R. Wrankmore	2nd	34	Calcutta, 484 tons.....	.....	London	— 12th
J.H.Richardson	1st	44	Cleofrid 261 tons	.....	London	— 12th
T. S. Beal	2nd	29	Bussorah Merchant, 530 tons	.....	London	— 12th
H. Johnson	2nd	33	Fanny, 230 tons ..... (*as mate*)	16521	London	— 15th
J. Edwards	2nd	32	Sir Charles Fitzroy,... 166 tons	.....	S. Shields	— 16th
R. Stavely	1st	29	Ocean, 300 tons.....	.....	Glasgow	— 19th

J W. Davy	1st	34	Minerva, 250 tons..... (*as mate*)	16464	Plymouth	Jnue, 20th
R. A. Clarkson	2nd	46	Earl Durham, 464 tons		London	— 20th
S. Edwards	2nd	29	Sarah Scott, 352 tons	4279	London	— 20th
M. Passmore	2nd	50	Andromache, 468 tons		London	— 20th
W. A. Joss	3rd	23	Nerbudda, 428 tons ... (*as mate*)	77897	London	— 20th
W. Innis	2nd	32	Briton's Queen, 150 tns (*as mate*)	381520	Plymouth	— 23rd
J. Ritchie	1st	39	Dolphin, 201 tons		Glasgow	— 24th
H. Stratford	2nd	49	Ellen, 535 tons		London	— 26th
J. Davies	2nd	44	Victory, 411 tons		London	— 26th
H. W. Davies	2nd	42	Henry Tanner, 388 tns		London	— 26th
J. Kinning	2nd	26	Euterpe, 859 tons		London	— 26th
H. H. Wade	2nd	29	Nora Creina, 128 tons	343616	London	— 26th
S. R. Bundy	3rd	24	Scotsman, 235 tons ... (*as mate*)	171493	London	— 27th
D. Cowan	3rd	34	Coromandel, 425 tons		London	— 26th
T. Leigh	2nd	27	Ceres, 361 tons	29413	London	— 26th
J. M. Rogers	1st	26	Clyde, 1159 tons ..... (*as chief officer.*)	55944	Portsmouth	— 29th
J. J. F. N. Rolfe	2nd	22	Earl of Balcarras, 1700 tons (*as mate*)	393664	London	— 29th
J. Cleland	1st	45	Falcon, 484 tons		Glasgow	— 29th
W. H. Lamond	1st	32	Nelson, 603 tons		Glasgow	— 29th
W. Wright	2nd	29	Trafalgar, 528 tons ...		London	— 30th
L. Ramsay	2nd	50	Niobe, 252 tons..... (*as mate*)	91811	S. Shields	— 29th
W. Paton	1st	28	Britannia, 1400 tons... (*as mate*)	337565	Liverpool	— 30th
J. H. Adamson	2nd	20	Meldon, 225 toos		London	July 3rd
J. Young	2nd	49	Ajax, 767 tons		London	— 3rd
W. Murray	2nd	43	Renown, 311 tons.....	17564	London	— 3rd
H. Podger	2nd	34	Conquering Hero, 320 tons (*as mate*)	261610	London	— 3rd
J. Barr	3rd	31	Andromache, 468 tons (*as mate*)	34858	London	— 3rd
R. D. Affleck	1st	36	Charlotte, 535 tons ...		Liverpool	— 4th
G. M'Millan	1st	28	Caroline, 329 tons..... (*as mate*)	8691	London	— 6th
W. J. Williams	2nd	29	Princess Royal, 548 tns (*as mate*)	8228	London	— 6th
W. Johnson	2nd	36	Sumatra 353 tons		London	— 6th
J. H. Day	2nd	27	Emperor, 672 tons ...		London	— 6th
S. Harding	2nd	36	Louisa Munro, 300 tns		London	— 6th
A, Shifely	2nd	41	Rio Packet, 206 tons...	328136	London	— 6th
W. Cookman,	3rd	32	Tartar, 567 tons ..... (*as mate*)	22629	London	— 6th
J. B. Trevers	2nd	25	SamuelBoddington 669 tons (*as mate*)	259499	London	— 10th
C. Freeman	2nd	38	Hindostan, 971 tons... (*as mate*)	19393	London	— 10th
T. J. Dixon	3rd	36	Brisk, 121 tons	163376	London	— 10th
J, R. Homan	3rd	29	Orator, 321 tons		London	— 10th
N. R. Sayers	2nd	41	Edmonstone, 566 tons		London	— 13th
W. B. Kincaid	2nd	26	Augusta Jessie385tons		London	— 13th

ancient authors regarding them. Beyond Egypt and Assyria, indeed, we should imagine the fashion alluded to never to have extended, and in all likelihood in the latter country it existed only for a season; and it is most singular that while the Greek, the Roman and the Jewish writers described with minuteness almost every article of arms or attire employed or worn by the people of whom they write, decorations so very remarkable, as the artificial beard of the Persians should nowhere be noticed. Now, for the first time, do we become accquainted with the attire of the most luxurious court of the age in which it existed.

Our theatrical critics of the present day laugh at the idea of the representatives of Cato and Mark Antony, appearing on the stage, in full-bottomed wigs; in any drama referring to the history of Persia, of the age of Belshazzar, the costumes of the characters would have been incomplete without them. A Bactrian coin with a Greek inscription, was laid on the table of the Society, along with casts of the marbles, and singular it was, most certainly, that a Greek ruler was here found to have adopted the artificial wig and beard, for the repudiation of which they were so much despised by the Egyptians. The appearance of a parasol on a sculpture two thousand years old, has nothing, perhaps, in it very remarkable, excepting it be the circumstance of its perfect similitude to the large parasols used in India at the present time. The Egyptian delineations more resemble the feather flabella carried behind the Pope, than the parasols now most familiar to us.

Xenophon mentions wigs as having been common at the court of Persia in the time of Cyrus the Great; and Elian also adverts to the matter. Livy states that they were common in France. Juvenal and Martial notice the wearing of them amongst the roués of Rome. Our correspondent adds that the visitors of the Italian galleries will recollect many busts with wigs on, detached from the head. "Wigs also," continues the writer, "were much used in Bhuddist times, and the pictures at Ajanta provide excellent representations of the full bottomed wig." We must at once admit that, the allusions of the parties just named to wigs, as existing in Persia, Greece, or Rome, had escaped our recollection altogether. With the exception of the notices we quoted above, we were unable to find any allusion at all to wigs, as worn by the ancients. On looking over the very interesting work "On the history of Perriwigs, with an account of their origin, use, form, and abuses,"* we find a number of notices of them so remarkable, that we shall give some of them, for the amusement of the reader.

Our author states, that according to Rangone, principal of the college of Berlin, false hair was first made use of by the ladies, and that the flagatious example thus set, was followed by the men. 'There is an ungallant saying, that there never was mischief yet but that a priest or a woman was at the bottom of it; and here the priest lays the blame of wigs on women, to whom,

* We subjoin the title as it stands in the Italian; we do not recollect even so much as to have heard of the learned Bovicelli, until his work on wigs was placed in our hands:—

Istoria delle Perruche, in cui si fa vedere La loro origine, la usanza, la forma, l'abuso, e la irrogolarita di quelle degli Ecclesiastici. Tradotta dal Francese per ordine dell' Eminentiss. Arcivesco vo Orfini Vescovo Tusculano, or a Vescovo di Porto. D. A. Giuliano Bovicelli, Priore della S. Basilica, S. Bartolomeo, gia Segretario di S. Eminenza. Dedicata All Illustriss e Reverendiss. Signore Mons, Sarnelli Vescovo di Bisegija. Non amat falsum auctor veritatis; adulterium est apud illum omne, quod fingitur; Tert. lib. de Spectac. cap. 25.—Benevento Nella Stamperia Arcivescovale 1722.

if the clergy are to be believed, we owe all the mischief the world contains. The creed of the laity luckily lies somewhat in the opposite direction, and considers the world not worth having without women. The general reader will scarcely be prepared for the assurance quoted by our author, as given by a theologian of Lovaine, whose authority he accepts as unquestionable, that the earliest allusion we have to wigs is to be found in the 3rd chapter of Isaiah, and the 17th verse, where are the words, "The Lord will smite with a scab the crown of the head of the daughters of Zion," meaning that the Jewish ladies should be exposed, by having their wigs taken off. Clearchus, the disciple of Aristotle, assures us, it seems, that the Iapigiian girls of evil fame were, in their own country, the introducers of the wigs which they were compelled to assume when their wicked courses, prematurely denuded them of their hair. Xenophon mentions wigs as common at the court of Cyrus the Great, a statement materially affecting the theory that they were brought from Egypt by the prisoners of Cambyses, the son of Cyrus. They were, at this time, also common in Medea, as well as Persia. Aristotle mentions that the Lieutenant-General of Mousolo, had orders from his chief to collect a huge quantity of hair from the heads of the Greeks, he being willing to accept of this instead of tribute, for the purpose of having it manufactured into wigs. What was asked was most willingly conceded, and a large amount of obligation thus very conveniently discharged.

It is very obvious, indeed, that in a nation where the whole community shaved their heads, and wore wigs and artificial beards from early youth, that the difficulty of finding the raw material for this species of manufacture, must often have been very embarrassing; and the contributions from foreign parts must have been eminently desirable. The spoils of the heads of the long-haired Greeks, must have been very acceptable to their bald-headed neighbours when they could be come by. Unhappily for the wig-makers, their office was a good deal of a tartar-catching sort of a process. Marathon could bear witness, that the Persians, who went in quest of hair, in this direction, were considerably worse off than the wool-gatherers, who return home shorn; they sought for materials to cover their heads, and lost their heads in the adventure.

Titus Livius, it seems, assures us, that the great captain of the age, General Hannibal, wore a wig of brown hair, to conceal his years, and that, to disguise himself from the swords of the Gallic chiefs, he sometimes changed his clothes, sometimes his wig; a practice still occasionally resorted to by robbers, on a smaller scale, when averse to attracting attention in their own character. Ovid recommends some of his fair frail friends, who stand in need of extra covering for their scalps, to purchase golden, red, or yellow hair from the Germans, and shine amongst Roman ladies in borrowed colours. Juvenal mentions that Messalina, mistress of the emperor Claudius, had her own dark tresses removed, and in their place put on a wig of golden hue. Martial speaks of the sandy hue of the wigs of Germany, having their effect heightened by being sprinkled with gold. This practice was said to have been resorted to by the emperor Nero himself. The satirist speaks of the sudden change of the hue of hair, from the colour of the swan, to that of the crow, so cunningly brought about, as to cheat any one but——. Proserpine would play the deuce with them, pull off the meretricious curls, and leave the real person undisguised; and he twits the lady Lilia, that, having purchased hair and teeth, she could not provide herself with artificial or borrowed eyes.

The reader will probably think this enough; it still was nothing half so strange to find wigs occasionally worn, as to find, as we do in ancient Egypt and Assyria, a whole bewigged population. The work of Bovicelli, is not

written to give a history of wigs, so much as to show how shameful it was for ecclesiastics to wear them, by collecting all the notices he could find calculated to bring them into discredit. They were denounced by the prophet Isaiah; they were general amongst heathens; they were resorted to by rakes and courtesans, whose evil lives had rendered them necessary. We have seen the forced interpretation of one sacred writer, that he might be brought to bear witness against wigs; the 14th verse of the 11th chapter of the 1st of Corinthians is brought in to shew that, if it be a disgrace for a man to cultivate long hair, it is forbidden him to wear a wig as an ornament. Then follow all the more direct and dreadful threats of the apostolic fathers. Tertullian is astonished that any one should indulge in the enormity of false and woven hair. If wig-wearers are not ashamed of these enormities, they ought to be alarmed at the peril of their indulgences; their wigs are, perhaps, the exuviæ of the heads of criminals, condemned to a place of torment. What can the wearers of such coverings expect? He taunts wig-wearers with having sheaths for their heads. Clement Alexandrinus maintains the wearing of false hair to be most impious. Gregory Nazianzen reckons it the highest praise of a good man that he had not ornamented himself with false hair, or proclaimed his own ignominy by a fraudulent covering for his head. St. Jerome speaks in scorn of the hairy turrets built on the top of the head. St. Augustine maintained that wig-wearing was specially forbidden by the Apostle Paul. From the times of the Apostles, in short, till long after the reformation, wig-wearing seems to have been one of the pet aversions of the Catholic church, and the utmost length the most generous could go, was to give sanction to the use of wigs for health, not for shew, "*ad sanitatem, non ad vanitatem.*"

We have said that one reason against them was, that they were heathen devices; and it says more for the warmth than for the consistency of the writer, that he adduces the vestal virgins as authorities on his side, their plan as described by Pliny, being to cut off their hair, and bestow it on the lotus plant, that they might be denuding their heads in this world, to ensure themselves a crown of glory in the next.—*Bombay Monthly Times.*

DESCENT OF THE MAIL STEAMER "GILDERSLEEVE" DOWN THE NORTH CHANNEL OF THE LONG SAULT RAPIDS.—Those who have travelled on the St. Lawrence are aware that between Dickenson's landing and Cornwall, a distance of from 12 to 14 miles is a long rapid, called the Long Sault. This Rapid is divided into two channels, by an island in the centre. The channnel on the south side being the one which has heretofore been descended by steamers and other large craft passing down the river. Captain Maxwell, the enterprising commander of the mail steamer "*Gildersleeve*," having sometime ago become impressed with an idea that the channel on the north side of the Island, was not only practicable for vessels of a large class, but that it was much safer, and easier of descent than the channel on the south side, made with much trouble, soundings and observations, for the purpose of ascertaining whether such was really the case. Having well satisfied himself in the matter, he (with Mr. Hamilton's permission) made a descent down the north channel last Tuesday afternoon in the mail steamer "*Gildersleeve*,". The passage was magnificent. The grandeur and beauty at the Rapid at the Cedars, the Cascades, or Lachine,—owing to the great rapidity of the current, the water was much rougher than on the south side of the Island, but the channel is straighter, and, in every respect better than the one heretofore adopted, and there is little doubt that ere long the north channel will be the one which the main traffic of the river will pass through.

Great credit is due to Captain Maxwell for the ability and perseverence he has exhibited in exploring this new channel. The thanks (at least) of the country are due to him for his exertion and enterprise, and the smallest tribute that can be paid to him, is, that the channel which he has thus been the first to prove is practicable for large vessels, should bear his name, and be called "Maxwell's Channel."—*Quebec Paper.*

LIST OF CHRONOMETERS purchased in the last five years by the Admiralty, for the use of Her Majesty's Navy, from those on the annual trial at the Royal Observatory, Greenwich; with the prices paid for each expressed in guineas.

	1844.		1845.		1846.		1847.		1848.	
Makers' Names,	Chron	Price	Chron.	Price	Chron.	Price	Chron	Price	Chron	Price
Appleton	468	50	484	40	474	50				
"	464	45			485	50				
Arnold	1542	40	Died							
Baker	1083	40			1093	45				
Birchall	342	45	348	40	351	40				
"			347	45	361	50				
Carter			345	40	410	45				
Clark					1198	45				
Connell			399	45						
Cotterell	933	45								
Cribb	66	40								
Dent			1797	45			1967	55	2035	50
Dixon	157	45								
Eiffe					525	45			280	45
Fletcher					1188	40			1164	45
Frodsham, C.			1482	40	1485	40	2074	65		
"			1540	40			2066	50		
Hewitt									1117	55
Hutton					138	65	149	45		
"					145	40				
Lister					400	40				
Loseby			101	45	108	50	111	50		
"			104	40	107	40	113	45	115	55
"							119	45		
Massey, E. I.			125	50	126	50	120	50	132	55
Mc'Gregor							138	45		
Muston			948	40						
Norris & Campbell			474	40	475	40				
Parkinson, H.					625	55				
Park & Frodsham	2614	45	2955	40	2595	40			2661	45
"			2630	40	2958*	30				
"			2791	40						
"			1886*	35						
Poole	1086	40	1155	50	1176	55	1181	55	1256	50
"					1179	50	1241	45		
"							1168	45		
Porthouse	65922	40								
Reid and Son	1048	50	1160	50			1075	45	1083	50
"			1056	45			1074	50		
Shepherd			441	50	479	45			228	50
Webb	5016	45	5536	50			5552	55		

* Pocket.

Nautical Notices.

The following have been given by the Trinity-House, dated the 22nd of August, 1848.

Harwich Harbour.—With reference to the advertisement from this House, dated the 9th of February last, that for the purpose of further facilitating the entrance of vessels into Harwich harbour in the night time, a light as hereinafter described, is in course of preparation to be exhibited, with the permission of the Board of Ordnance, in Landguard Fort.

Mariners are to observe that the arrangement of the several lights for the said harbour of Harwich will be as follows, viz:—

The lights in the high and low light towers as heretofore exhibited; and in the lower part of the high tower a light appearing of a Red colour, or White, according to the line of direction on which it is seen.

The light about to be shewn from Landguard Fort will appear to vessels entering the harbour in succession as they proceed, first Red, second White, and third Green.

Masters of vessels, Pilots, and other persons, are requested to attend carefully to the following instructions, viz.:—

Having arrived with the high and low light at Harwich in one, steer the usual course, until the Red light in Landguard Fort (which will not become visible until the vessel is to the northward of the Ridge) is seen bearing N. Easterly, and having opened the same, a W.b.N. course must then be steered until the lower White light in the high tower shall have been opened to the south westward of the Red light, and which White light being so kept will lead to the south-westward of the Beach-end buoy, and between the Cliff-foot rock on the port or larboard hand, and the Altar Shoal on the starboard hand:—when abreast of the Beach-end buoy the Red light in Landguard Fort will disappear, and be immediately succeeded by the White light therein, which will continue visible up to the Altar buoy, on arriving at which it will in turn disappear, and be succeeded by the Green light, on the appearance of which it should be brought to bear E.b.S. for the anchorage.

Note.—The White, Red, and Green light in Landguard Fort will be first exhibited on the evening of the 1st of October next, and the whole of the arrangement above described is to be regarded as temporary only, pending such alterations as may be judged advisable upon the completion of the pier now in course of construction.

Prince's Channel. Notice is hereby given, that in compliance with the request of numerous owners and masters of vessels, and other persons using or interested in the navigation between the North Foreland and the Nore, two floating light vessels are about to be placed in the Prince's Channel, the lights on board of which will be first exhibited on the evening of Sunday, the 1st day of October next, and thenceforth continued every night from sun-set to sun-rise.

Mariners are to observe, that one of these vessels will be moored in the eastern part of the said channel, near to the East Tongue Sand, and will exhibit two lights, one at the mast-head, which will be White, and one at a lower elevation, which will be coloured Red.

The other vessel will be placed at the western end of the said channel, near to the Girdler Sand, and will exhibit one bright revolving light.

Further particulars in relation to the exact positions of these respective vessels will be published in due course.

Admiralty, 4th August, 1848.

HALIFAX HARBOUR, *Nova Scotia*.—Sir, I am commanded by my Lords Commissioners of the Admiralty, to acquaint you for the information of the Committee for managing the affairs of Lloyd's, that Vice-Admiral the Earl of Dundonald, has, at the request of Mr. Cunard, Senior Commissioner of Lighthouses, placed a bell on the buoy of the Rock Head Shoal, at the entrance of the harbour of Halifax, Nova Scotia.

(Signed) W. A. B. HAMILTON.

Capt. G. A. Halsted, R.N., Secretary, Lloyd's.

Hobarton, 10th April, 1848.

DEAL ISLAND LIGHTHOUSE, *Van Deiman's Land*.—Sir, The following notice has just been published by the Post Office here, and we beg to forward the same for the information of the subscribers to Lloyd's.

(Signed) T. D. CHAPMAN & Co., *Agents to Lloyds.*

The lighthouse on Deal Island, forming one of the cluster of islands, called Kent Group, in Bass Straits, lat. 39° 29′ S., long. 147° 21′ E., having now been erected, a light is burning, and will continue from sun-set until sun-rise.

The lighthouse is erected on a hill 900 feet above high-water mark. The supporting column is 46 feet in height. The upper part of the column (like all the lighthouses within the Government of Van Diemen Land,) is coloured Red, and the lower part White. The lower part of the column is built of granite, each block worked to a mould. The cornice and blocking are 6 feet high of freestone.

The lantern is 7 feet high, having a revolving catoptric light, with 21 lamps and patent pipes, smoke consumers, working in three groups, each group containing 7 lamps with reflectors, and revolves round once in five minutes, showing fifty seconds of light, and fifty seconds of darkness.

The light may be seen thirteen leagues, has been set by cross bearings at a distance of 12 leagues, and is visible all round the compass, unless the light be intercepted by being close in with any of the surrounding islands.

(Signed) W. MORIARTY, *Port Officer.*

Danish Consulate General, London, 8th August.

BLOCKADE.—Sir, By direction of the Royal Board of Trade at Copenhagen notice is hereby given, that in addition to the harbours of Swinemunde, Wolgast, Cammin, Kiel, with the mouth of the Sleswig Canal at Holtenau, now under blockade, the following places will be blockaded by His Danish Majesty's naval forces from the 15th inst., viz.—Griefswalde, with the Eastern Entrance to Stralsund, the rivers Elbe, Weser, and Jahde.

This announcement has been communicated to the representatives of the Friendly and Neutral Powers, accredited at the Court of his Danish Majesty, and will likewise be notified by the officers of the Customs to every vessel passing through the Sound and Belts.

(Signed) F. WILSON.

Capt. G. A. Halsted, R.N., Secretary, Lloyd's.

COTTONS.—The Supreme Board of Health having renewed the disposition that cottons arriving from England may be freely admitted, have ordered that the said cottons must be accompanied with a certificate, either directly, from the Consular Agents, or by the Local authority; in which case the sig-

nature of the same must be certified by the Consular Agents, who will attest that the said cottons have been manufactured, or at least unpacked in England.—*Naples 4th July*, 1848.

STRUIS BAY NEAR CAPE AGULHAS, *South Coast of Africa.—Extract from the Remarks of H.M.S. Rosamond, Commander J. Foote.*

STRUIS Bay is formed by Northumberland Point and Struis Point in the vicinity of Cape Agulhas. With any northing in the wind vessels may find good holding ground in Struis bay in 7 fathoms (sand) Northumberland point bearing S.W. by compass; with any southing in the wind the anchorage is exposed. There is an excellent boat harbour formed by a reef of rocks, to enter which you must pass over a bar, which when the *Rosamond* was there did not break at all heavily, and we were informed by an inhabitant of the bay that by keeping close to the rocks to the northward of Northumberland point, boats might enter at any time, and we found by following this direction we entered by the smoothest channel; when once in the boat harbour, the water is perfectly smooth and the landing excellent.

Sailing vessels should not anchor within two miles of this landing place. Her Majesty's steam sloop under my command anchored in 5½ fathoms, about one mile and a quarter distant from it. Vessels entering this bay should give Northumberland point a wide berth, the rollers break occasionally in 10 fathoms, and the reef extends fully 2 miles in a S.E. direction. There is only one house or building in the bay, rented by a Mr. Barry, upon which a red ensign was hoisted. There are several wells in the neighbourhood, but the water is brackish. Sand hills studded with heath and brush wood are the prominent features of the surrounding country, but upon the hilly ground near Agulhas and Northumberland points lime stone is found.

Remarks upon the position selected for a lighthouse on Cape Agulhas.

Firstly, as to the opinion of a Mr. Bell that a lighthouse placed on Agulhas point would be of little or no service to vessels coming from the eastward.

Secondly, as to the eligibility of Northumberland point for a lighthouse, and the extent of a reef running off that point.

With regard to the first question raised, we are of opinion that all vessels coming from the eastward would derive the utmost benefit from a lighthouse erected on Point Agulhas, for we find that it extends two miles farther to the southward than Northumberland point, and is the southernmost extreme of Africa. We also find that Northumberland point is only 3½ miles distant from Agulhas point, bearing N. 62° E., (true bearing) and that a light on Agulhas point would be seen by all vessels coming from the eastward, provided they were not actually in the western part of Struis Bay, and it would be a leading mark for vessels clearing Quoin point, off which a dangerous reef extends; moreover we do not conceive it probable that a vessel could run on Northumberland point, with a powerful light within three miles of it.

With regard to the eligibility of Northumberland point for a lighthouse, two objections present themselves,—the first: that this point does not extend so far to the southward as Agulhas point, and the second that a light so placed on Northumberland point would be masked to vessels approaching from the westward by Agulhas point,—moreover we find that the reef off Northumberland point does not extend more than two miles. Under these circumstances and having minutely examined the different points, we have,

in conjunction with Colonel Michell determined upon the site of a lighthouse ro be erected on Agulhas point, the position of which is about 35 feet above the level of the sea, 340 yards from the extreme point of Agulhas, and 200 yards due north of high water mark, and we recommend that the face of the building should be painted with white and red stripes alternately, that it may be more easily seen by day in a fog or mist.

MEACOCK'S PATENT FOR THE PREVENTION OF SPONTANEOUS COMBUSTION, *and extinguishing of Fire in Vessels carrying Coals.*

During the last few days a model of the above has been placed in the Captain's room at Lloyd's. The apparatus is extremely simple, consisting merely of layers of perforated tubes placed fore and aft on the coals at certain periods of the loading, and communicating with the hatchways by upright pipes; the gas, generated by the coals, finds escape through these tubes, and passes off to the atmosphere, thereby removing the cause of fire, and keeping the cargo perfectly cool. In a large ship fitted with the apparatus a short time ago, the escape of gas was plainly perceptible, and after the apparatus had been laid down for two or three days, the temperature of the cargo was reduced to *two degrees below* that of the between decks, and in the course of a week after, it was brought down to *five degrees*; thus shewing the efficiency of the apparatus.

In case of fire however, (but which is almost impossible) the means used to extinguish it are most effectual, by merely pouring water down the pipes at the hatchways, which, passing through the perforations, distributes itself over the whole cargo. This in itself, is well worthy of attention.

The loss of property (and at the same time of life) has of late been immense, and we therefore hope the matter will meet with the earnest attention of all parties concerned, as it is richly deserving of it.

Tower Chambers, Liverpool, July 1st, 1848.

I beg respectfully to apprise you that I have received the appointment of Agent for the supply of Meacock's Patent Apparatus for the prevention of Spontaneous Combustion and extinguishing of fires in vessels carrying coals.

The apparatus which is most simple in construction, is applicable to vessels of all sizes, and can be fitted with little or no loss of time or stowage by the porters loading the cargo. The expense is very moderate the apparatus being supplied at the manufacturer's prime cost, with a patent right of 6d. per ton on the cargo.

As a stock is now constantly on hand at the Manufactory the apparatus can be supplied at once.

Trusting to be favoured with an order for any of your vessels requiring the apparatus.

I remain, &c.

R. IRONSON.

GREAT CIRCLE TABLES.—We stated in our last that a second Edition of Mr. Towson's Tables for Great Circle Sailing had been published by the Admiralty. Subsequently to the first edition Mr. T. communicated a method by which the Tables may be applied to the computation of Azimuths; and also added directions for making the Tables still useful, should the Linear Index be lost or rendered unserviceable.

In order that purchasers of the first edition may derive the benefit of the improvements in the later one, an extract from the latter containing the above additions has been printed, and which will be delivered *gratis* to such parties, on application to the Agent, or Sub Agents for the sale of the Admiralty Charts.

A List of all the Masters and Mates in the Merchant Service, who have voluntarily passed an examination, and obtained Certificates of Qualification for the Class against each assigned, under the Regulations issued by the Board of Trade, between June 1st, and the 31st July.

Name of Party who has received the Certificate.	Class of Certificate	Age	Present or last previous Service.	No. of Register Ticket	Where Exam.	When.
F. Goote	2nd	21	Ajax, 776 tons ..... (*as mate*)	34231	London	June, 1st
H. B. Benson	2nd	26	Strathaden, 429 tons (*as mate*)	27919	London	— 1st
R. Dowman	2nd	29	Bussorrah Merchant, 530 tons (*as mate*)	3906	London	— 1st
A. Bisset	2nd	24	Agincourt, 669 tons ... (*as mate*)	377409	London	— 1st
G. W. Barton	3rd	34	Lady Fitzherbert, 386 tons (*as mate*)	272664	London	— 1st
M. Webster	3rd	31	Lady Fitzherbert, 394 tons	....	London	— 1st
J. Lindsay	3rd	29	Janet Boyd, 230 tons	.....	London	— 1st
J. Laughton	1st	30	Camilla, 201 tons	.....	Leith	— 3rd
C. W. Oglivie	2nd	26	Agnes, 300 tons ..... (*as mate*)	325457	London	— 6th
T. Scott	2nd	31	Agincourt, 650 tons ...	23134	London	— 6th
C. Gibbs Peterbridge	1st	25	John Ormerou, 187 tns	.....	Plymouth	— 6th
A. Ellis	2nd	33	John William Dare, 291 tons	.....	London	— 8th
L. T. Fillan	2nd	30	British Tar, 309 tons	.....	London	— 8th
W. A. Elder	2nd	22	Elizabeth Ainslie, 495 tons (*as mate*)	391670	London	— 8th
G. W. Slorach	2nd	25	Dominica, 381 tons ...	36113	London	— 8th
S. Howes	3rd	44	Albion, 68 tons	5457	London	— 8th
C. Cockburn	3rd	32	Conquering Hero, 319 tons	89051	London	— 8th
T. Coe	3rd	41	Arabella, 275 tons..... (*as mate*)	377054	London	— 8th
C. Williamson	3rd	26	Pilgrim, 181 tons ..... (*as mate*)	16531	S. Shields	— 8th
H. Neatby	2nd	43	Agincourt, 669 tons...	.....	London	— 9th
N. Thomas	2nd	54	John Pink, 293 tons...	.....	London	— 12th
A. Rousby	2nd	26	Franyee Cawasjee, 950 tons (*as mate*)	.....	London	— 12th
W. Darby	2nd	44	Louisa Campbell, 287 tons	.....	London	— 12th
R. Wrankmore	2nd	34	Calcutta, 484 tons.....	.....	London	— 12th
J.H.Richardson	1st	44	Cleofrid 261 tons	.....	London	— 12th
T. S. Beal	2nd	29	Bussorah Merchant, 530 tons	.....	London	— 12th
H. Johnson	2nd	33	Fanny, 230 tons ..... (*as mate*)	16521	London	— 15th
J. Edwards	2nd	32	Sir Charles Fitzroy,... 166 tons	.....	S. Shields	— 16th
R. Stavely	1st	29	Ocean, 300 tons.....	.....	Glasgow	— 19th

J W. Davy	1st	34	Minerva, 250 tons..... (*as mate*)	16464	Plymouth	Jnue, 20th
R. A. Clarkson	2nd	46	Earl Durham, 464 tons.....		London	— 20th
S. Edwards	2nd	29	Sarah Scott, 352 tons	4279	London	— 20th
M. Passmore	2nd	50	Andromache, 468 tons.....		London	— 20th
W. A. Joss	3rd	23	Nerbudda, 428 tons ... (*as mate*)	77897	London	— 20th
W. Innis	2nd	32	Briton's Queen, 150 tns (*as mate*)	381520	Plymouth	— 23rd
J. Ritchie	1st	39	Dolphin, 201 tons	.....	Glasgow	— 24th
H. Stratford	2nd	49	Ellen, 535 tons	.....	London	— 26th
J. Davies	2nd	44	Victory, 411 tons	.....	London	— 26th
H. W. Davies	2nd	42	Henry Tanner, 388 tns	.....	London	— 26th
J. Kinning	2nd	26	Euterpe, 859 tons	.....	London	— 26th
H. H. Wade	2nd	29	Nora Creina, 128 tons	343616	London	— 26th
S. R. Bundy	3rd	24	Scotsman, 235 tons ... (*as mate*)	171493	London	— 27th
D. Cowan	3rd	34	Coromandel, 425 tons	.....	London	— 26th
T. Leigh	2nd	27	Ceres, 361 tons	29413	London	— 26th
J. M. Rogers	1st	26	Clyde, 1159 tons ..... (*as chief officer.*)	55944	Portsmouth	— 29th
J. J. F. N. Rolfe	2nd	22	Earl of Balcarras, 1700 tons (*as mate*)	393664	London	— 29th
J. Cleland	1st	45	Falcon, 484 tons	.....	Glasgow	— 29th
W. H. Lamond	1st	32	Nelson, 603 tons	.....	Glasgow	— 29th
W. Wright	2nd	29	Trafalgar, 528 tons ...	.....	London	— 30th
L. Ramsay	2nd	50	Niobe, 252 tons..... (*as mate*)	91811	S. Shields	— 29th
W. Paton	1st	28	Britannia, 1400 tons... (*as mate*)	337565	Liverpool	— 30th
J. H. Adamson	2nd	20	Meldon, 225 toos	.....	London	July 3rd
J. Young	2nd	49	Ajax, 767 tons	.....	London	— 3rd
W. Murray	2nd	43	Renown, 311 tons.....	17564	London	— 3rd
H. Podger	2nd	34	Conquering Hero, 320 tons (*as mate*)	261610	London	— 3rd
J. Barr	3rd	31	Andromache, 468 tons (*as mate*)	34858	London	— 3rd
R. D. Affleck	1st	36	Charlotte, 535 tons ...	.....	Liverpool	— 4th
G. M'Millan	1st	28	Caroline, 329 tons..... (*as mate*)	8691	London	— 6th
W. J. Williams	2nd	29	Princess Royal, 548 tns (*as mate*)	8228	London	— 6th
W. Johnson	2nd	36	Sumatra 353 tons	.....	London	— 6th
J. H. Day	2nd	27	Emperor, 672 tons ...	.....	London	— 6th
S. Harding	2nd	36	Louisa Munro, 300 tns	.....	London	— 6th
A, Shifely	2nd	41	Rio Packet, 206 tons...	328136	London	— 6th
W. Cookman,	3rd	32	Tartar, 567 tons ..... (*as mate*)	22629	London	— 6th
J. B. Trevers	2nd	25	SamuelBoddington 669 tons (*as mate*)	259499	London	— 10th
C. Freeman	2nd	38	Hindostan, 971 tons... (*as mate*)	19393	London	— 10th
T. J. Dixon	3rd	36	Brisk, 121 tons	163376	London	— 10th
J, R. Homan	3rd	29	Orator, 321 tons	.....	London	— 10th
N. R. Sayers	2nd	41	Edmonstone, 566 tons	.....	London	— 13th
W. B. Kincaid	2nd	26	Augusta Jessie385tons	.....	London	— 13th

J. Clark	2nd	27	General Hewett 961 tns	323966	London	July 13th
W. J. Cubitt	1st	33	Duke of Portland, 533 tons	.....	Glasgow	— 14th
C. F. Riches	2nd	22	Duke of Portland, 533 tons (*as mate*)	40911	Yarmouth	— 15th
J. B. Swanson	2nd	22	Theresa, 496 tons ..... (*as mate*)	394107	London	— 17th
J. Green	2nd	27	Young England 450 tns (*as mate*)	394106	London	— 17th
R. A. Bennett	2nd	24	Annabell, 200 tons ...	90649	London	— 17th
T. C. Fellows	2nd	36	Gloucester, 297 tons...	324940	London	— 17th
W. H. Bowen	2nd	23	Southampton, 1000 tns (*as mate*)	31023	London	— 17th
E. Goldsmith	2nd	44	Rattler, 522 tons	.....	London	— 17th
H. J. C. Andrew	1st	28	Slains Castle, 503 tons (*as mate*)	325725	London	— 20th
T. Bowe	2nd	23	Robert Small, 800 tons (*as mate*)	327948	London	— 20ht
F. P. Molloy	2nd	30	Queen of England, 560 tons (*as mate*)	344451	London	— 20th
J. Spencer	2nd	33	Louisa Munro, 300 tns (*as mate*)	27046	London	— 20th
G.H.E. Bawden	2nd	30	Berenice, 332 tons.....	324956	London	— 20th
W. Lawrence	3rd	27	John Anderson, 313... tons	.....	London	— 20th
J. Duncan	2nd	37	Emma, 225 tons.....	337450	Glasgow	— 22nd
W. Clark	2nd	47	Tevoit, 1800 tons ..... (*as mate*)	.....	London	— 22nd
T. G. Vaile	2nd	22	Andromache, 468 tons (*as mate*)	392744	London	— 24th
W. Richardson	2nd	32	Angola, 90 tons.....	4084	London	— 24th
H. Smithers	3rd	33	St. George, 605 tons... (*as mate*)	26230	London	— 25th
W. B. M'Leod	1st	28	Zion, 621 tons ..... (*as mate*)	15245	London	— 27th
E. Morison	2nd	28	Trafalgar, 528 tons ...	.....	London	— 27th
J. Jenkins	2nd	21	Silurian, 300 tons ..... (*as mate*)	260603	London	— 27th
J. Mackintosh	2nd	35	Rockshire, 563 tons ... (*as mate*)	1314	London	— 27th
J. Wilson	3rd	45	Rattler, 522 tons ..... (*as mate*)	376860	London	— 27th
C. Ferguson	1st	36	Rajah, 352 tons.....	.....	Leith	— 28th
W. M'Queen	1st	31	Nelson, 603 tons..... (*as mate*)	11770	Leith	— 28th
J. Barnesley	3rd	...	Coatham, 283 tons ... (*as mate*)	45382	Hull	— 29th
J. M. Goodwin	2nd	29	Australasia, 584 tons (*as mate*)	30882	London	— 31st
J. Barrow	2nd	35	Bolivar, 212 tons	30596	London	— 31st
G. Johnson	2nd	48	Greenlaw, 428 tons ...	.....	London	— 31st
D. Thomat	2nd	35	Camerons, 255 tons ...	.....	London	— 31st
W. Jones	2nd	30	Eliza, 313 tons	.....	London	— 31st
A. Sellers	2nd	56	Rosalind, 267 tons ...	.....	London	— 31st

MATES.

A. Cubitt	3rd	19	Stratheden, 560 tons	33855	London	June 5th
J. Greig	2nd	22	Monarch, 580 tons ...	326016	London	— 8th
W. Robson	1st	22	Eustace	163092	Newcastle	— 7th
C. Baker	2nd	24	Samuel Boddington,... 669 tons	324758	London	— 15th
E. Potter	3rd	27	Andromache, 463 tons	31346	London	— 20th
F. Flood	3rd	27	Euterpe, 159 tons	338027	London	— 20th
M. Campbell	1st	...	Mungo Park, 248 tons (*as seaman*)	405172	Leith	— 24th
W. Hargrave	3rd	40	Anstralasia, 485 tons	31389	London	— 26th
C. Evans	3rd	24	Placid, 234 tons..... (*as master*)	160478	London	July 4th
R. T. Stevens	3rd	22	Cuba, 273 tons	328288	London	— 10th
J. W. Singleton	2nd	21	Caroline, 540 tons..... (*as second mate*)	12677	Plymouth	— 14th
H. Wakelin	2nd	24	Sarah Scott, 380 tons (*as seaman*)	238064	London	— 17th
J. W. Harman	3rd	19	John Hullett, 300 tons (*as seaman*)	48673	London	— 17th
W. Chandler,	3rd	20	Penyard Park,377tons	328903	London	— 18th
E. Tride	2nd	31	Boyne, 620 tons.....	31629	London	— 25th
W. George	3rd	27	Planter, 347 tons	25021	London	— 27th
G. Jenkins	3rd	26	Camerons, 255 tons ...	35611	London	— 31st
T. Daw	2nd	41	Augusta Jessie, 385tns (*as seaman*)	6146	London	— 31st

HER MAJESTY'S SHIPS IN COMMISSION;

With their Stations and Dates of Commission of Officers in Command.

[EXPLANATION.—st.-sh. *steam-ship*, h. p. *horse-power*, t. *tons*, c. *crew*, b. *built*]

SAILING VESSELS.

Agincourt, 72, t. 1747, c. 416, b. 1817, Captain W. B. Mends, 1814, Devonport; *Alarm*, 26, t. 910, c. 240, b. 1845, Capt in G. G. Loch, 1841, West Indies; *Albatross*, 12, t. 484, c. 130, b. 1841, Commander A. Farquhar, 1844, East Indies; *Alert*, 6, t. 358, c. 80, b. 1835, Commander H. Dunlop, 1842; coast of Africa; *Alligator*, 26, t 500. b. 1821, Hospital-ship, Hong Kong. *Amphitrite*, 26, t. 1064, c. 195, b. 1816, Captain T. R. Eden, 1844, coast of Africa; *Andromache*, 26, st.-sh., t. 717, c. 30, b. 1832, Master T. Johnson, 1803, Galway; *Andromeda*, 44, st.-sh., t. 1215, c. 60, b. 1829, Master R. Thompson, Killibegs; *Arab*, 16, t. 481, c. 130, b. 1847, Commander W. Morris, 1846, Cape of Good Hope; *Asia*, 84, t. 2289, c. 750, b. 1824, Rear Admiral P. Hornby 1840, Captain R. F. Stopford, Pacific; *Astrea*, 44, st.-sh, t. 956, b. 1810, Master W. Yeames, 1810, Falmouth; *Atholl*, 2, tr.-sh., t. 503 b. 1820, Master Pearn, 1827, particular service.

Belleisle, 24, tr.-sh., t. 1709, b. 1819, Captain J. Kingcome, 1838, on her passage to Plymouth; *Bellerophon*, 78, t. 2056, c. 650, b. 1818, Captain R. L.

Baynes, C.B., 1828, Cork; *Bermuda*, sch. b. 1847, Lieutenant A. D. Jolly, 1842, St. John's, Nicaragua, West Indies, June 24th; *Bittern*, 16, t. 484, c. 130, b. 1840, Commander T. Hope, 1841, coast of Africa; *Bonetta*, 4, t. 319, c. 65, b. 1836, Lieutenant F. E. Forbes, 1843, coast of Africa; *Bramble* 10. t. 161, b. 1822, Lieutenant C. B. Yule, 1842, Sydney; *Brilliant*, 22, t. 954, c. 234, b. 1814, Captain R. B. Watson, 1842, Cape of Good Hope; *Britomart*, 10, t. 328, b. 1847, Commander W. C. Chamberlain, 1844, coast of Africa.

Caledonia, 120, t. 2712, c. 950, b. 1808, Captain T. W. Carter, 1831, Devonport; *Calliope*, 26, t. 720, c. 195, b. 1837, Captain E. Stanley, 1838, New Zealand; *Calypso*, 20, c. 200, b. 1845, Captain H. J. Worth, 1840, Valparaiso, Pacific; *Cambrian*, 36, t. 1622, c. 310, b. 1841, Commodore J. H. Plumridge, 1822, China; *Cerus*, tender, Second Master T. Fogden, (act.), Woolwich, *Ceylon*, 2, rec.-ship, Rear-Admiral Edward Harvey, Malta; *Champion*, 18, t. 456, c. 130, b. 1824, Commander J. M. Hayes, 1841, South America; *Childers*, 16, t. 385, c. 130, b. 1827, Commander J. C. Pitman, 1842, China; *Cockatrice*, sch., 6, t. 182, c. 65, b. 1832, Master J. Rundle, 1836, Pacific; *Columbine*, 18, t. 492, c. 130, b. 1826, Commander J. C. D. Hay, 1842, China; *Comus*, 18, t. 462, c. 130, b. 1828, Commander E. C. T. D'Eyncourt, 1842, Rio, June 4th; *Constance*, 50, t. 2125, c. 500, b. 1846, Captain G. W. C. Courtenay, 1842, Valparaiso, Pacific; *Contest*, 12, t. 459, c. 130, b. 1846, Commander A. Mc Murdo, 1843, coast of Africa; *Crane*, pkt.-bg., t. 259, c. 44, b. 1839, Lieutenant J. Parsons, 1845, Falmouth; *Crescent*, 42, rec.-sh., b. 1810, Lieutenant T. C. Meheux, 1838, Rio; *Crocodile*, rec.-sh., t. 500, b. 1827, Rear-Admiral Honourable D. H. Mackay, 1826, Lieutenant-Commander S. R. Protheroe, Cork; *Cygnet*, 8, t. 359, c. 80, b. 1840, Commander G. Kenyon, 1843, coast of Africa.

Dædalus, 20, t. 1082, c. 195, b. 1828, Captain P. Mc Quhae, 1835, China; *Daring*, 12, t. 426, c. 130, b. 1844, Commander W. Peel, 1846, West Indies; *Dart*, 3, t. 320, c. 65, Lieutenant E. A. Glynn, 1840, coast of Africa; *Dido*, 20, t. 731, b. 1836, Captain J. B. Maxwell, 1837, New Zealand; *Dolphin*, 3, t. 318, c. 65, b. 1836, Lieutenant R. F. Boyle, 1843, coast of Africa.

Electra, 14, t. 462, c. 130, b. 1847, Commander F. W. P. Bouverie, 1842, West Indies; *Enterprise*, discovery-ship, Captain Sir James C. Ross, Arctic Expedition; *Erebus*, t. 378, b. 1827, Captain Sir J. Franklin, 1822, Arctic Expedition; *Espiegle*, 12, t. 443, b. 1844, Commander F. A. Campbell, 1846, China; *Eurydice*, 26, t. 908, c. 200, b. 1843, Captain T. V. Anson, 1841, Cape of Good Hope; *Excellent*, formerly *Boyne*, t. 2155, c. 700, b. 1810, Rear-Admiral H. Prescott, C.B., Captain R. S. Hewlett, 1825, (act.), Portsmouth; *Express*, 6, pkt.-bg., t. 362, c. 44, b. 1835, Lieutenant W. Lory, 1821, Falmouth.

Favorite, 14, t. 434, c. 130, b. 1829, Commander A. Murray, 1840, coast of Africa; *Ferret*, 8, t. 358, b. 1840, Commander G. Sprigg, 1844, coast of Africa; *Fisgard*, 41, t. 1069, c. 129, b. 1819, Commodore (2nd class), Sir J. J. G. Bremer, K.C.B., 1814, Woolwich; *Fly*, 18, t. 485, c. 130, b. 1831, Commander R. A. Oliver, 1844, New Zealand; *Frolic*, 16, t. 511, c. 130, b. 1842, Commander N. Vansittart, 1847, Cork.

Ganges, 84, t. 2285, c. 415, b. 1821, Captain Henry Smith, (a) C.B., 1829, Sheerness; *Gipsey*, tender to *Crocodile*, Cove of Cork; *Gossamer*, tender to *Crocodile*, Cove of Cork; *Grampus*, 50, formerly *Tremendous*, t. 1706, c. 500, b. 1784, re-built 1810, raz. 1845, Captain H. B. Martin, C.B., 1827, Pacific; *Grecian*, 16, t. 484, c. 130, b. 1838, Commander L. S. Tindall, 1831, Rio, June 4th; *Griffon*, 3, t. 230, c. 65, b. 1832, Commander Thurburn, 1841 South America.

Harlequin, 12, t. 433, b. 1836, Commander J. Moore, 1843, Mediterranean; *Hastings*, 72, t. 1763, c. 615, b. 1818, Captain J. W. Morgan, 1846, East Indies;

Havannah, 22, t. 964, c. 195, b. 1811, Captain J. E. Erskine, New Zealand; *Helena*, 16, t. 549, c. 120, b. 1843, Commander G. W. Smith, 1841, Cork; *Herald*, 26, t. 500, c. 200, b. 1823, surveying, Captain H. Kellet, C.B., 1842, Behring's Strait; *Hercules*, 12, tr.-sh., t. 1750, b. 1815, Master R. Fulton, 1814, East Indies; *Heroine*, 6, t. 359, c. 80, b. 1841, Commander C. Edmunds, 1841, coast of Africa; *Hibernia*, 104, t. 2530, c. 950, b. 1804, Vice-Admiral Sir W. Parker, Bart., G C.B., Captain Charles Wise, 1847, Naples; *Hound*, 6, t. 358, c. 80, b. 1846, Commander G. H. Wood, 1846, Bermuda; *Howe*, 120, t. 2619, c. 1000, b. 1815, Captain Sir James Stirling, Knt., 1818, Naples.

Illustrious,* 72, t. 1746, c. 416, b. 1803, Captain R. A. Yates, 1827, Portsmouth; *Imaum*, 72, t. 1825, b. 1836, Commodore (2nd class), Thomas Bennett, 1828, receiving-ship, Jamaica; *Inconstant*, 36, t. 1422, c. 150, b. 1836, Captain John Shepherd, 1840, Monte Video; *Investigator*, discovery-ship, Captain E. J. Bird, 1843, Arctic Expedition.

Juno, 26, t 922, c. 240, b. 1845, Captain P. I. Blake, 1841, Pacific.

Kestrel, brigantine, t. 200, c. 65, Lieutenant H. Baker, 1846, south-east coast of Africa.

Lark, 2, surveying-vessel, t. 109, b. 1830, Lieutenant G. B. Lawrence, 1843, North America, and West Indies; *Linnet*, 6, pkt.-brig, t. 361, c. 44, b. 1835, Lieutenant T. James, 1821, Devonport.

Madagascar, 44, st.-sh., t. 1167, c. 60, b. 1822, Master R Mann, 1845, Tarbert; *Mariner*, 16, t. 481, c. 130, Commander C. M. Mathinson, 1843, East Indies; *Mastiff*, surveying-vessel, t. 184, b. 1847, Lieutenant Thomas, 1844, Orkney Islands; *Meander*, 44, t. 1215, c. 310, b. 1840, Captain Hon. H. Keppel, 1837, Singapore, June 4th; *Melampus*, 42, t. 1089, c. 310, b. 1820, Captain J. N. Campbell, C. B., 1827, China; *Minden*, 20, st.-sh., t. 1721, b. 1810, Master J. Mitchell, 1827, Hong Kong; *Mutine*, 12, t. 428, c. 130, b. 1844, Commander I. J. Palmer, Mediterranean.

Naiad, 42, st.-sh., t. 1020, b. 1797, Master W. L. Browne, 1831, Callao; *Nautilus*, 10, t. 233, b. 1830, exercg.-brig, Master Wallis, Devonport; *Nereus*, 42, st.-sh., t. 1094, b. 1821, Master F. W. Bateman, 1837, Valparaiso; *Netley*, 8, tender to flag-ship, Devonport; *Nimrod*, 20, t. 502, c. 432, b. 1828, Commander T. Belgrave, 1848, Cape of Good Hope.

Ocean, 80, t. 2291, b. 1805, Vice-Admiral Hon. George Elliott, Captain George Elliott, 1840, Sheerness.

Pandora, 6, t. 319, c. 65, b. 1833, Lieutenant James Wood, 1841, Pacific; *Pantaloon*, 8, t. 340, c. 80, b. 1830, Commander L. De T. Provost, 1845, coast of Africa; *Penguin*, pkt.-bg., t. 300, b. 1838, Lieutenant W. Leslie, 1815, Falmouth; *Perseus*, receiving-ship for naval volunteers, b. 1812, Lieutenant Greet, 1840, off the Tower; *Petrel*, 6, pkt.-bg., t. 359, c. 44, b. 1838, Lieutenant T. Cresser, 1826, Falmouth; *Philomel*, 6. t. 360, c. 75 b. 1812 Commander W. C. Wood, 1841, coast of Africa; *Pilot*, 16, t. 481, c. 120, b. 1838, Commander E. M. Lyons, 1846, Bantry Bay; *Plover*, discovery-ship Commander T. L. Moore, 1848, Behring's Strait; *Poictiers*,* 72, t. 1764, c. 327, b. 1809, Captain Sup. Sir T. Bouchier, K.C B., 1827 Chatham; *Powerful*, 84, t. 2296, c. 496, b. 1826, Captain Hon. R. S. Dundas, 1824, Portsmouth; *President*, 50, t. 1537, c. 500, b. 1830, Vice-Admiral Dacres, Captain W. P. Stanley, 1838, Cape of Good Hope; *Prince Regent*, 92, t. 2613, c. 820, b. 1823, Captain W. F. Martin, 1824, Cork.

Queen, 110, t. 3083, c. 100, b. 1839, Captain H. W. Bruce, 1821, Naples.

Racer, 16, t. 431, c. 120, b. 1833, Lieutenant Henry Bacon, 1841, Lisbon; *Racehorse*, 18, t. 438, c. 130, b. 1830, Commander E. S. Southeby, 1841, New Zealand; *Raleigh*, 50, t. 1935, c. 500, b. 1845, Commodore Sir T. Herbert Captain S. G. Fremantle, 1822, south-east coast of America; *Ranger*, 8, t.

363, c. 80, b. 1835, Commander C. F. Newland, 1847, coast of Africa; *Rapid*, 8, t. 319, c. 80, b. 1840, Commander E. Dixon, 1841, coast of Africa; *Rattlesnake*, 2, surveying-vessel, t. 503, b. 1822, Captain O. Stanley, 1844, Sydney, March, 9th; *Resistance*, tr.-sh., t. 1790, b. 1805, Commander G. Lowe, 1840, Quebec; *Ringdove*, 12, t. 429, b. 1838, Commander E. A. Inglefield, 1845, East Indies; *Rodney*, 92, t. 2625, c. 820, b. 1833, Captain E. Collier, C.B., 1841, Mediterranean; *Rolla*, 10, t. 231, b. 1829, exercising-brig, Portsmouth; *Royalist*, 6, t. 249, c. 65, b. 1839, Lieutenant D. Mc D. Gordon, 1845, China; *Royal Sovereign*, yacht, t. 278, b. 1804, Captain Sup. Peter Richards, C.B., 1828, Pembroke.

St. Vincent, 120, t. 2612, c. 950, b. 1815, Rear-Admiral Sir Charles Napier, K.C.B., Captain S. C. Dacres, 1840, Cork; *San Josef*,* 110, t. 2457, c. 170, cap. 1797, flag-ship of Admiral Sir W. H. Gage, G.C.H., Captain Sir T. Maitland, C.B., 1837, Devonport; *Scout*, 14, t. 489, c. 120, b. 1832, Commander F. E. Johnstone, 1841, East Indies; *Seagull*, pkt.-bg., t. 279, c. 44, b. 1831, Lieutenant Smail, 1845, Falmouth; *Sea Lark*, 10, t. 318, c. 25, b. 1843, Commander W. B. Moneypenny, 1841, coast of Africa; *Seringapatam*, st.-sh., t. 1148, b. 1819, Master James T. Russell, 1837, Cape of Good Hope; *Siren*, 16, t. 549, c. 120, b. 1841, Commander C. Chaloner, 1845, coast of Africa; *Southampton*, 50, t. 1476, c. 450, b. 1820, Captain N. Cory, 1840, Chatham; *Spartan*, 26, t. 918, c. 240, b. 1841, Captain T. M. C. Symonds, 1841, Mediterranean; *Speedwell*, 6, Master E. K. Calver, Harwich; *Spider*, 6, t. 182, c. 75, b. 1835, Lieutenant C. Haydon, 1810, South America; *Spy*, 3, brigantine, t. 320, b. 1841, Lieutenant G. W. Watson, 1837, Chatham; *Star*, 6, t. 358, c. 75, b. 1835, Commander C. W. Riley, 1838, coast of Africa; *Superb*, 80, t. 2589, c. 720, b. 1842 Captain A. L. Corry, 1821, Mediterranean.

Terror, 7, t. 326, b. 1813, Captain F. R. M. Crozier, 1841, Arctic Expedition; *Thetis*, 36, t. 1524, c. 350, b. 1846, Captain H. J. Codrington, C.B., 1836, Mediterranean; *Thunder*, 6, t. 472, b. 1829, Captain E. Barnett, 1846, West Indies; *Tortoise*, 12, guard-ship, t. 962, Captain F. Hutton, 1844, Ascension; *Trincomalee*, 26, t. 1066, c. 195, b. 1819, Captain R. L. Warren, 1839, St. Thomas's, July, 15; *Tweed*, 18, t. 500, c. 130, b. 1823, Commander Lord F. Russell, 1837, Cork.

Vanguard, 80, t. 2589, c. 720, b. 1836, Captain F. G. Rich, 1823, Mediterranean; *Vengeance*, 84, t. 2284, c. 750, b. 1824, Captain S. Lushington, 1829, Naples; *Vernon*, 50, t. 2082, c. 500, b. 1832, Captain J. C. Fitzgerald, 1841, East Indies; *Victoria*, schooner, Lieutenant W. K. Jolliffe, 1845; *Victory*,* 100, t. 2164, c. 172, b. 1765, rebuilt 1800, Admiral Sir C. Ogle, Bart., Captain C. Eden, 1841, Portsmouth; *Viper*, 6, t. 183, c. 75, b. 1831, Lieutenant H Bernard, 1846, North America, and West Indies; *Volage*, 22, surveying-vessel, t. 516, c. 200, b. 1825, Captain Graves, 1846, Mediterranean.

Wanderer, 12, t. 428, c. 120, b. 1835, Commander F. B. Montressor, 1842, coast of Africa; *Waterwitch*, 8, Commander R. R. Quin, 1846, coast of Africa; *Wellesley*, 72, t. 1746, c. 600, b. 1815, Vice-Admiral the Earl of Dundonald, Captain G. Goldsmith, 1842, Halifax, July 26; *Wellington*,* 72, t. 1757 c. 270, b. 1826, Captain Sup. D. Price, Sheerness; *Woodlark*, tender to the *Mastiff*.

Steam Vessels.—*Acheron*, 3, surveying vessel, h.p. 170 t. 720, b. 1838, Captain J. L. Stokes, 1846, New Zealand; *Adder*, 1 packet, h.p. 100, c. 19, Masters J. Hammond, (act.) Pembroke; *Adelaide*, tug, Sec. Master Forbes, 1848, Portsmouth; *Advice*, 1, h.p. 100, c. 19, Lieut. C. A. Petch, 1248, Pembroke; *Alban*, 1, h.p. 120, t. 405, b. 1826, Master Bradshaw, 1842, Ireland; *Alecto*, h.p. 200, t. 800, b. 1839, Commander V. A. Massingberd, 1842, south-east coast of America; *Amphion*, 34, h.p. 300, t. 1474, c. 330, b. 1846, Captain

W. J. Williams, 1841, Kingstown, Ireland; *Antelope*, packet, h.p. 264, t. 649, b. 1846, Lieut. F. Smyth, 1826, Mediterranean; *Ardent*, 3, packet, h.p. 200, t. 800, b. 1841, Lieut. W. C' Nowel, 1823, Mediterranean; *Asp*, 1, h.p. 50, t. 112, Lieut. W. W. Oke, 1825, Portpatrick; *Avon*, h. p. 170, t. 361, b. 1825, Commander J. B. Cator, 1831, Ireland.

Banshee, packet, h.p. 350, t. 650, b. 1847, Master W. Smithett, (act.) Holyhead; *Bee*, h.p. 10, b. 1842, for the students of the Excellent, Portsmouth; *Birkenhead*, h.p. 500, t. 1400, b. 1845, Captain H. T. Austin, C.B., 1838, Waterford; *Black Eagle*, Admiralty Yacht, h.p. 260, t. 495, b. 1831, Master Cook, 1838, Woolwich; *Blazer*, 3, t, 527, b. 1834, Lieut. G. T. C. Smith, 1842, coast of Africa; *Blenheim*, schooner, 56, h.p. 435, t. 1747, c. 485, Captain H. D. Chads, C.B., 1825, Tarbert, Ireland; *Bloodhound*, h.p. 150, t. 378, b. 1845, Lieut. R. Phillipps, 1830, Cork; *Bulldog*, h p. 500, t. 1123, b. 1845, Commander A. C. Key, 1845, Mediterranean.

Caradoc, steam packet, h.p. 350, t. 650, b. 1848, Lieutenant C. P. Ladd, 1815, Holyhead; *Cherokee*, h.p. 200, Commander W. N. Fowell, 1839, Lower Canada; *Comet*, 3, h.p. 80, t. 238, b. 1822, Lieutenant C. G. Rigge, 1838, Lisbon; *Confiance*, h.p. 100, t. 295, b. 1827, Second Master J. Jagoe (act.), Devonport; *Cuckoo*, h.p. 100, Commander H. Dumaresq, 1842, Channel Islands; *Cyclops*, h.p. 320, t. 1106, b. 1331, Hon. G. F. Hastings, 1845, Portsmouth.

Dasher, h.p. 100, t. 200, b. 1837, Lieutenant A. Parks, 1815, Coast of Scotland; *Dee*, 2, h.p. 200, t. 704, b. 1832, Master G. Filmer, 1809, G.C.H.; *Devastation*, 6, h.p. 400, t. 1058, b. 1841, Commander R. C. Mitchell, 1843, Cape of Good Hope. *Dorterel*, packet, h.p. 100, t. 237, b. 1826, Master E. R. Wylde, 1814, Holyhead. *Dragon*, h.p. 560, t. 1270, c. 175, b. 1845, Captain W. H. Hall, 1844, Killibegs Ireland. *Driver*, h.p. 280, t. 1056, b. 1841, Commander C. R. Johnson, 1847, Waterford.

Fairy, yacht, schooner, h.p. 128, t. 312, b. 1845, Master D. N. Welch, tender to Victoria and Albert, Portsmouth. *Firefly*, h.p. 220, t. 550, Commander John Tuder, 1842, Coast of Africa. *Fire Queen*, h.p. 100, t. 312, Master G. Allen, (act.) Portsmouth. *Fury*, h.p. 500, t. 1123, b. 1845, Commander I. Willcox, 1846, China.

Garland, packet, h.p. 120, t. 202, b. 1846, Lieutenant B. Aplin, Dover. *Geyser*, h,p. 280 t. 1054, b. 1841, Commander F. T. Brown, 1840, Cape of Good Hope. *Gladiator*, h.p. 430, t. 2120, c. 280. b. 1843, Captain J. Robb, 1841, Mediterranean. *Gorgon*, h.p. 320, t, 1111, b. 1837, Commander J. A. Paynter, 1846, Pacific. *Grappler*, h.p. 180 t. 537, b. 1845, Lieutenant T. H. Lysaght, 1841, Coast of Africa.

Harpy, h.p. 200, t. 343 b. 1845, Lieutenant Tomlinson, 1826, south-east coast of America. *Hecate*, 5, h.p. 250, t. 817, b. 1840. Commander R. Moorman, 1845, ordered home from Mediterranean. *Hermes*, 6, h.p. 220, t. 830, b. 1835, Master W. Martin, (act.) Devonshire. *Hydra*, 6, h.p. 240, t. 818, b. 1838, Commander Skipwith, south-east coast of America.

Inflexible, h.p. 378, t. 1124, o. 1844, Commander J. C. Hoseason, 1844, East Indies.

Jasper, packet; h.p. 100, c. 19, Master E. Rose, 1823.

Kite, tug, h.p. 170, t. 300, b. 1835, BerCuda, West Indies.

Lightning, 2, h. 100, t. 296, b. 1823, Master Petley, 1844, Portsmouth, *Liza d*, h.b. 150, t. 340, b. 1844, Lieutenant W. A. R. Pearse, South America. *Llewellyn*, packet, h.p, 350, t. 650, c. 65, b. 1848, Master J, Grey, Holyhead. *Locust*, 3, packet, h.p. 100, t. 284, b. 1840, Lieutenant E. R. Power, 1839, Mediterranean. *Lucifer*, Lieutenant E. A. T. Lloyd, Holyhead.

Medea, h.p. 220, t. 835, c. 40, b. 1833, Commander T. H. Mason, 1841, China. *Medina*, 2, b. 1840, Lifiutenant E. Keane, Woolwich. *Medusa*, 2, h.p. 320, t. 889, c. 65, b. 1839, Lieutenant Bathurst, 1838, Mediterranean;

Merlin, 2, h.p. 320, t. 882, c. 65, b. 1839, Lieutenant J. H. Turner, 1825, Mediterranean; *Meteor*, 2, h.p. 100, t. 296, b. 1824, Lieutenant J. Buttler, 1811, Mediterranean; *Minos*, h.p. 90, t. 406, Lieutenant J. Harper, 1845, acting, Lake Erie; *Mohawk*, h.p. 60, t. 174, Lieutenant John Tyssen, 1832, Lake Huron; *Monkey*, h.p. 80, t. 212, b. 1821, Second Master W. Bryant, Woolwich; *Myrmidon*, iron, h.p. 150, t. 374, b. 1846, Lieutenant J. H. Selwyn, 1841, tender to Ganges; *Myrtle*, h.p. 60, t. 116, b. 1837, Second Master A. Balliston.

Oberon, packet, h.p. 260, t. 650, b. 1848, Lieutenant G. J. Gardner, 1815, Mediterranean; *Odin*, 12, h.p. 560, t. 1310, b. 1846, Captain Hon. F. T. Pelham, 1840, Mediterranean; *Onyx*, packet, h.p. 120, t. 292, b. 1843, Lieut, Raymond, 1815, Dover.

Penelope, 16, h.p. 650, t. 1616, c. 260, b. 1829, Commodore Sir Charles Hotham, K.C.B., Captain L. T. Jones, 1830, coast of Africa; *Pigmy*, 1, packet, h.p. 80, c. 19, b. 1837, Lieutenant A. Darby, 1828, Waterford; *Pike*, 1, packet, h.p. 50, Lieutenant A Boyter, 1815, Portpatrick; *Pluto*, steam vessel, h.p. 100, t. 365, b. 1831, Lieutenant M. Richardson, C.A.; *Polyphemus*, 3, h.p. 200, t. 800, b. 1839, Commander Mc. Cleverty, 1842, Gibraltar;

Porcupine, b. 1844, Lieutenant E. F. Roberts, 1841, Mediterranean; *Princess Alice*, pkt., h.p. 120, t. 270, b. 1844, Lieutenant T. S. Scriven, 1822, Dover; *Prospero*, 1, pkt., h.p. 144, c. 21, b. 1829, Master P. Rundle 1846, Cork; *Redwing*, pkt., h.p. 60, t. 139, c. 19, b. 1834, Commander T. Bevis, 1829, Liverpool; *Renard*, schooner, h.p. 60, t. 516, b. 1848, Commander P. Cracroft, 1846, Kingstown; *Rhadamanthus*, h.p. 220, t. 813, b. 1832, Master J. Aylen 1842, Kingstown; *Rifleman*, schooner, h.p. 202, t. 486, b. 1846, Lieutenant S. L. Crofton, 1842, Kingstown; *Rosamond*, h.p. 286, t. 1059, c. 160, b. 1844, Commander J. Foote, 1845, Cape of Good Hope.

St. Columba, iron, h.p. 350, t. 650, b. 1848, Lieutenant A. S. Symes, 1816, Holyhead; *Sampson*, 6, h.p. 467, t. 1297, b. 1844, Captain T. Henderson, 1840, Pacific; *Scourge*, 2, h.p. 420, t. 489, b. 1844, Commander H. E. Wingrove, 1847, West Indies; *Sharpshooter*, h.p. 202, t. 489, b. 1847, Lieutenant J. C. Bailey, Portsmouth; *Shearwater*, 3, h.p. 160, t. 343, b. 1837, Lieutenant E. E. Turnour, 1842, Youghal, Ireland; *Sidon*, 12, h.p. 500, t. 1328, c. 300, b. 1846, Captain W. H. Henderson, C.B., 1838, Mediterranean; *Snap*, Lieutenant R. J. St. Aubyn, 1841, west coast of Africa; *Spitfire*, h.p. 140, t. 432, b. 1845, Lieutenant George O. Wiles, 1844, Mediterranean; *Sprightly*, 1, pkt., h.p. 100, t. 234, c. 18, b. 1829, Master J. P. Moon, (act.), Kingstown; *Stromboli*, 6, h.p. 290, t. 970, b. 1839, Commander Lord A. W. Beauclerk, 1846, Waterford.

Tartarus, h.p. 136, t. 523, c. 320. b. 1831, Lieutenant Sir G. Webster, Bart., 1840, Mediterranean; *Terrible*, h.p 800. t. 1847, b. 1845, Captain W. Ramsay, 1838, Mediterranean; *Torch*, h.p 150, t. 340, b. 1846, Lieutenant G. Morris, 1823, coast of Scotland; *Trident*, iron, h.p. 350, t. 850, b. 1846, Lieutenant E. F. Risk, 1840, Cork; *Triton*, iron pkt., h.p. 200, t. 650, b. 1847, Lieutenant J. P. Glinn, Mediterranean.

Undine, pkt., h.p. 110, t. 284, b. 1846. Lieutenant Jones, Portsmouth; *Urgent*, 2. pkt,, h.p. 284, t. 711, c. 36, Lieutenant H. P. Jones, 1814, Liverpool.

Vesuvius, h.p. 280, t. 976, b. 1840, Commander H. G. Austen, 1846, West Indies; *Victoria and Albert*, yacht, h.p 430, t. 1033, c. 112, b. 1843, Captain Lord A. Fitzclarence, G.C.H., 1821, Portsmouth; *Violet*, pkt., h.p. 120. t. 300, c. 17, b. 1843, Master R. Sherlock. Dover; *Vivid*, Master Luke Smithett, (act.), Dover; *Vixen*, h.p. 280, t. 976, b. 1840, Commander R. Jenner, 1847, West Indies; *Volcano*, 2, pkt., h.p. 140, t. 720, b. 1836, Lieutenant J. H. Crang, 1840, Mediterranean.

Wildfire, 1, h.p. 76, t. 186, b. 1826, Second-Master George Brockman, Sheerness.

Zephyr, 27, h.p. 100, t. 237. c. 18, b. 1845, Lieutenant A. R. Dunlap, 1842, Tarbert.

H.M.S. "Scout," and Chinese Pirates.—H.M.S. *Scout*, on her way, to Foo chow-foo, on the 1st instant, when opposite Chimmo Bay, fell in with a fishing-boat, the crew of which pointed out two suspicious-looking junks standing off the land, which they stated had that morning attacked some trading vessels, working up the coast. The *Scout* immediately gave chase, and fired at the small junk, which tacked in shore. Three boats were then despatched under the command of the senior Lieutenant, E. G. Blake, which took possession of her. She was found to be armed with a two-pounder, ginjalls, matchlocks, fire-pots, &c, and carried a crew of thirty-two men, several of whom jumped overboard and were drowned. Four men were found in her hold, bound hand and foot, who said they had been taken out of a fishing boat two days previously.

The *Scout* having secured her prize, tacked in pursuit of the larger junk, which she hailed and ordered to lower her sail: but as she still kept her course, the forecastle guns were fired from the *Scout*, which being returned by the junk, a running fight was kept up for nearly three hours, when the junk got into shallow water, and the wind fell. Two boats were despatched under Lieutenant Josling, who commenced firing as soon as he got within range. The boats pulled alongside under a shower of bullets and stink-pots, by which one seaman was killed, and Lieutenant Josling, Mr. Stanley, midshipman, and four seamen were wounded. The wind having again sprung up, the *Scout* ran alongside the junk, under a heavy fire from ginjalls and matchlocks, while numbers of fire pots fell on deck, wounding Commander Johnston and two of the crew; another seaman was wounded by an explosion of gunpowder on board the prize, which, on being taken possession of, was found to have a crew of one hundred and twenty men, with four six-pounder guns, and an immense number of ginjalls, matchlocks, and other Chinese weapons. Shortly after she was captured, she fell over on her beam ends, and went down. Only thirty-six of the pirates were secured, the rest having been either shot during the engagement, jumped overboard of their own accord, or gone down with the vessel when she sank. The survivors were handed over to the mandarins at Amoy. It appears these two pirates were lying in wait for the Amoy sugar-junks, now daily going northward; and the destruction of them by the *Scout* is said to be considered by the native merchants at Amoy, a most acceptable service.—*China Mail.*

The Lectures at the Polytechnic Exhibition.—Gun Cotton.—Our readers, perhaps, are not all aware that a new attraction now allures to the Polytechnic Exhibition, a lecture being given on each evening of the week. Mr. Hingston has lectured on gun-cotton for the last few evenings, and treated his subject in an exceedingly amusing and instructive manner, introducing a series of very excellent illustrative experiments. Commencing with a description of the elementary components of common cotton, and of the explosive substance formed from it, the lecturer alluded to the presence of nitrogen in all fulminating compounds,—gave a short description of the manufacture and properties of common gunpowder, and compared its explosive force with that of Schonbein's gun-cotton—stating that the power of the latter was to the former as 8 to 3. The mode of manufacturing the fulminating cotton was then shown: portions of it were fired by being struck with a hammer, by galvanism, and by applying a light to the touch-hole of a small cannon.

Not the least interesting experiment was that of firing the cotton in the exhausted receiver of an air pump—thus demonstrating that atmospheric air is not required for its combustion, while the cotton burns without noise. The uses of the material, and its application in the mechanical arts, were fully noticed; while, to wind up a very pleasant entertainment, a portion

of gun-cotton, manufactured before the audience, was placed at the end of the room opposite the lecturer, and fired by means of a galvanic battery, the wires from which were carried round the apartment attached to the walls. We understand that the lecture will be repeated several evenings; and Mr. Hingston has announced that ether and chloroform will form the subjects on which he will treat during the early part of the ensuing week. The attendance at the exhibition, up to Thursday night, have been as follows:—

Single Admissions, 54,720; By Gentlemen s Season Tickets, 2,880; By Ladies', 1,182; By Boys', 239; By Girls', 114; First Soireé, 325; Second Soireé, 482; Third Soireé, 242; Fourth Soireé 185.

New Books.

The Sailor's Horn Book for the Law of Storms.—*By Henry Piddington, President of Marine Courts of Inquiry, Calcutta*—London: Smith and Elder.

This is a valuable practical book, albeit we are somewhat disposed to complain of the title of it, which suggests to the mind, children with their horn covered alphabets as in olden time; while the *Storm Book*, which it really is, would clearly relate to ships, seamen, and the ocean. Besides, however unlettered the seaman may be, (and thanks to the schoolmaster and ships' libraries, he is not so bad as he was formerly,) he would rather learn the mysteries of storms under their proper name, than that of "Horns," notwithstanding the horn card from which the author has named his work. Doubtless a new science is entitled to new terms. Mr. Piddington has found one for the subject he discusses, in the name "Cyclone," from a Greek word signifying the coil of a snake, from its nature applicable to the circular storm, as not being, although circular, in the true form of a circle. But we shall not quarrel about terms. They are matters of taste to be settled between Mr. Piddington and his readers, and to be established only by custom, the most natural of all laws. We incline however, to the opinion that seamen will take some time to coil away the "Cyclone" in preference to "Hurricanes," or "Circular Storms."

Mr. Piddington deserves great credit for the care with which he has here collected for the information of seamen, the most remarkable instances of Circular Storms in different parts of the world. We have full often in the pages of the *Nautical* endeavoured to enlighten them on these subjects, and it is now a reproach to them to be ignorant. Here is another means of their instruction in which we see our own words freely quoted, and they will do well to look to them.

The Laws of Shipping and Insurance; *By James Lees, Esq.*—London: Simpkin and Co.; Liverpool: G. Philip.

Among the principal qualifications of a good shipmaster is an acquaintance with the laws affecting his ship, crew, and cargo, in which it is the object of this little book to instruct him. Law is an awkward thing to a skipper; there is something in blue water and blue jacket altogether averse to the letter of the law, and yet how frequently he is compelled to resort to it; and the very nature of his employment risks it every moment of his command. The work before us places in the hand of the skipmaster the intricate subject of law in its most amiable shape, at once intelligible, divested of technical phrases, and even attractive. So that like his chart which shews him how to avoid the rocks and shoals of the ocean, he may consult the "Laws of Shipping and Insurance," and avoid the equally dangerous rocks and shoals of legal liability. Each subject is carefully separated from the rest, which includes all that can possibly affect him in his responsible station, and is at once available by means of a good Index. No skipper should be without it.

A Descriptive Atlas of Astronomy, and of Physical, and Political Geography; *by the Rev. T. Milner; M.A.*—London: Orr and Co.

The first four numbers of this work are before us, and promise to supply a highly useful and instructive work on most of the numerous subjects which intimately concern us. At the same time it must be added, the information is occasionally superficial, such as that concerning longitude and the chronometer; but we see quite sufficient in the few numbers that have appeared to convince us that such a work ought to succeed.

Tales of a Traveller; *By Washington Irving.*—London: John Murray.

A welcome addition to the pages of the "Home and Colonial Library," well-known to be full of humorous and winning anecdotes, and just suited to the spirit of the times.

New Life of Lord Nelson.—We understand that Messrs. Boone of New Bond Street, are preparing for publication Memoirs of the Life of Lord Nelson, which will contain upwards of 600 Letters and Documents, which have never before been printed, and the existence of which were scarcely known, which have been written with the view of completing the history of one of the bravest and most patriotic Admirals that ever adorned the British Navy.

Total Destruction of the Ocean Monarch *Packet Ship, and great loss of Life.*

The splendid American ship *Ocean Monarch*, of 1,300 tons, burthen, belonging to Train's line of Boston packets, which left the Mersey early on Thursday morning, with about 360 persons on board, including the crew and emigrants, is now a floating hulk, burnt to the waters' edge; and, it is melancholy to add, that as near as can be calculated, about 100 of the passengers, who, but a few hours before, were buoyed up by bright anticipations of the future, have met with a watery grave. Children have been snatched from their parents, wives from their husbands, and husbands from their wives.

The flames burst with immense fury from the stern and centre of the vessel. So great was the heat in these parts that the passengers, male and female, men, women, and children, crowded to the fore part of the vessel. Their piercing, heart-rending shrieks for aid were carried by the breeze across the blue waters. In their maddened despair, women jumped overboard with their offspring in their arms, and sunk to rise no more. Men followed their wives in frenzy and were lost. Groups of men, women, and children also precipitated themselves into the water, in the vain hope of self-preservation, but the waters closed over many of them for ever. No pen can describe this awful scene. The flames continued to rage with increased fury. In a few minutes the mizen-mast went overboard—a few minutes more, and the main-mast shared the same fate. There yet remained the foremast.

As the fire was making its way to the fore part of the vessel, the passengers and crew of course crowded still further forward. To the jib-boom they clung in clusters as thick as they could pack, even one lying over another. At length the fore-mast went overboard, snapping the fastenings of the jib-boom, which, with its load of human beings, dropped into the water, amidst the most heart-rending screams, both of those on board, and those who were falling into the water. Some of the poor creatures were enabled again to reach the vessel; others floated away on spars, but many met with a watery grave.

By Electric Telegraph.—*Liverpool, Friday Night*

The *Prince of Wales* steamer, from Bangor, arrived this evening, and brought seventeen persons rescued from the *Ocean Monarch*. The total number saved is 225, the number not accounted for 173.

Births.

Aug. 18, at Ramsgate, the wife of Lieut. E. Burstall, R.N., of a son.

Aug. 18, at Southsea, the wife of Mr. G. J. Hodges, Master R.N., of a daughter.

Marriages.

July 6th, at Clifton, R. Osborne, Esq., of Berwick Lodge, near Henbury, Gloucestershire, to Emily Theresa, daughter of Capt. C. Warde, R.N. KCH.

Aug. 15, Com. H. Tause, R.N., to Anna Maria Dixon.

Aug. 22, at St. Johns Wood, Capt. J. F. Brittain, R.N., to Elizabeth Tyndale, daughter of C. Corfield, Esq.

Deaths.

Aug. 19, at Woolwich, Master-Attendant T. Elson.

Aug. 17, at Brighton, Lieut. Crooke.

Aug. 17, at Bray, Lieut. Dabine.

At Bristol, Lieut. Haberfield, R.M.

At Charlton, Mr. Edwards, surg. RN.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory From the 21st of July to the 20th of August 1848.

Month Day.	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade				Wind. Quarter.		Strength.		Weather.	
		9 A.M	3 P. M.	9AM	3PM.	Min	Max	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
		In Dec	In Dec										
21	F.	29·80	29·80	61	67	48	68	SW	S	5	6	qbc	qor 3 4
22	S.	29·86	29·92	63	70	54	71	SW	SW	5	3	qbo	bc
23	Su.	29·91	29·91	67	73	57	74	SW	SW	4	4	o	bcr 4
24	M.	29·91	29 97	62	68	56	70	SW	SW	3	3	bc	b3
25	Tu.	29·80	29·70	60	64	53	65	SW	SW	3	3	op 1 2	bcp 3
26	W.	29·80	29·76	65	66	58	68	SW	SW	5	5	qop 2	qop 3
27	Th.	29·91	29·93	64	68	55	69	SW	SW	2	4	o	o
28	F.	30·06	30·11	64	69	55	70	W	W	2	2	bc	bc
29	S.	30 13	30·13	65	72	59	73	SW	SW	2	2	od 2	bc
30	Su.	29·94	29·82	63	68	54	70	SW	SW	3	3	qcp 2	bcr 4
31	M.	29·54	29·56	63	68	58	70	SW	SW	4	4	bcp 1 2	bc
1	Tu.	29·39	29·50	60	64	54	63	SW	SW	3	4	bcp 2	bctp 3
2	W.	29 94	29 98	58	67	53	68	SW	SW	4	4	bc	bc
3	Th.	29·88	29·83	58	61	50	66	SW	SW	3	3	or 2	bcp 3 4
4	F.	29·70	29·69	67	65	48	66	SW	SW	4	4	bcp 1 2	bcp 3
5	S.	29·58	29·47	62	64	54	66	SW	SW	4	3	op 2	bcp 3 4
6	Su.	20·68	29 74	50	66	53	68	SW	SW	3	3	bc	bcp 3 4
7	M.	30 00	30·03	57	64	48	65	SW	SW	2	2	bc	bc
8	Tu.	29·94	29·90	58	59	46	60	SE	SE	1	1	or 2	or 3 4
9	W.	29·86	29·86	55	63	47	65	SW	SW	3	2	bc	bcpt 3
10	Th.	29·99	30·01	55	67	46	68	SW	SW	2	2	bc	bctlr 3 4
11	F.	30·10	30·10	60	67	48	68	SW	SW	3	2	bc	or 4
12	S.	30 07	30·07	57	66	54	67	N	SW	2	1	o	op 4
13	Su.	30·04	30·02	59	65	55	67	W	NE	1	1	o	or 3 4
14	M.	29 93	29·82	55	55	53	56	NE	NE	4	3	or 2	or 3 4
15	Tu.	29·90	29·95	55	63	53	61	NW	N	1	1	o	o
61	W.	29·83	29 83	61	68	55	69	W	E	2	1	bc	o
17	Th.	29·24	29·96	60	63	53	67	NE	SW	4	4	bc	o
18	F.	30·10	30·06	57	66	51	67	E	S	1	2	bc	bc
19	S.	29·78	29·80	62	67	58	68	SW	SW	4	4	or 2	bc
20	Su.	29·92	29·94	55	55	49	67	W	W	2	2	bm	bc

JULY 1848.—Mean height of Barometer=30 010 inches; Mean Temperature=62·1 degrees; depth of rain fallen=2.35 inches.

TO CORRESPONDENTS.

We received our INDIAN LETTER too late for this number.

HUNT, Printer, 3, New Church-street, Edgeware-road.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

That future pilgrims of the wave may be
Secure from doubt, from every danger free.

OCTOBER 1848.

The Isle of Pines, *Pacific Ocean.*

The Peak of the Isle of Pines is situated in lat. 22° 38′ S., long. 167° 25′ E. The island is forty-two miles in circumference: the north-east part is clear of reefs, with the exception of a fringe reef extending about 100 yards from the shore; but from east, round by south and west to north, the island is connected to and surrounded by coral reefs, with many small islands which form several good harbours inside. None of the small islands have any permanent inhabitants; but they are resorted to occasionally for fishing and catching turtle. There are also many detached shoals and coral patches within the barrier reefs. The reefs and shoals extend from the Isle of Pines in a westerly direction to the south-east end of New Caledonia, which is about twenty-eight miles distant, and in sight in clear weather.

Near the shore the land is generally low and rocky with little soil, but very thickly wooded: about two miles inland the soil improves; and from that to the centre of the island (on the north side) the ground rises with a gentle ascent, with very little timber, and a rich alluvial soil, forming a large clear space of hundreds of acres. From this clear space the land rises gradually towards the peak (which is situated on the south-east part of the island,) and is thickly wooded to the top. There is good fresh water at the foot of the hill; but it is not convenient for shipping.

Being situated within the southern tropic, the prevailing winds are from south-east, veering round at times to E.N.E. and N.E., and gene-

rally blowing a fresh gale during the winter months. From November to April, northerly and westerly winds are often experienced; and sometimes in February and March heavy gales prevail; but they are of short duration. October and November are the hotest months in the year, the winds being generally light about that time, with much fine weather.

Gales begin at the north-east, passing round to north and north-west, from which quarters they blow hardest; and as they moderate haul round to south-west and south. They are always accompanied with much rain and thick weather.

The mean temperature during the winter months is about 75°, and in the summer season about 80°.

The barometer is seldom affected, except in those severe gales, when it sometimes falls as low as 29·45 inches. The tides are very irregular. It is high-water on full and change of the moon at 8 hours, greatest rise and fall 5½ feet. At neap tides there is only one tide in the 24 hours, and which is generally in the night; the rise and fall at that time not above two feet. On the first of the flood the tide runs strong in the passages through the reefs, but as soon as the reefs get covered, it then flows in all directions, and with less velocity.

If bound to Victoria harbour, get the peak to bear south-west, then steer for it, and when within a quarter of a mile of the reef bear away to the westward, keeping the reef close aboard. As soon as the reef terminates, you will see the small island bearing from you about south; that island forms the east side of the channel, and a reef with a small sandbank on it forms the west side. The channel is not above 200 yards wide, and the course in is about south; borrow on the sandbank side, as a coral ledge runs from the Pine Island some distance.

After getting inside steer for a small rocky islet, which you will see a little on your larboard bow; leave it on your larboard hand, and anchor between it and the main in 3 or 5 fathoms coral and sand.

If the wind will not allow a vessel to lay through the small channel, she will require to run down along the reef for the large entrance. It is half a mile wide, and the peak bears south-east from it. In working in keep a good look out for a large coral patch which lies a little inside the entrance; leave it on the starboard hand, and work up inside the reef for Victoria harbour, keeping a good look out from the mast-head for coral patches, of which there are several. In working a ship amongst coral reefs, a careful and experienced officer ought always to be at the topmast head. All dangers can be seen from aloft when the sun is not ahead.

If bound in to the south-east harbour, steer in for the land, with the peak bearing about west, until you get near the two sand islets which lie from three to four miles from the shore, (to which they are connected by reefs, and are very dangerous in a dark night,) when abreast of them, and within a quarter or half a mile, steer to the south-westward for some rocky islets, which will be then seen, they form the south side of the 7 fathom bar channel. After getting about half-way between them and the woody island which forms the north side of the channel, you may

then steer to the westward, crossing the bar about mid-channel; then steer towards the peak, keeping a good look out for some black rocks two or three feet above water, which lie fronting the cove. The anchorage is to the westward of them in 8 or 9 fathoms sandy bottom, off the mouth of the cove; or, a vessel may anchor in the cove in 5 fathoms, as it is clear of coral patches. You may pass the rocks on either side, but if to the southward, be sure and give them a good berth.

Many species of fine timber grow on the island. The sandal-wood tree is found on the level ground one or two miles inland; and all that I have seen cut, were found in places destitute of soil, and on coral rock. After getting inland clear of the coral flats, the vegetation is very luxuriant all over the island.

There are a number of beautiful pine trees growing on the island; some of which are very large, and are similar to the Norfolk Island pine.

The natives of the Isle of Pines are generally about the middle size, and in complexion between the black and copper-coloured races. Although dark in colour they have nothing of the negro appearance about them. Their faces are well formed, with rather a large mouth, and a fine set of teeth; but there is something restless and savage looking about the expression of their countenance. Their hair has a frizly appearance, and they generally comb it out in a mop-like form.

The males are circumcised, and both sexes go nearly in a state of nudity. They are great thieves, extremely ferocious and treacherous, and are so addicted to lying, that it is hardly possible to get the truth out of them; and consider stealing and lying as great accomplishments. Although in the lowest state of savage barbarity, yet they are possessed of great cunning, and are quite as well versed in villainy as the worst characters in our own country.

The natives of the Isle of Pines are cannibals, and always eat the bodies of their enemies slain in battle, not merely to gratify their revenge, but to satisfy their craving appetite for this sort of food: and the operation of cutting up and cooking their victims is gone through without the least emotion or feeling of shame. They are extremely cruel, void of affection, and are truly wretches in every sense of the word, degraded beyond the power of conception. All aged and decrepit persons, and men, women, and children who have been long ill of a lingering disease, are either put to death by their relations, or carried to one of the small islands, and left there to perish without food. With regard to the population, I found it impossible to obtain correct information. From the number of villages and natives which I have seen at different parts of the island, I should take it to be not less than 2500 souls. All the villages are situated near the coast, and are built among groves of cocoa-nut trees. There are no inhabitants in the interior of the island.

Their food consists of yams, tarro, sweet potatoes, bananas, sugar-cane, cocoa-nuts and fish. They bake their food in ovens, made by heating stones, and are cleanly in their cooking and eating.

Polygamy is practised at this island, and a promiscuous intercourse of the sexes before marriage is allowed.

With respect to the religious or rather superstitious observances of these Islanders, I may remark, that the distinction between right and wrong is utterly unknown to them. Murder, cannibalism, theft, covetousness, lying, and knavery of every description are not looked upon by them as sins, neither do they believe that the spirits whom they invoke so consider them. Although they have a firm belief in the immortality of the soul, yet of a future state of rewards and punishments they have no knowledge. The souls of the deceased are supposed to hover in the air over their graves or the land of their birth, with power to visit the other islands at discretion. They have another superstition regarding spirits, which is transmigration, and think that spirits wander about in various shapes, and can make themselves visible or invisible at pleasure. This form of superstition makes them very averse to go out of their villages after dark; when they do travel at night, they always carry a lighted flambeau or fire stick in their hand.

Priests are generally self chosen. To accomplish this, they will cunningly pretend to have been inspired by the spirit of some deceased chief or noted warrior, and that they have been told by it of future events which are to happen; should any of their predictions relative to war expeditions or events which interest the people much, happen to correspond, nothing more would be required to constitute the foreteller of such events a duly inspired priest, and entitle him to the power and respect claimed by that class of persons.

Vessels visiting the island for the purpose of trade, ought to be well armed, and continually guarded against treachery, as the natives are not by any means to be trusted. The brig *Star* of Tahiti was cut off at this island by the natives in 1842, and all hands murdered. The articles most in request are tomahawks, axes, adzes, cloth, knives, fish hooks, and large blue glass beads.

The scenery of this island is beautiful, and the clear land near and above the king's village, would make a very fine coffee and sugar plantation; the expense of cultivating it would be trifling as the ground is clear of timber. The soil is very productive, and cattle would thrive well, as there is plenty of fine grass all over the island.

No one can visit this island without feeling deep regret, that so lovely a spot of God's creation should be inhabited by such a race of depraved wretches.

The Loyalty Islands.

The Loyalty Islands, discovered and named by Capt. Cook, have until lately, been little known. They consist of two large islands and three small ones; the three largest are inhabited. The Island of Lifu is the most northern and the largest of the group. Its north end is situated in lat. 20° 27′ S., long. 167° 47′ E., and the south end in lat. 21° 3′ S., long. 167° 43′ E., is about thirty-seven miles in length from north to

south, and varying in breadth from ten to twenty miles. It has no harbour, but there is a large bay on the north-west part twelve miles wide at the entrance, and about ten miles in depth, with very indifferent anchorage at the head of it, near the shore, among coral patches, and on a bottom of coral and sand. It is safe during the south-east monsoon, but ships should always be ready for slipping, in case of an attack, or the wind setttng in. There are no souudings to be got in the bay, until within 500 yards of the shore, where is a coral bank, studded with dangerous coral patches, and from ten to twenty fathoms water in the clear places, where a vessel may anchor. The other parts of the island present an iron bound shore with perpendicular cliffs, and no soundings within one hundred yards of the breakers. It is of coral formation. Its elevation is about 250 feet, quite level on the top and thickly wooded. There is a coral reef in the mouth of the bay about three miles from the south head, which can always be avoided by having a careful person at the mast head, otherwise the bay is clear. Another dangerous reef lies off the north end of Lifu, it bears from the north-west point of the island N.N.W. distant 8 miles, and the sea always breaks on it. The island of Mari is a new discovery, and was found out by the sandal-wood vessels in 1841.

The north-east end of it is situated in lat. 21° 21′ S., long. 168° 33′ east, and the south-west end in lat. 21° 37′ S. long. 168° 22′ E. It is about twenty miles in length from north-east to south-west and ten miles in breadth. It has no harbours, but anchorage may be got near the shore in some places. The island is of coral formation, elevation about 250 feet, thickly wooded and quite level.

It is thickly inhabited by a wild race, of rather a small stature whose manners and customs are similar to those of Lifu. Their food consists of yams, tarro, cocoa-nuts, bananas, sugar-cane, sweet potatoes and fish. The sandal-wood tree grows on this island.

The Island of Lifu, although thickly clothed with timber, will bear no comparison with the Isle of Pines. With respect to its soil, the only good ground to be found is on small spots of low lands near the shore where the villages are, and on whieh are several beautiful groves of cocoa-nut trees; also yam, tarro, banana, and sugar-cane plantations; these cultivated spots produce more than sufficient to supply the wants of the inhabitants. Behind these plantations, in some places high coral cliffs arise so abruptly that the ascent to the top of them is extremely difficult. On the north-east part of the island, the cliffs rise perpendicularly from the sea, rendering it impossible to land, and the neighbourhood is uninhabited. The greater portion of the interior of the island is destitute of soil, and similar to the low coral land at the Isle of Pines.

With regard to the population, I had no correct means of ascertaining the number, although I should suppose they amount to about three thousand, or perhaps more. The natives of Lifu are about the middle size, and exhibit much variety of figure. Their complexion is between that of the black, and copper coloured races. Their hair is frizled and besides the long bushy beards and whiskers worn by many, they have a great

quantity of hair on their bodies. Their eyes are black and penetrating, and although equally savage with the Isle of Pine natives, their features exhibit rather a milder, and more pleasing appearance.

The males go entirely naked; and the only dress worn by the females is a fringe about three inches wide tied round the body. Circumcision is not practised here, as at the Isle of Pines. Polygamy is practised among them, and promiscuous intercourse allowed.

The natives of Lifu are very much addicted to stealing, and are treacherous and cruel in the extreme, and generally speaking great cowards. They are also much given to lying, and seldom speak the truth even among themselves. No confidence should be put in their professions. The eating of human flesh is practised at this island from habit and taste, and not merely from revenge, as I at first supposed; but from the mere pleasure of eating human flesh as a food. Their fondness for it is such, that when a portion of it has been sent some distance to their friends as a present, the gift is eaten, even if decomposition have begun before it is received.

The inhabitants of Lifu are divided into two tribes, who are independent, and often hostile to each other. They are classed into kings, chiefs, landholders, and slaves. The king of the north part of the island is named Gweeath, and that of the southern tribe Bulah, who is quite blind.

The hostile feeling of the two tribes makes war the principal employment of the men throughout the island. Their wars usually arise from some depredation or theft committed by the one party on the other, of which the strongest party takes advantage, and which generally ends in bloodshed. A formal declaration of war is then made by the aggrieved party, preparations are made on both sides, and a certain place and day appointed to have a fair open fight. On the day appointed both armies meet on a clear spot of ground between the two tribes, and form in line abreast of each other, about one hundred yards distant. The fight is then commenced by throwing spears from both armies, and which they generally catch and throw back again.

The two lines then make a charge, meet, exchange blows with their clubs in passing, and again halt at about the same distance, having changed positions. They continue these manœuvres until some of either party is killed. The victorious army then carry off the bodies of their slain enemies, and return home with them. A feast is then prepared, and the bodies are cooked and eaten. The bones and skull are preserved as trophies by the parties who eat them. The king eats the eyes, heart, and breast. The women are not allowed to partake of it at the public feast; but I have been told they sometimes get a portion from their husbands in private. But, although they sometimes have fair fights, yet they are not always so honourable, as small parties will waylay others, and do not scruple to murder defenceless men, women, or children when fishing, and carry their bodies home and feast on them.

Vessels touching at the Loyalty Islands, ought to be continually guarded against treachery, and not allow too many of the natives on

deck, as they are by no means to be trusted. The Lifu natives have made several unsuccessful attacks on sandal-wood vessels; and a small Sydney vessel, named *The Sisters*, was cut off by the natives of Mari in 1844, and all the crew murdered. A boat's crew belonging to the brig *Martha* of Sydney was also cut off at that place in 1841.

Oregon And Vancouver Island.

" But though some nobler minds a law respect,
That none shall with impunity neglect,
In baser souls unnumbered evils meet,
To thwart its influence, and its end defeat."

THAT an agreement was come to between America and England on the Oregon question without an appeal to the sword, could not fail to bring pleasurable feelings to all lovers of humanity; and, in the desire to preserve such a blessing as peace, the latter has made a concession which is both generous and honourable.

If with the agreement, so favorable to the Americans, we could have ensured a proper line of conduct in the settlers who will hasten to the portion of North Oregon which has been ceded, the sacrifice of the land would be of no moment; but that was impossible; and knowing how reckless has been the behaviour of the people of the States in their craving propensity for the acquirement of lands bordering on the Union, it is scarcely questionable that the Americans have obtained a valuable exchange.

Will the people to whom we have given a most valuable slice of the Northern Oregon territory; valuable, because it borders on the Great River which should have been the boundary line, fully appreciate the concession? We opine not; too often, in common life, a man who has attempted, or done a wrong, either by word or deed against another, if the latter tells him of his fault, or even for the sake of quiet, gives way, is sure to fancy himself the aggrieved party, adds to his bad conduct by continued error, is thankless, and perhaps crows, as though he had gained a victory, seizing the first favorable opportunity of showing resentment: just so it has been with nations; and this probably will be the result with respect to the concession made of the portion of North Oregon, which it was, under any view of the case, unreasonable in America to claim or demand.

But the die has been cast, and there is now no help for it, but in making the "best of a bad bargain." Subsequently, we commenced in a rigid course, at once despatching a party of artillerymen, viâ Hudson's

Bay, to Oregon; but if we stop short, of what avail will such a demonstration be to the security of our wild-marjoram bed?*

The object of this small force, we presume, is not for defence against lawless invaders, as, by this time, we have little doubt, hundreds, if not thousands of "trampers" are spread over the generous grant, many of whom are men well skilled in the use of the rifle, and in bush stratagé. We shall here quote a passage from Mr. Nicholay's book, describing the sort of characters likely, if not to locate, in the gift-land, to beat about its bush.

Speaking of the wanderers of the far-west, he says:—"Of these America produces three classes—the hunter of the eastern forests and lakes; the voyageur of the northern rivers, and the trapper of the western mountains and prairies; yet to all these perhaps equally belong the characteristics of the borderer, unblenching courage, untiring energy, and unerring precision of judgment in case of uncertainty; the characteristics of the borderer, not only in the west, but universally, whether, as in days of yore, when on our borders, they

"Cheered the dark bloodhound on his way,
Or with the bugle roused the fray."

Or, as at present, on the shores of the Baltic, the plains of Africa, or the Gauts of India, modified only by local circumstances and the influence of climate; in short, a development of the animal faculties resulting from constant cultivation, to the exclusion of all mental, except such as are necessary to the cultivation of the other, or from want of knowledge are evinced only in morbid affections like superstition, the natural result of the solitude and silence, which during a great part of their time surround them, and the sources of natural sublimity among which they pass their days.

But there are other parties of wanderers, besides these men, who may be said to be, specially, voluntary, rather than necessitously, exiles from general civilized society; viz.: squatters, and fanatics. These nomadic bodies may not unaptly be termed modern Goths, Vandals, &c., seeking new lands at all hazard; and they do their work as effectually as the supplanters of old did theirs; of which fact, Texas and South Oregon are pretty significatory.

"These bold Yankees are a mighty race of walkers,
So tell the roads from Baltimore to Buffalo,
And on to Mississippi's stream—
Where men are sometimes boil'd by steam!
To the land where wild marjoram groweth,
And the grand river of the west floweth.
O'er Prairie vast,
That no track hath;
O'er snowy mounts
With gushing founts,
And precipices steep,
Down which the water's sweep;
Their venturous footsteps go."

* The name of the land is not Indian; but the Spanish word "Origano."

The subject of a railroad, or a carriage-way, across the Prairies to the South Pass of the Rocky Mountains, has been mooted in Congress. From the nature of the ground the formation of a road across, from the Mississippi, would not occupy many years. For the most part the plains are level, and some of these are dead flats; but many are crossed by deep and rugged ravines; and the surface is, here and there, especially near the Stony Mountains, composed of sand, as if formerly occupied by the sea. There is, we believe, less interruption from streams and lakes in these plains, than in the portion of the land belonging to the British to the northward.

In this matter we should not, if wise, be forestalled by the Americans; the able-bodied among the convicts should be set to work at once, from the head waters of Canada, with portable steam engines to aid their labour; if we only completed a rough, but practicable track to the northern pass of the rocky mountains, the speedy settlement of Oregon and Vancouver island would follow; and, if a moiety of your discharged soldiers were encouraged to proceed thither with their families, you would provide your colony with experienced men capable of defending it.

There is no permanency in the resolution of councils, the ambition of Governments is not limited, and the disposition of statesmen to extend territories, is as much a monomania as was that of the old maiden-lady who fancied herself a *hen*, and so sat upon a basket of eggs to hatch them and produce a new brood! Laugh not, good reader, at this droll conceit. Very grave senators are often as extravagant in their hallucinations; take the following:—The boundary of the republic of the United States:—A member of Congress concluded his amazing speech the other day, with the following very concise definition of the future boundaries of his country:—"The North Pole, the Isthmus of Panama, and the *two* Great Oceans!" Of the twain we guess, the old maiden lady had the better reason.

It does not require much foresight to predict, always bearing in mind the avowed determination of the Americans to possess themselves of the *whole* of the northern continent, that, from our tardiness, and from our apparent indifference about the future, (exemplified in the recent concession of a part of Northern Oregon); and the Yankee's single object with reference to England, as well as his vigilant activity, (seen in the ready peopling of South Oregon,) the latter "calculate" pretty surely upon ultimately attaining the whole; and it is not at all improbable that that consideration, coupled with the pressing desire to war with Mexico, for the purpose (since accomplished) of "genteelly robbing" her of California, &c. to complete their line of coast up to the South Oregon, induced the senate to accept without reserve the conditions offered by England: for it seems obvious that some other motive than the apprehension of coming to immediate blows on the question, notwithstanding the warlike tone assumed, guided its deliberations, as the same offer had before been made and refused. That other motive we may reasonably infer was, the prospect of advantage to be derived in a contest with Mexico, and the inconvenience that would arise if a double war should take place. There was an advantage in at once getting a *footing north*

of the Columbia, its entire possession being calculated upon in prospective under the then present circumstances, and the desire to extend the boundary of the States bordering on the last acquisition (Texas), so favourable an opportunity for aggression and annexation might not occur again for some time. The result was, the hasty close of that point, which if delayed, would undoubtedly have checked the most important aim of the two.

We think there cannot be two opinions *now*, as to that "great fact" in diplomacy, and it tends to show in a very glaring light, how well skilled some councils are in that science which holds honour, principle, and sincerity, as nought when opposed to policy; and this may be said, even in this enlightened age, of a body, without impugning the integrity of individual character, albeit all "trickery" is in itself despicable. Mr. Bull's honesty of purpose cannot be questioned, however much his policy may be; and those of the present day who may live long enough, will find eventually that the humane old gentleman has been outwitted by his younger brother.

It is not improbable that disputes may arise, as of old, respecting the boundary line in North Oregon. By what infatuation Mr. Bull did not insist upon the Columbia being made the line of separation, we are at a loss to say: rivers, especially those of lengthened course, or of large size, are the natural boundaries between lands; and it would have been far wiser to have paid down a sum of money to the Americans to yield the point, than to have given in, and thus run the hazard of perpetually quarrelling, or of actual hostilities; for unless you dig a dike, as Offa did in Siluria, or adopt Severius' plan, you will not keep out the interlopers; already they have "walked in", and the Hudson's Bay officers are now hunting bipeds instead of quadrupeds!

In the present state of the territory of North Oregon, with our resources at such a vast distance, and no practicable easy means of communication by which we could readily transport a protecting force, it is perfectly open to aggressions, and perhaps will remain so for some years to come, if we build upon the presumption that the Americans will strictly adhere to the preamble of the treaty. But, let Mr. Bull beware: South Oregon is partly settled, and filling fast; and hosts of adventurers—fanatics, were a short time since thronging westward to the "Land of Promise". This is another fact significant of what may follow. Here is the report of the movement of these hordes (Mormonites) towards Oregon, amounting to seven or eight thousand!

"The camp of Israel, now on its way to the Rocky Mountains, has already crossed the tributaries of the Charitan river, the emigrants all in good health and spirits; no dissensions, and everything peaceable. They travel in detached companies, from five to ten miles apart, and in point of order resemble a military expedition. The camp has the appearance of a moveable town; the waggons and carts being arranged on either side of large streams, and public squares left for the protection of the cattle. This expedition, numbering about 3,000 souls in all,

will encamp in the fertile plains near the entrance to the South Pass in the Rocky Mountains, on the margins of the Sweet-water and Laramie rivers, where crops will be sown, and buffalo meat dried, to provide food during the winter and succeeding spring.

"The second expedition, numbering 4,000 or 5,000 persons, will leave Nauvoo in February 1847; and when it arrives at the plains, the first will pass through to Oregon or California*, leaving the new-comers to prepare for the third and last expedition, which will leave Nauvoo in the spring of 1848."

Doubtless, professions of good conduct were made on the signing of the treaty of Oregon, but let the reader judge by the following, whether the profession and the practice of the Americans agree. The Declaration of Independance of the United States begins;—Profession: "All men are born *free* and equal, and all are endowed by their Creator with certain inallienable rights, among which are life, *liberty*, and the pursuit of happiness." Practice: "Three millions of American citizens have been born, and are retained in a state of slavery! which according to the celebrated Cassius, Mr. Clay, an American writer, and recently himself a slave-owner, is '*the basest and most unmitigated the world ever knew.*'"

The Congress may possess the quality of the diamond, in negociation, but if it cannot peer through, or over the Alleghany mountains from its seat in Virginia, to frown upon the vagaries of the Kentuckians, &c., it would be no matter for wonder if it should happen to be short-sighted in its future view of the banks of the Columbia.

The result of these "gatherings" in a few years, may be that the superabundant population, after filling to repletion, the new acquisition on the northern bank of the river, will insinuate themselves by files into our portion, which would be an easy matter, unless indeed, we follow the plan of the Romans, and Chinese, by *walking* them out; an expense we are not likely, however, to incur, at least at this time. If these squatters once spread themselves over North Oregon in its wild state, it will be found a difficult task to drive them back, and to keep them within bounds. To think of binding such a people by treaty to a strict observance of moral right, would, perhaps, be a fallacy: the executive, though willing, would appear not to have the power, at least sufficiently active to control or restrain the distant hordes of lawless beings, who are bent on acquiring lands for themselves, as the Texas demonstration proved.

Drawing an inference from the descriptions given we should conclude that the wanderer of the wilds of the "far west" is a wily fellow, possessing all the cunning and animal sagacity of the Red man, without his dignity of mien, or his occasional display of magnanimity; it is by stratagem and trickery that he builds upon carrying a point, and if these traits be true of him, you might just as well expect to find a pearl in a peach, as principle in his mind. He embraces one object, self interest; and that he

* "Or California"! a very scrupulous and conscientous choice truly; that land belonging to Mexico! Its fate no doubt had been already decided!!

pursues with the audacity and perseverance of the hungry wolf in search of food.*

We do not desire to overcharge the picture; but where the bowie-knife, the rifle-shot, and the Lynch-law rope are the ready instruments of action, may we not expect to find the force of moral feeling dormant, if not dead? And, if in addition, the St. John's papers (and others) are thought to be mere fiction or romance, who can deny the doings in Texas?

From the turn of events, there is a probability that the stream of emigrants may be diverted, in part, from the northward to the southward. California, and the large slice cut off from new or northern Mexico, and now belonging to the Americans of the States, are extensive enough to occupy their attention for many years to come; but the avowed intention of possessing themselves of the whole northern continent will not be lost sight of.

Undoubtedly the Americans have very enlarged views with reference to general acquisitions of this sort, but they have also particular likings; there are certain positions which with a longing eye they look upon; and if the owners appear indifferent, careless, or inert, as was Mr. Bull's case with South Oregon, they will not be slow in their endeavours to grasp them.

No one will dispute that North Oregon and Vancouver's Island are necessary to the completion of an entire western coast-line, and that it is to the interest of the States to prevent by all possible means, if they can accomplish it, the presence of a rival on the coast, with reference to the China trade; recollecting that the shortest route lies to the northward. They had sagacity enough to perceive that the position of those two places, abounding in good harbours, in which the south was deficient, was just what they wanted; and that appears to have been the reason (not the value of the land) why they put on such a bold front in demanding the whole lot. Captain Wilkes' description had, no doubt, given that turn to their resolution, and the cupidity of "hooking" a part of the southern land, pressed them against their will to put up with a part only, for a time; they probably moralized in this way: "sufficient for the day is the evil thereof", we will wait patiently, but with a vigilant eye, for the morrow of our expectations." We shall not do the Federal Government the injustice to insinuate that it will openly or covertly encourage the squatting system, but judging from the past, as we said before, it would seem to be incapable of putting a stop to such a dishonest practice: Texas to wit.

There was a good deal of flourishing thrown out for effect rather than purpose, at the time of the boundary question; and some angry feelings were expressed, amid those of an amicable nature; but if the foreign-commerce men are for peace, the martial spirit of the fight-at-any-rate advocates appear far from quieted by the acceptance of what England offered.

* Recent accounts state that American squatters have already began to "hive" beyond the boundary line.

Here is a leave-taking, for a time, of the question, by "a 50° 40′ Editor," written no doubt by an "out-and-out smasher," not over-perfect in his recollections, nor happy in his conclusions. He very coolly says, "We, however, have an idea that though it is very pleasant to be at peace with all the world, yet war is oftentimes necessary, especially to a young and powerful nation like this; for the last war was of greater benefit to this country, in a national point of view, than all the years of peace we had enjoyed from the time of the revolution up to the very day that the war of 1812 was declared.

"Our gallant navy has done more for the honor and prosperity of the nation than could be done by civilians and statesmen in a hundred years of peace; but, notwithstanding this solemn fact, there are men who imagine that war is the worst evil, that can befall the country. Very well, after a few more years of peace, when we shall have got rusty, indolent, and good-for-nothing, except to make money, eat, drink, and sleep, it is possible that some foreign power may pounce upon us, and subjugate us before we are aware of it. It will then be seen that war should have been indulged in once in a while, for the mere purpose of making the people watchful of their rights, and jealous of their liberties."

Uncle Sam may keep his hand in by cudgelling the weak Mexicans, and the unhappy Red Men of Florida; but, before he courts a war with any strong power of Europe, he should ponder upon the uncomfortable fact that, his sea-board is an open one to aggressions, (it is not generous to enter into particulars,) and that he has "Blackey" on his flank, (with the Frederick Douglases to spur him on,) to jump upon his shoulders when the country shall be invaded by an enemy to "Massa;" but a friend to himself.

The forty-ninth parallel which now is the boundary line, divides the territory north of the Missouri (eastward of the Rocky Mountains) claimed by the United States, and the British (claimed) lands to the northward of that line. Westward of the mountain range (about 150 miles) it cuts the *fork* of the north or main branch of the Columbia, and the McGillivray rivers, and strikes the coast opposite the eastern end of Vancouver Island, about fifty miles south of Frazer's river. The main branch of the Columbia turns, about 180 miles from the coast, from its easterly and westerly direction, to one northerly and southerly, so that the ceded tract is cut by it, the portion seaward being (latitudinally) one-third of the whole portion. The mountain ranges in the British land appear to run (longitudinally) north and south, so that the intervening spaces offer extended openings into the interior of it.

A Chronological List of the Hurricanes which have occurred in the West Indies, *Since the year* 1493; *with interesting descriptions.*

(Concluded from p. 462).

1804. At St. Christopher's 13 sail were wrecked in a hurricane, in September, which did great damage to all the windward islands.

This storm commenced at Antigua on the 3rd of September, with the wind from the north, which veered to the west, and ended with it from the southward. The stormy weather lasted 62 hours; but it seems probable that the transit of the meteor occupied not more than 24 hours. It was of considerable size, and the expansion seems to have been great. Several vessels were wrecked. Its progressive course was N. 48° 6′ W. At 2h. A.M., on the 5th it reached the Silver Cay bank, a distance of 590 miles, which it passed over in 38 hours, or at the rate of 15½ miles an hour. This storm has been traced by Mr. Redfield (No. 4) from the eastward of Guadaloupe, inclining to the northward to the eastward of the Bahamas, on the 6th; off Charleston on the 7th; at the Chesapeake on the 8th; and at Boston on the 9th; and up the bay of Fundy over Nova Scotia.

H. M. ships *Hercule* and *Theseus*, the latter with the flag of Rear Admiral Dacres, were nearly foundering in this hurricane. It was also experienced by H. M. S. *Desirée*, which ship by running into Cumberland harbour, in Cuba, escaped. Sir Home Popham's list records a storm at Jamaica on the 3rd of September.

1805.—The squadron under Commodore De Courcy, consisting of the *St. George*, 98; *Atlas* 74; *Eagle*, 74; and *Centaur*, 74; which sailed from Port Royal, Jamaica, in June, to join Admiral Lord Nelson, at Barbados, encountered a very severe hurricane on the 29th of July, in lat. 26° 17′ N., and long. 57° 42′ W., 262 leagues north of Barbados. The storm commenced with the wind from the E.N.E., ending with it from the S.S.W. It lasted twenty-two hours, and the *Centaur* was dismasted, and nearly foundering. The other ships lost top-masts, and were otherwise much shaken. The *St. George* scudded. The *Centaur* was towed by the *Eagle* to Halifax, where the Commodore in the *St. George* also arrived. The *Atlas* reached Barbados.

1806.—The Bahamas were afflicted in a manner never known before by the oldest inhabitants; first by a drought, and afterwards by four dreadful gales of wind. At Eleuthera, on the 30th of August, a storm began about 8 P.M., and lasted until daylight following: it entirely destroyed everything in the fields.

September 13th, a more dreadful gale threw down the houses, tore up the trees by the roots, leaving almost everything in a state of destruction! On the 27th another hurricane swept over the islands! and by way of climax, on the 5th of October, they experienced a fourth tempest, which completed what the others had left undone. The inhabitants petitioned Government for relief, and the merchants of New Providence

for credit; the latter supplying the wants of the former with food, which was their only support for four weeks.

Dominica suffered sevirely from a hurricane on Tuesday 9th of September. It commenced about 7 P.M., with tremendous flashes of lightning, and squalls of wind. The direction is not given. This no doubt was identical with that of 13th of September, at the Bahamas. Sixteen vessels were lost; and one hundred and forty-six persons. H.M.S. *Tartar*, of 32 guns, on her passage from Halifax to Bermuda, was assailed by a severe hurricane, and dismasted; probably by the same storm. She returned to the former port with all her jury-masts sprung.

H.M. ships *Franchise* and *Penguin*, with a fleet of one hundred merchant ships, on their passage from Jamaica to England, experienced a hurricane; thirteen of the ships foundered, and seventy persons, exclusive of passengers, perished. Many of the other vessels received considerable damage. The squadron under the command of Admiral Sir Richard Strachan, encountered a hurricane, and were seriously damaged; but, a French squadron, under the charge of Admiral Guillaumez, suffered much greater distress. The *Castor*, 74, foundered, with all her crew. The *Foudroyant*, of 84 guns, the flag-ship, was dismasted, and lost her rudder; but succeeded in getting into the Havana in a very distressed condition. *L'Impeteux*, a ship of the line, was driven on shore near the Chesapeak, and destroyed by the English ships. The *Patriot* and *Eole*, of 74 guns each, slipped into Hampton Road; and the *Valeureuse* frigate took refuge in Philadelphia.

The dismasted French flag-ship was met with in a disabled condition in lat. 26° 19′ N., and long. 66° 39′ W., a position that must have been very near to that of the *Tartar* when she was dismasted.

1809.—H.M.S. *Dædalus*, of 32 guns, experienced a severe hurricane off the S.W. end of Porto Rico, on the 2nd and 3rd of September. The storm commenced at 8 P.M., on the 2nd, with the wind from the E.N.E.; at midnight the wind was east.; rain and lightning in the S.E. At 5 A.M., on the 3rd, wind E.b.S., squalls tremendous; 5h. 20m., the ship was dismasted, the sea making a clean breach over her. At 7, the wind veering gradually, had got round to the S.E.b.S.; ran away S. 14° W. At 11 A.M., the hurricane had passed. The progressive course of this storm was N. 78° 45′ W.; its diameter about 148 miles: its rate from 20 to 37½ miles an hour; its duration 14½ hours. The focus passed over Altavela. H.M.S. *Lark*, of 18 guns, a very fine ship of her class, commanded by Captain R. Nicholas, foundered a few miles to the westward of the *Dædalus*' position; and all her crew, except two men, perished: these men were saved by William B. Moselle, in a most providential manner. The report in "The Chronological History of the West Indies," states, that she upset; but, the fact is, that she went down stern foremost. I have met with no further account of this storm, which is extraordinary, as it came from the eastward, and must have passed to the westward over St. Domingo and Cuba.

In October, H.M. schooner *Dominica*, of 14 guns, Lieut. C. Webb, was upset in a hurricane off Tortola, and only three of the crew were saved.

1812.—There were two hurricanes experienced at Jamaica this year: the first, on the 14th of August; and the second, on the 12th of October.

At Antigua, (time not given,) H.M.S. *Guachapin*, of 12 guns, Lieut. M. Jenkins, was wrecked in a hurricane; crew saved. Also H.M.S. *Grouper*, off Guadaloupe; crew saved.

The eruption of the volcano Souffrier, took place on the 30th of April, this year. It is in the island of St. Vincent. The explosions were heard at Nevis, and at Barbados.

Upon the 14th of October, five hundred houses were almost destroyed in the city of Trinidad, in Cuba, by a hurricane; many of the vessels which were at anchor in the harbour of Casilda, were driven on shore, and others sunk.

1813,—On the 1st of August, Jamaica was assailed by a hurricane. I was informed by Captain R. B. James, of the *Forest Penn*, on the north side of the island, that an old mulatto planter* a neighbour of his, had predicted the coming of this storm, some time time before it burst upon the island, and prepared everything to meet the shock. He was laughed at, but the hurricane came nevertheless.

The island of Dominica suffered cousiderably from two hurricanes, which succeeded each other within a short time: several houses were blown down. To add to the calamities of the inhabitants, upwards of five hundred runaway negroes made nightly incursions from the mountains, and by acts of rebellion, threatened the destruction of the colony.

It appears H.M.S. *Woolwich*, 44, (on two decks,) Captain T. B. Sulivan, was wrecked on the island of Barbuda, on the night of the 11th of September, in a hurricane, upon the north end. The crew were taken from the wreck the next morning and landed on the beach.

1815.—Jamaica was visited by a hurricane on the 18th of October. At Kingston, about one o'clock in the morning the wind began to blow with great strength from the north, but changed in about an hour to to the S.E., from which quarter it continued to blow during the remainder of that day with great violence, accompanied with heavy rain, which continued, without intermission, the whole of Wednesday night, and until Thursday at noon, when it somewhat abated; the wind having again shifted to the north, on Wednesday night, when it continued steady until the end of the storm early in the morning. "In strength and continuation, this was one of the severest storms we ever witnessed!" Much damage was done, and many trees blown down. Several vessels and crews were lost, and others greatly damaged.

If the account gives the wind correctly, N. shifted to S.E., and again to N., this storm would appear not to agree with the rotary theory. It is probable, however, that neither north wind pertained to the circle.†

* His name was Spence.

† Unless admitted as a local deviation.

Upon the 31st of August, and 1st of September, the West India Islands were visited by a hurricane. About thirty sail were driven on shore at St. Bartholomew's; fourteen were totally lost. The storm did not touch Barbados.

Upon the 20th of September, a second hurricane unroofed and blew down half the houses on Turk's Island, eastern Bahamas, and destroyed about 400,000 bushels of salt, Several vessels were wrecked: one American vessel lost twenty-two of her crew and passengers.

1818.—On the 10th to the 12th of September, a hurricane passed over the Caymans Isles, and Campeche. On the 19th of September, one was experienced at St. Domingo.

On the 21st of the same month, Barbados and Dominica suffered from a hurricane.

From the 22nd to the 25th, the same month, a hurricane was experienced to windward of Antigua; and on the 7th of October, one at Port Royal, Jamaica. No less than five of these furious tempests, therefore, made their transits to the westward; two of these of unusually long continuance.

1821.—A hurricane passed to the northward of Porto Rico, on the 1st of September, and over the Bahamas. Traced by Mr. Redfield, (his No. 8). I cannot find any notice of a storm again until the lapse of six years; but, it is probable there were some in that interval.

1827.—On the 17th of August, a hurricane passed over Guadaloupe; (No. 3. of Mr. Redfield;) on the 29th, the same storm had reached as far as Newfoundland, twelve days; so, that, in about three weeks, they reach England from the West Indies. On the 11th of October, one passed over the banks. On the 18th of August 1827, a hurricane passed over Hayti, or St. Domingo.

At Port au Prince, the changes of wind were from N.E. to N., round to N.W., eight points of change; whilst at the city of St. Domingo, the changes were from S.E. to S.S.W., six points. This storm affords one of the clearest proofs of the rotary system that could be desired. The lateral extent or diameter appears to have been about 150 miles; and the progressive course N.b.W. As its farther progress has not been traced, I cannot say whether the northerly line pursued was a local deviation of route or not.

1828.—On the 18th of September, a hurricane passed to the northwestward of the Bermudas, in which H.M. ships *Acorn*, *Contest*, and *Sappho* were lost N.W. of Bermuda.

1830.—On the 12th of August, Barbuda experienced a hurricane, (No. 6 of Mr. Redfield,) and one passed to the N.E. of that island, on the 29th of September following (No. 7 of Mr. Redfield,). On the 22nd of August, one passed to the northward of the Bahamas, (No 9 of Mr. Redfield). It was felt on the coast of the United States, on the 24th, 25th, and 26th. On the 23rd of August, it assailed H.M.S. *Blanche*; the ship appears to have been about 231 miles to the westward of Bermuda: she was pooped.

The storm commenced with her at 1 P.M., on the 23rd, and ended at

1 A.M., on the 27th; during which time the meteor appears to have changed its route from the north-westward to the N.N.E ; it began to curve when the wind was from the S.b.E. on the 24th, and reached its N.b.E. course when the wind was S.b.W., at 10 P.M., on the 25th.

1831.—Trinidad was visited by a hurricane on the 23rd of June, and Yucatan on the 28th, (No. 1 of Mr. Redfield); in the Florida stream 13th of January (No. 10 of Mr. Redfield.) On the 10th of August, a hurricane assailed Barbados, (No 2 of Mr. Redfield,) and other islands; Jamaica, Hayti, Cuba ; and on the 17th New Orleans.

1832.—On the 7th of August, a hurricane, remarkable for its violence, and short duration, passed over the S.E. coast of Jamaica. Mr. Morgan Evans, of Hereford, who happened to be at Morant Bay at the time, states that the storm commenced at 4 A.M., of the 7th, with the wind from the N.E., and continued to blow with tremendous fury until 7h. following, by which time the wind had veered regularly round to the south-eastward, where it ended.

Although this tempest lasted but three hours, it was extremely violent; large trees were torn up by the roots, and the negro houses blown down. The ships put to sea; some were dismasted, and others wrecked. The diameter of this storm was not more than thirty miles; its progressive course about W.b.N., or W.

1835.—The first storm I find recorded this year, is an early one at Barbados, on the 26th of July. It passed on to Martinique, Santa Cruz, and the Strait of Florida.

At Antigua, (date not given,) in August, a storm of unusual smallness passed over the island. The account is given by Lieut. Greevelink, of the Dutch navy. The meteor appears to have come from the direction of Deseada, clear of Guadaloupe, and to have passed over Antigua and St. Kitts. Montserrat, Barbuda, and St. Martins were exempt. Its diameter did not probably exceed 25 or 30 miles; yet, it was about ten hours in its transit. The wind was from N. to N.N.W., W. and S. It requires investigation.

On the 18th of September, during the night, Matamoras, Mexican Gulf, was damaged by a dreadful hurricane. Many houses fell, three hundred damaged. The violence of the storm was tremendous; nothing could resist it: trees were twisted and torn out of the ground, and carried away. The rain was heavy; the river rose to a fearful height. Four lives only were lost; but more dreadful was the destruction of both lives and property in the Brassas de San Jago, and in the Brou del Rio. Many vessels stranded and dismasted. There was not a house standing in the Bonita or the Boccachica.

On the 12th of August, a hurricane ravaged Antigua, Nevis, St. Kitts, St. Thomas, St. Croix, Porto Rico on the 18th; Hayti and Turk's Island on the 14th; Havana, on the 15th; Tortugas on the 16th; Matamoras, on the 17th and 18th; and Texas. (No. 5 of Mr. Redfield.)

1837.—A hurricane passed over Antigua, on the 2nd of August, which reached the American coast on the 8th. At Darien, the wind in the morning (Sunday), blew fresh from the N.E., and in the eve it

shifted round to the S.E., when the rain began to fall in torrents. The storm was one of fearful violence. At Savana, it commenced on the 11th about noon, and continued for a whole day without abatement. The destruction of shipping was very great, and numerous houses were blown down, and some lives lost. At St. Mary's the effect was severely felt. At Jacksonville, it lasted two days.

At Barbados, a storm was experienced on the 26th of July, from the E.S.E., 7h. 30m. P.M. At 8h. the wind shifted to south, blowing furiously; 8h. 30m., it was W.S.W.; at 9h. the barometer began to rise. Twenty-one sail of vessels were stranded. H.M.S. *Gannett*, with four anchors, rode out the gale. The *Alban*, went on shore. One brig foundered at her anchors. H.M.S. *Spey*, and the *Fortitude*, merchantman, rode it out. The *City of Kingston*, put to sea, and returned the next day. This storm was scarcely felt at St. Lucia; Martinique suffered. The *Spey*, was involved in the tail of the other hurricane on the 2nd of August. At Antigua and St. Kitts, several vessels were wrecked, and at St. Thomas', no less than thirty-six were lost. This storm was not felt at Montserrat.

On the 12th of August, another hurricane passed to the N.E. of the islands, and the 22nd, it had reached the fortieth degree north.

On the 1st, 2nd, and 3rd of October, a hurricane passed over the Yucatan channel, into the sea of Mexico, to the N. 78° 45′ W., and curved in about 20° N. to the N.N.E., and was experienced on the 5th, in lat. 26° 58′ N. and long. 87° 4′ W.

On the 27th of October, a hurricane, of fourteen to sixteen hours duration, was felt at New Providence; it came on from E.S.E. during the night; at 7 A.M., on the 27th, a calm intervened; the barometer sank to 28·5·; in an hour after, the storm was renewed with great fury from the N.W. At 10h. 30m. the gale broke. The storm appears to have been moving to the N.N.E. or N.E.b.N. The focus passed a little to the eastward of the island.

On the 18th, 19th, and 20th of August, a most severe hurricane was experienced north of the Florida channel, by the Bristol ship, *Feliza*, Captain Reynolds, lat. 30° 45′ N., long. by chronometer, 77° 27′ W.; it lasted fifty-six hours; wind, from E. to S., and W.S.W. This storm curved whilst the ship was involved in it.

1838.—On the 6th, 7th, and 8th of September, a tremendous hurricane passed over the Bahamas. H.M. surveying vessels, *Thunder* and *Lark*, were exposed to its fury on the great bank of Bahama; the meteor having curved during the time. It is one of the most memorable storms on record, on account of the extraordinary variations in the strength of the wind, and in its veering. It has been fully and carefully investigated by "Stormy Jack."

On the 1st of November, a very severe hurricane was experienced at Vera Cruz. Three United States vessels were lost, and the crews of two of these perished.

1839.—A hurricane of great severity occurred at Galveston, near the Island of St. Luis, in Texas, on the sea of Mexico, on the 5th of Novem-

ber, which lasted three days; all the shipping, including the steamers, were stranded; lat. 29° N., and long. 95° 30′ W. On the 11th of September, a destructive hurricane passed over the Bermudas, which, no doubt, will be detailed by Colonel Reid, the Governor of those islands, to whom we are already indebted for so much invaluable information, regarding these furious storms. H.M.S. *Victor*, I believe foundered in this storm. H.M.S. *Skylark*, experienced a twelve-hours hurricane in 32° N., and 76° W., pursuing its course to the north-westward.

The Azores experienced a very dreadful storm on the 5th of December. The sea rose upwards of thirty feet, and many houses were blown down. It probably came from the tropics.

1842.—At Acracoke, in America, a destructive hurricane passed on the 12th of July, occasioned great loss of shipping. It also passed over Washington; and was experienced in 35° 25′ N., on the 13th; about thirty-four vessels were on shore near Cape Hatteras.

1844.—St. Kitts and other islands suffered from a hurricane. Jamaica was visited by a hurricane, with the wind from the south: it appears to have passed over the western parts of the island on the 3rd of October, and over the Havana on the 4th, where it raged with great fury: it was felt also at New Providence. Matanzas suffered severely. On the 9th and 10th, this storm is supposed to have reached Canada: it was dreadfully severe on lake Erie, attended with a fearful loss of life; commenced at N.E., and suddenly shifted to S.W. One hundred houses were blown down, and upwards of fifty persons lost their lives.

1845.—The only hurricane I find noticed is that on the 12th of October, by the *Avon*, Royal Mail steamer, from the West Indies, encountered in the Florida Channel; it lasted forty-eight hours.

1846.—11th of October, hurricane at Cay West, Florida, commenced from the N.E., on the morning of the 11th, tide rose rapidly, storm increased, and raged until midnight; swept off all the houses, save six; loss of life very great. Lighthouse destroyed. Sand Cay lighthouse also went; buildings, and people in them swept away! U.S. ship *Perry* ran on shore; twenty other vessels hove upon the reef. The current ran six knots by Cay West; fifty lives lost: scene most awful!

1847.—11th of October, Tobago; seventeen lives lost, nearly eight hundred houses and other buildings destroyed and injured!

Description of the Madeira Islands.—*By Capt. Alex. T. E. Vidal, R.N., of H.M.S. Styx.*

(Concluded from p. 472.)

Ponta de Santa Anna is formed by a gradually rounding narrow beach of large stones and coarse shingle, from which the land rises very abruptly. One quarter of a mile from the sea it attains an elevation of 1100 feet. The country above the sea face of the coast is well wooded, and ex-

tremely beautiful; and the Quintas spread over it, are amongst the most favorite summer retreats of the island.

S. 52° E. one mile and nine-tenths from Ponta de Santa Anna, is the remarkable point named Cortado, with a peak on the cliff. The coast included between them consists of elevated land, rising steeply from the sea, with few rocky cliffs and several small Ribeiras. At the foot of these is a coarse stony beach the whole way from Ponta de Santa Anna to the Rocha de Navio, a little exceeding one mile and a half. A detached rock (Rocha de Santa Anna) from 12 to 14 feet high perhaps, lies a quarter of a mile S.E. of Santa Anna Point, and 230 yards from the beach abreast of it, where there is another, but much smaller rock, lying off about 50 yards. It has 7 fathoms close up to it to seaward, and 6 fathoms between it and the inner rock. Nine-tenths of a mile from Santa Anna Point, is a little patch of cultivated land. with a few huts upon it, close down near the sea, with two perpendicular rocky cliffs to the N.W. of it, and a long narrow slip of cultivated land at the foot of the heights, extending four-tenths of a mile along the beach to the S.E.

In front of this, 400 yards off shore, and one mile and two-tenths from Santa Anna Point, is a small isolated rock, which uncovers at low water. It is steep to, and there are 7 fathoms 200 yards outside of it.

Six-tenths of a mile to the north-west of Ponta Cortada there is a singular sharp peak, 1730 feet above the sea, standing close to the edge of the cliff, overlooking a large high mass of rock at its base, named Rocha do Navio, which is all but joined to the coast, and has a smaller perpendicular cliff abreast of it, immediately beneath the peak. About 100 yards beyond the Rocha do Navio, the stony beach is terminated by a small bold rocky point, and from thence the coast sweeps round to the eastward, forming the north shore of Ponta Cortada: this point is a high black narrow rocky spur projecting out three-tenths of a mile from the general line of the coast. Both sides of it are steep cliffs, and have clean rocky shores for more than three-tenths of a mile without any beach or outlying rocks. The point has a very sharp termination with a peak above the cliff, and there is deep water close up to it, 11 fathoms 100 yards off.

In the meridian of San Jorge the bank of soundings extends off one mile and a quarter from the shore: to the eastward of that meridian, it has a greater spread, passing Ponta Cortada at the distance of two miles and a half. The soundings are pretty regular, and the quality of the bottom a fine dark sand. On a line bearing N. 40° E. from Santa Anna, at the distance of a quarter of a mile from the point are 12 fathoms, at half a mile 20 fathoms, at three-quarters 25 fathoms, at one mile 35 fathoms.

N. 45° E. from Ponta Cortada at a quarter of a mile are 18 fathoms, at half 20 fathoms, at three-quarters 25 fathoms, at one mile 47 fathoms; and the edge of the bank is about two miles from the coast.

At Ponta Cortada the extreme land seen to the south-eastward is the

sugar-loaf rock of Ilheo Branco in line with Ponta Castillo, bearing S. 68° 15′ E. and distant 9 miles, but taking the coast in regular order, the next point beyond Cortada is Fayal bearing S. 20° E. nearly nine-tenths of a mile. A bay four-tenths of a mile in depth lies between them: the points on each side are clean and rocky for some distance into it, but all the head of the bay beyond is formed by a stony beach, with boulders and several large flat pieces of rock scattered about in front of it to the distance of 50 or 60 yards; more particularly on the western side where the cliffs are high. Near the centre there is a little low point with a small Ribeira or canal on each side, and to the east of it a cove with a beach of finer shingle, and two or three small white houses near the sea, with sloping land behind them. The soundings about the bay are regular with 9 and 10 fathoms in the middle of it.

Ponta de Fayal is comparatively low and narrow, and has a perpendicular rocky cliff extending from its outer extreme to nearly one-quarter of a mile along its N.W. side. Two little rocky bluffs form the actual point above which is a solitary house; and several detached rocks lie to seaward of the point to the distance of 130 yards. On the eastern side the cliffs disappear, and there is a small bay.

Outside Fayal point bearing from it N. 49° E., and distant three-tenths of a mile is a black basaltic rock, named Ilheo de Fayal, about 50 to 60 yards long by 30 to 40 yards broad. It has a flat base, and near its centre is a sugar-loaf formed rock 74 feet high. It is steep to, having 11 fathoms water within ten yards of it on all sides.

One quarter of a mile south-eastward of Fayal Point there is a sharp bold rocky spur. A small bay with a shingle beach lies between them, and near the middle of it is the outlet of the Ribeira of Fayal, which has its head waters between the peaks of Ruivo and Torrinhas. The small town of Fayal is a short distance from the beach on rising ground. The sharp spur abovementioned has a few detached rocks lying on each side of it, to the distance of 100 yards; and the cliffs from which it projects rise to a considerable elevation, and form the sea-face of a singular flat-topped mountain, named the Penha d'Aguia, or Eagles' Rock; the highest part of which is 1915 feet above the sea.

The cliffs have a narrow beach of coarse shingle running along in front of them for about six-tenths of a mile: they then form a steep rocky sea coast for one-third of a mile, and have some large detached stones lying out from their base 60 or 70 yards to seaward, and thence there is a stony beach to Ponta da Cruz.

Ponta da Cruz is the outer extreme of a small peninsula lying one mile six-tenths to the S.E. of Ponta de Fayal. It is surrounded by low rocky cliffs, and has two low hills upon it; one close above the point, the other 200 yards or nearly so further in.

On its N.W. side there is a cove about 300 yards wide, and 400 deep; at the head of which and near the centre is a coarse stony point where the high cliffs of the Penha d'Aguia, after a rapid decline in elevation, turn inland. On either side of this stony point is a little beach of fine

shingle, and in the eastern one is the outlet of a small Ribeira. There are 3½ fathoms at the entrance of this cove.

In front of Ponta da Cruz there are four detached rocks: the largest of them (Ilheo da Cruz) lies N. 42° E., 330 yards from the point, with Fayal Rock and Ponta Cortada in line, bearing N. 41° W., and has a depth of 8 fathoms close round it in all directions. The outer rock is 200 yards *north* of this one, and is small and of little elevation, being surrounded by 11 fathoms 200 yards to the S.E. of the large rock, there is a breaking rock with 9 fathoms round it; and nearly midway between the point and the large rock are two other small rocks.

On the S.E. of Ponta da Cruz is a bay nearly three-quarters of a mile across, and about one-quarter of a mile deep, which is named Porto da Cruz. The shores on both sides of it are rocky; but a shingle beach extends round the head of it; and a few yards from the beach nearly in the centre of the bay is a rocky hill, between which and the point is the outlet of a Ribeira, and on the west side of the Ribeira is the little town of Santa Cruz. In a small cove on the south side of this bay is the outlet of another Ribeira.

Some detached rocks lie about the S.E. point of the bay: one to the W.N.W. nearly 250 yards off, and some others north of the point 150 yards.

The coast beyond consists of bold rocky cliffs of no great elevation at the sea; but, the land above the cliffs rises precipitously. The last habitations seen on this part of the island are close down near the coast, half a mile beyond Ponta da Cruz. Two-tenths of a mile eastward is a bold rocky bluff with a hill upon it; and, about the same distance farther eastward is a small run of water.

S. 73° E., one mile and nine-tenths from Ponta da Cruz is the bold rocky Point of San Antonio. Two rocks lie close at the foot of it: and half a mile inland is a mountain 2510 feet in height, densely covered with trees. There are 10½ fathoms close up to these rocks.

At Ponta de San Antonio the extreme land eastward is Ponta do Castello, bearing S. 81° E., and distant five miles one-third. A dreary iron-bound coast without inhabitant lies between them, with bold rocky cliffs of great elevation for the first two miles and a half to the meridian of Caniçal: from thence the cliffs rise from the sea with equal abruptness, but are of less height; and continue to decrease as they advance to the eastward. The shore throughout is broken into innumerable small coves and bold fantastic points; and at the base of the cliffs, at the extremities of the points, and in nearly all the coves and indentations are detached rocks of great variety in figure and dimension; but in no case are they more than 250 yards from the shore, and there is deep water up to them, with regular soundings, indicating your approach. The coast has no shingle beaches on it, except in some of the little coves. The whole land composing San Lourenço point is highest at the edge of the cliffs along this north coast, and thence slopes to the southward.

A mile and three-quarters from Ponta de San Antonio, and about six-tenths of a mile inland is a high green woody peak, named Castanhas,

2058 feet above the sea. The land eastward of it has a steep descent to Caniçal.

Of the many rocks along this line of coast a few of the most conspicuous may be particularized:—

The first is nearly a mile from Ponta de San Antonio, and is a large black mass, lying off 100 yards in front of a rocky bluff, with a bay on either side of it.

The second is two miles and three-quarters from the Point, at the west side of a little bay in front of a high craggy cliff: this is also a large rock, its summit covered with a bright green vegetation.

The third is a large double-headed rock three miles and four-tenths from the Point, and about 200 yards off Ponta Bode, a bluff with a bay on each side of it. The heads of these bays are six-tenths of a mile inside the line adjoining the extreme points.

The fourth is a group at the foot of Ponta Rosto, one mile and one-tenth beyond Ponta Bode. The bay between the two last points is three-tenths of a mile in depth, and has two or three large rocks in the middle of it, and some others more to the eastward, which break; called the Baixos de Guinchê.

The fifth, and most prominent of them all is the Rochabranca, lying about 250 yards N.W. of Ponta Castello. It is a tall sugar-loaf rock, with an arched passage through the middle of it, occasioned by the violent action of the sea. The lower part is of basaltic structure; the upper is of yellow tufa. The summit is inaccessible, and has been completely whitened by the numbers of sea-fowl which resort to it. The bay between the rock and Ponta Rosto has several large rocks in it, some of them like huge nine-pins.

The cliffs at Ponta Castello are of a reddish Tufa, high, bold, and perpendicular, 534 feet above the sea; and the highest part of the land about it is 614. At the foot of the bluff, 100 yards to seaward, there is a breaking rock, with 8 fathoms close up to it. From the north extreme of Ponta do Castello, the outer extreme point of Ilheo de Fora, bears S. 54° 30′ E., distant two miles and two-tenths; and the eastern extreme of Ponta de San Lourenço S. 54° E., one mile and nine-tenths, but the latter is not visible from it. Immediately to the east of Ponta do Castello, is a small bay, a quarter of a mile in depth; and at little more than half a mile from the point is a rocky bluff, with a little hummock on its summit. A tide-rock lies off it S. 60° E, 270 yards. Beyond this is a rocky bay, nearly three-tenths of a mile in depth, and one mile one-tenth in length, full of rocks and craggy points; and near the middle of it is the large rock called Agostinho, which is all but an islet at high water. From the S.E. end of this bay, the coast runs nearly straight for about three-tenths of a mile to Ponta de San Lourenço. The whole north coast of San Lourenço point is steep to, without any outlying dangers. There are 20 fathoms at the distance of a quarter of a mile outside the several points; and the same depth a boat's length from the N.E. point of Ilheo de Fora.

The bank of soundings extends further from the land between Ponta

Cortado, and Ponta de San Lourenço, than off any other part of the island, except Ponta Parga, and the depths over it are tolerably regular, except in front of Ponta da Cruz. N.E. of Ponta Cortado, its edge is rather more than two miles from the shore; and, on that bearing, at a quarter of a mile outside the point, there are 17 fathoms at half a mile: 20 at three-quarters; at one mile 47.

N.N.E. ½ E. from Ponta da Cruz, which is the shortest line to the edge of the bank, it extends nearly three miles. To the eastward of Ilheo da Cruz, are two patches of rocky ground, the inner one lying N. 67° E., three-quarters of a mile from the Ilheo, has 11 fathoms water on it; and the outer one, bearing N. 61° E., and distant $\frac{95}{100}$ of a mile, has 16 fathoms. Outside these, the bank deepens regularly and more slowly than to the westward of Cortado. On the same N.N.E. ½ E. bearing from Ponta de San Antonio, to the edge of soundings, is two miles and nine-tenths, at one quarter of a mile from the point are 12 fathoms; at half a mile, 20; at three-quarters, 30; at one mile, 47; at one and a half, 57; at two miles, 58. The quality of the bottom, dark grey sand, with a little mud, and a few casts of gravel. From Ponta Bode, on the same bearing, it is three miles one-tenth to the edge of soundings. N.b.E. from Castello bluff, it is two and a half miles, and at one quarter of a mile from the bluff on this bearing, there are 20 fathoms; at half, 35; at three-quarters, 40; at one mile, 45; at one mile and a half, 60; at two miles, 70.

From Fora the soundings extend to the north, four miles one-tenth to the N.E., three miles and three-quarters; east, about the same distance three miles and three-quarters; S.E.b.S. to the Desertas; and due south, one mile. The quality of the bottom, generally, is a dark grey sand. Occasionally some coral occurs, and near the shore it is often rocky. On the N.E. bearing, there are 30 fathoms close to Fora point; at one quarter of a mile, 35; at half, 38; at three-quarters, 43; at one mile, 50; at one and a half, 55; at two miles, 65; at two and a half, 70; at three, 85; at three and a half, 150 fathoms.

On the parallel of Ilheo de Fora north point, at a quarter of a mile distant, are 28 fathoms; at half a mile, 38; at three-quarters, 40; at one 50; at one and a half, 62; at two, 66; at two and a half, 70; at three, 80. On the south side, at a quarter of a mile 31 fathoms: at one half, 45; at three-quarters, 60; and at one mile, it dropped suddenly from 60 to 130 fathoms.

The Desertas are three rocky islands, lying off the eastern point of Madeira, from which their northern extreme bears S. 34° 08′ E., and is distant 10 miles. The northern island is called Chao; the centre one Deserta Grande; and the southern one Bujio. They have no permanent inhabitants, but are occasionally visited from Madeira by fishermen, herdsmen with goats, sheep, and cattle; and by parties in quest of orchilla.

From Madeira east point, a bank of soundings extend quite across to Chao; and is about two miles wide in its narrowest part. The depth of water along the middle of it, until you draw near the land, ranges from

45 to 75 fathoms; and in moderate weather, fishing-boats may frequently be seen at anchor there. This bank continues entirely round the Desertas, its southern limit being one mile and a half from their S.E. extreme point.

Chao is nine-tenths of a mile in length, and one quarter of a mile in breadth, at its north end; but, at the south, it terminates in a very narrow point, from which some rocks run out S. 35° E., about 200 yards. It is a tabled land, surrounded by high rocky cliffs. Off the bold bluff, at the north extremity of this island, in lat. 32° 34′ 47″ N., and long. 16° 32′ 38″ W., there stands a remarkable detached rock, called by the Portuguese fishermen the Furrilhao, but better known to navigators as the Sail Rock. It lies due north of the point, distant from it 100 yards; and is a mere column 160 feet above the sea. There is deep water close around it but 300 yards outside of it bearing, N. 65° W. there is a breaking rock; and a narrow ridge of irregular soundings, varying from 11 to 19, 16 and 14 fathoms over rocky ground, extends from it N. 30° W., nine tenths of a mile. The north-west extremity of Chao, also a high, bold bluff, has several large rocks scattered about the base of it, some above, others under water; and there is foul ground to the north, the west, and to the south-west of it, for the space of two-tenths of a mile.

The eastern shore of the island runs nearly in a straight line. The western coast is more indented, and on that side, about one-third of its length from the south point, in a small cove, named Santa Maria, will be found the best landing, and the place of easiest access to its summit.

The surface of the island is composed of light soil, mingled with rocks and stones; and at the period of our visit, (the middle of May), it was covered with long, coarse, dry grass, and some wild herbs, amongst which the wormwood was abundant. Near its centre was a pond of turbid water, apparently preserved for the animals which sometimes pasture there, when the grass is verdant, but at this time none were found upon it. The most elevated land on Chao is 336 feet above the sea, and is situate 340 yards to the southward of the north point.

The Deserta Grande is the largest and most elevated of the three islands.; its shores are generally steep and rocky, and high bold cliffs of rock characterize the greater part of them. It is 6 $\frac{33}{100}$ miles in length, by one in breadth, at Ponta de Pedregal, which is its widest part. From the high land, lying due east of this point, in the interior of the island, there is one continuous rocky chain of heights to the south point. To the northward of these high lands, it has a very different formation, there being a double ridge of high lands. The valley lying between them is drained by a water course running along the bottom of it, over a rocky bed, (quite dry in May), the outlet of which is over the eastern cliffs, about half a mile from the north point of the island. This water course is turned thus to the eastward by two hills, standing on the N.W. side of it, near the outlet; and the rain water which falls on these hills makes its way to the sea, down a steep ravine, also running to the northward, and terminating very near the north point of the island, on the west side.

This circumstance is particularly mentioned because we found the summit more easily gained from this part than from any other, although the ascent up the dry and rugged bed of the mountain torrent was sufficiently difficult.

The head of the valley lies at the foot of a green hill, near the centre of the island, and about east of Ponta de Pedregal; and, it may be useful to the navigator to know that, there he will find a small house, and near it two ponds or reservoirs of turbid water; and a few yards from the house, down the valley, a spring of delicious cool water, yielding, however, but a very limited supply. There had been a garden attached to the house, but it was neglected and over grown with weeds. The soil of the green hill, and all the head of the valley was a deep red earth. A few cattle, some goats, and numerous sheep were found upon the heights; and there were twenty persons from Madeira attending them, and collecting orchilla. These people sometimes land on the little point Castanheira, half a mile to the northward of Ponta de Pedregal, and climb to the top of the island up the broken cliffs; and when the wind is westerly, they scale the heights from the east side; but much skill and local knowledge seem requisite to accomplish it.

The most elevated peak of Desertas is a rocky hill, standing on the ridge of high land, which may be termed the spine of the island. It bears S. 68° E., one mile and one-tenth from Ponta de Pedregal, and is 610 feet above the sea. From the north point of Deserta Grande, to the rocks, which extend from the south end of Chao, the distance very little exceeds 300 yards, and this channel is narrowed by a breaking rock in the middle of it, lying north from the point. Another breaking rock lies a few yards from the N.E. point of Deserta Grande, so, that, although, at low water there are passages of 2½ fathoms in the channel, yet, it is only practicable for boats in fine weather; and there are times when the breakers extend entirely across.

From the top of the high land at the south point of Chao, the rocks at the bottom of this channel may be distinctly traced at low water. From the north point of Deserta Grande, proceeding along its western coast, the next point bears S. 5° W., half a mile. It is formed by several rocks and large stones. S. 6° E. one mile $\frac{45}{100}$ further is *Ponta de Pedregal*, a detached rock, with high land towering above it to more than 1,200 feet. Between these two points is the little cove of Castanheira, where, as before stated, the boatmen sometimes land to climb the heights. A rock stands off and marks the point.

From Pedregal the outer rock off Ponta de Boqueirao, the south extremity of the island, bears S. 30° E., four miles and a half. The rock has a few stones on its west and south sides, but close to it: the point is steep to and clear of dangers; and so is the whole western coast, which consists of high broken cliffs, with here and there a large fragment fallen at its base. Between Pedregal and Boqueirao points these cliffs fall back half a mile from the line joining the extremes, and convey to the eye an idea of greater depth of bay than is really the fact.

At Ponta de Boqueirao the coast turns to the north for eight-tenths

of a mile; thence N. 13° 30′ W. one mile $\frac{85}{100}$ths to the short stony point of Rocha Negra: on the north side of which are several rocks and stones with shoal water half a mile along the shore, and to the distance of about 300 yards off it. A small stony point lies half way between these two last, but the boulders do not extend off 100 yards.

From Ponta de Rocha Negra, the next point northward bears N. 29° W., two miles and a quarter. This is also a short stony point, and like the Rocha Negra is apparently formed by fallen portions of the cliffs above it. From this last point to the N.E. extremity of the island is N. 35° W., one mile and a half. Two black rocks lie immediately off this point, and the breaking rock formerly mentioned a few yards north of the outer one. The general character of the east coast of Dezerta Grande is that of a rugged broken irregular line of cliffs, having in many cases slopes from them to the stony points which originate in occasional land slips from these cliffs.

The Bugio.—From Ponta de Boqueirao, the south extreme of Dezerta Grande, the north point of Bugio bears S. 5° E., distant $\frac{67}{100}$ths of a mile. Both points are clear, and have 7 fathoms water within thirty yards of them. The channel between them is perfectly free from dangers. The deepest water in it is 19 to 20 fathoms; the quality of the bottom varies, being fine brown sand, coral and shells, and rock.

The Bugio from its north point along the west coast to the southward runs nearly one mile and seven-tenths; thence S. 23° E, one mile $\frac{65}{100}$ths to a conical detached rock; and thence to Ponta d'Agulha, its south extremity S. 63° E. one mile and one-tenth. A few rocks lie around this very point; but there are 5 fathoms 130 yards off, and at 200 yards a depth of 10 fathoms. It is in lat. 32° 23′ 15″ N., long. 16° 27′ 37″ W.

From Ponta d'Agulha the north point of Bugio bears N. 21° 30′ W. four miles $\frac{05}{100}$. The coast between the extreme points on the east side forms a crescent half a mile in depth. Both shores are rocky cliffs of less altitude than those of the Dezerta Grande surmounted by a very sharp serrated rocky ridge of hills, which runs the whole length of the island. There is a gap on this ridge near the centre of it, which at a distance gives the appearance of two islands. The beaches on opposite sides of the gap are not more than 200 yards apart. Its greatest breadth no where exceeds half a mile.

The highest peak on the northern part of the Bugio is 1349 feet above the sea: that on the southern part is 1070 feet.

The direction of these islands from the Sail Rock to the south point of the Bugio is S. 20° 28′ E.; and their whole extent is twelve miles and a quarter.

The bank of soundings around these singular islands is tolerably regular; sweeping across to them in a narrow ridge from Madeira as already stated, it extends along their eastern shores to the average distance of *one mile and a half* from the land; and along most parts of their western coast to the distance of two miles.

Its greatest breadth is west of Bugio where it runs off three miles; on the south it passes the extreme point at the distance of one mile and

a half. The bottom is diversified with fine sand of various colours, brown, white, and grey; coral, broken shells, and rock.

There is much danger to vessels passing close under the lee of these islands with strong breezes, in the violence of the gusts from the high land which are most variable, both in direction and strength. It is no uncommon thing to see the water whirled into the air, and then precipitated on the vessels' masts and decks.

The tide sets by these islands at the springs, at the rate of one mile and a half to two miles per hour; the flood N. 31° E.; the ebb S. 31° W. and its rise is 7 feet.

ANCIENT NAVAL RECORDS.—*Communicated by John Barrow, Esq.*

(Continued from page 482.)

18. And to the end the Comptroller of their Ma^ties Victualling Acc^ts residing at the Navy Office, may at all times bee enabled to give unto the Lord High Adm^ll, Comm^r of the Adm^ty, and the Principal Offic^rs and Comm^rs of the Navy for the time being, a true and perfect state of all matters relateing to the business of their Ma^ties Victualling, both as to the Receipts and Issues of their Ma^ties Treasure supplied for that Service, the state of their Magazines of Provicons bought, issued, and remaining, with the quallity of the same, and the good or ill management exercized in the frugall dispensing of their Ma^ties Treasure, and regular answering of their Ma^ties Service. They are forthwith to send to y^e afores^d Comptroller of the Victualling Acc^ts for the time being, the respective Acc^ts following from the commencem^t of their time to the last of this month. And from thence foward to continue sending the like Acc^ts weekly and monthly as is hereafter expressed in each Article, viz. :

I. A duplicate of the Acc^t and Survey of the Victualling Stores and Utensills of all kindes remaineing at each of their Ma^ties Victualling Ports and Storehouses, and taken into their possession from the late Comm^rs of the Victualling, according to what is directed in the second Article of these Instructjons.

II. They are to cause to bee prepared and presented to y^e s^d Comptroller by the Cashier for receiving and paying all Moneys relating to y^e Victualling, a particular Acc^t of all his Receipts and Paym^ts of Money to the last of this month in the same manner and forme as was done by the Cashier in the time of the former Comm^rs, and from thence forward to transmitt y^e like Acc^t on every Munday in each Weeke of his Receipts and Paym^t made within y^t time.

III. An Acc^t of what Provicons and Stores of any kinde have been bought by them, and received into anny of their Ma^ties Victualling Stores to the said last day of this Ins^t, expressing in distinckt collums, the time when, by whom, and the place where received, the quallity and quantity

of Provicons bought with the rate and vallue paid, or to bee paid, for the same, and from that time forwards to continue sending to y^e^ s^d^ Comptroller at the end of each month the like Acc^t^ for what shall bee bought and received into any of their Ma^ties^ Stores within each month for the future.

IV. Duplicates of all Indents for sea, harbour, extra petty Warr^t^, and for broken proporcons and supplies of Victualls issued out to anny of their Ma^ties^ ships or vessells to the end of this month, are to be sent forthwith to y^e^ s^d^ Comptroller, and y^e^ like to be continued to bee done for the future according to the Tenth Article of these Instructjons.

V. To cause at the end of each month an Acc^t^ to be taken of the quantity and quallity of the Victualling Stores of all kindes that shall bee then remaineing in each Victualling Port, and a duplicate thereof to bee sent to the afores^d^ Comptroller, the first Acc^t^ to begin the last of this month.

VI. An Acc^t^ of all Provicons, caske hoopes, baggs, &c., that have beene returned into anny of their Ma^ties^ stores, whether decayed or otherwise from anny of their Ma^ties^ shipps or vessells to the s^d^ last day of this month, expressing therein the times when, from whom, and to what place, together with the quantity and quallity of the stores so rec^d^, and from thence forward to returne to the s^d^ Comptroller y^e^ like account at the end of each month for what shall be rec^d^ in every month.

VII. An Acc^t^ of all Moneys payable to the Treasurer of the Navy, or his Cashier, on their Ma^ties^ Victualling Acc^t^ for decay'd Provicons, or other Provicons sold, and for tallow, hides, offall, bran, small cole, graines, rent of anny of their Ma^ties^ houses or wharfes, &c., that soe it may bee examined whether their Ma^ties^ have had wright done them by the Cashier in makeing a due charge thereof in his Accompts.

19. And for preserveing their Ma^ties^ credditt for the future by preventing all undue preferences in payment in the Victualling Office, as is done at the Navy Office, and to know the true debt due to the last of this month, they are to cause bills to bee made out and signed by three or more of them for all Moneys that is, or shall be due to any person or persons upon the thirty-first instant, for anny kinde or sorte of victualls, stores, utensills, wages, saloryes, or other disburstments and payments whatsoever, and those and all other bills that shall remaine unpaid at that time, duely to number and enter in course into a booke to bee kept for that purpose, vnder the six colums following, viz. :—

1. Number against each person's name.
2. The person's name.
3. Spetie of Provicon or Service.
4. The Quantity.
5. Rate and Price.
6. Tott^ll^ vallue of each bill..

Entring the Eldest first with No. 1. and so successively 1, 2, 3, 4, &c., according to the respective times the Money on the s^d^ Bills shall by their dates appear to bee due, which Bills being so made out, numbred and entred. They are to cause a duplicate thereof, w^th^ a particular of

the Imprest Money that shall bee then standing out against, and uncleared by any persons, to be transmitted to the afores^{d} Comptroller and from that time forwards they are to continue entring and numbring in the same Booke, all such Bills as shall bee made out to any person or persons for Moneys due to them from the s^{d} office to bee assigned vpon the Trea^{r} of the Navy, for Payment in course according to their respective Numbers, out of such Moneys as shall from time to time to time bee appointed for the Service of the Victualling. Moneys payable to any person vpon Account of Extra Services by way of Imprest Bills beeing to bee excepted the paym^{t} of such Bills out of course beeing not to bee reckoned any breach of the course, but this method is not to be used but where their Ma^{ties} Service indispenceably requires it.

Lastly, and in order to a comeing to a through knowledg what each man's victualls will stand their Ma^{ties} in for a day, they are to take a general survey at the end of each yeare, (viz.: in the month of December,) of all the Provicons and Utensills that shall bee remaining in each Victualling Port, and by or before the end of March next following, to cause to bee prepared and presented unto the Principal Offic^{rs} and Comm^{rs} of their Ma^{ties} Navy, an account signed by themselves of the Victualling for the proceeding yeare, makeing the s^{d} Acc^{ts} D^{r} as well to the vallue of the s^{d} Survey as for what Provicons shall be returned from any of their Ma^{ties} shipps or vessels, and for such Moneys as shall have been Rec^{d} for the Service of the Victualling on that yeare, either from the Exchequer, or or for Victualls, Stores, Tallow, Hides, Offall, Bran, small Cole, Graines, Rent of any of the kinges houses or wharfes by them sould, as allso for the Debts of the Victualling then in arrear, and P^{r} Contra C^{r} for all victualls issued in that yeare, and the like for all the remaines in their Ma^{ties} respective Victualling Stores, which beeing cast into Money it will thereby appeare at what rate the men serving in their Ma^{ties} Navy have been victualled, which s^{d} Acc^{ts} beeing Comptrolled, Examined, and Passed by the Princip^{ll} Offic^{rs} and Comm^{rs} are to remaine in the Office of the Comptroller of the Victualling.

Whereas this Board have thought fitting to appoint the before going Instructjons for your better Governm^{t} in Managing the Business committed to your care as Comm^{rs} for Victualling their Ma^{ties} Navy. You are therefore hereby required and directed, duly and careful to observe y^{e} s^{d} Instructions in your management of that affaire. For, &c y^{e} 13th of March, 1690.

To the Comm^{rs} for Victualling their Ma^{ts} Navy.

Sentences of Courts Martjal.

June 9th, 1680.—Four seamen tried on board the *Bristoll*, for disobedience of orders.

One of the said four offenders, to whom it shall fall by lot, shall receive fifty-one stripes on his bare back with a cat-of-nine-tails, at the main-mast, on board H.M.S. *Bristoll*.

August 26th, 1680.—Thomas Woodgreen, mate, on board H.M.S. *Diamond*, for writing abusive letters to his captain.

To receive ten lashes at the side of H.M.S. *Bristoll*, and five at the side of each of H.M. other ships, now riding in the Bay of Tangiers, with a paper upon his back declaring his fault, and then be towed ashore at the boat's stern.

August 23rd, 1680.—Francis Martin, belonging to H.M.S. *Rupert*, for deserting H.M. service.

To be hanged by the neck at the main-yard-arm of H.M.S. *Bristoll*, till he be dead. Sentence executed on the 25th of August.

August 10th, 1681.—Lieutenant Thomas Rock, of H.M.S. *Adventure*, for speaking blasphemously, and using unlawful oaths and curses.

Discharged his employment as Lieutenant, and to leave the fleet.

June 16th, 1684.—Herbert Boyle, tried for skulking on shore, with intent to desert.

To be punished by being carried with a halter about his neck in a boat, and made fast to the mast of the said boat by both his hands, and there to receive from the Marshall, at the side of the several ships, hereafter mentioned, nine strokes or lashes on his bare back, with a cat-of-nine-tails.

September 6th, 1687.—John Shaw, for the wilful murder and killing of Allen Lead.

To be hanged by the neck at the yard-arm, on board the *Pearl*, till he be dead.

February 20th, 1687.—Captain Sir William Jennens, of H.M.S. *Jersy*, and Captain Charles Skelton, of H.M.S. *Warwick*, for a personal quarrel, in which Sir William Jennens was struck by Captain Skelton in the face.

Both being guilty of scandalous misdemeanour derogatory to the honor and discipline of H.M. service, to be punished by fines, in losing nine months pay each of them, and to have a severe reprehension from the Court.

Some of the testimony of this court-martial is worth preserving; it runs as follows:—

"On the 16th of January last, in the evening, Captain Skelton came on board his Majties shipp *Jerzey*, and enquired if Sir William Jennens were on board, to which I answered noe, he then said 'y^t Sir William came from the shore before him and did admire what should be become of him,' to which I answered I did beleive they had grounded his boate on the Oase; upon which Captain Skelton went into the great cabbin, and emaidiatly Sir William came on board, where myself with the other war" officers being at y^e side to receive him, heard him say 'y^t a blow on y^e face he would never forgive;' on which I went into y^e great cabbin with him, which when Sir William saw Captain Skelton in his cabbin he was not a little surprized, and withall told him he would acquent the king of his usage to him; and seeing Sir William's neckcloath all bloody I said 'Lord, sir, I cannot endure to see y^t blood on your neckcloth'; emaidiatly Captain Skelton turned to me saying 'Purser you ought not to

make the breach wider, but to moderate it,' and scornfully smileing said, 'what if it bee bloody, I shall not be turned out for it'; and finding y^t Sir William would not in any ways consent to pass by the affront, Captain Skelton said 'Sir William, you are drunk, and Purser, I will bring you vpon your oath, and if you will forsweare your selfe, doe and bee dam'd.' I answereing him y^t if I swore y^t Sir William was drunk I must bee dam'd, for I should forsweare myselfe. Then Sir William ordered all y^e warr^t officers to bee call'd in, saying to them 'Gentlemen, Captain Skelton is pleased to say I am drunk, I send for you to know your opinion;' at which they all answered they saw nothing like it.

"Captain Skelton finding he could not move him to alter his opinion, said ('You must forgive, you have forgiven); strike mee as many blows as you please, put mee in irons, throw mee over board, I will not sturr from you untill you doe forgive mee; but will lye with you all night, and you will have a troublesom bedfellow;' upon which Sir William did say he would pass it by and not give y^e king an acc^t of it, and Sir William saw Captain Skelton to the shipp's side, but gave mee and y^e other officers orders to wright downe all passages y^t had hapned between Captain Skelton and himselfe befor us.

"The truth of which I testifie under my hand this 13th day of February, 1687; and am ready to make oath to y^e same.

(Signed) "RALPH ELLIOTT."

James Delgarne, gunner of their Ma^ties fire-ship, the *Vulture*, was accused of embezzling and taking away some of their Ma^ties stores, belonging to y^e s^d ship, viz:—Two barrells of gunpowder, one coyle of rope, and three bundles of marline; which matter plainly appearing to the Court by evidence upon oath, and also by his owne confession, resolved y^t hee is guilty of the Charge laid against him, and y^t hee falls under the Eighth Article, and accordingly do pass sentence, y^t y^e s^d James Delgarne shall bee hanged by y^e neck till hee is dead; on board such ship as shall bee directed by this Board. Sentence confirmed on y^e 3rd November, 1691.

And whereas in y^e 34th article of an Act made in y^e second yeare of King Charles the Second, intituled, "an Act for the establishing articles and orders for the Regulateing and better Government of their Ma^ties Navy, ships of war, and forces at sea," it is expressed and enacted that in no case wherein sentence of death shall pass (except in the case of Muteing), there shall bee execution of such sentence of death, without the leave of the Lord High Adm^ll, if y^e offence bee committed within the narrow seas.

Wee haveing duly considered the s^d sentence, do give leave that execution bee done according to y^e s^d sentence of the Court Martjall, on board their Ma^ties shipp y^e *Restoratjon*.

Given &c., y^e 3rd of November, 1691.

To George Rooke Esq^re, Rear Adm^l of the Redd, at Chatham.

October 31st, 1692.—Three seamen were sentenced to receive one hundred lashes each on y^e bare back, with a halter about their necks,

and their crimes to bee declared by y^e^ Provost Marshall, with beate of drumme.

The Arctic Expedition.

In a recent number we gave our readers a brief outline of the orders under which the several branches of the present expedition in search of Sir John Franklin were proceeding. Since our last the following public and private letters have been received, which give the most favorable accounts of the progress and health of the ship's under the command of Sir James Ross. We shall annex to these accounts a copy of the orders given to Sir James, being highly interesting while accounts are being received of their execution.

Whalefish Islands, June 29th, 1848.—We got through the Pentland Firth on the night of the 19th of May, and then carried a fair wind for Cape Farewell till the end of the month, when we got light breezes from the west, which detained us for some time. On the 7th of June, in the afternoon, we fell in with the first stream of ice, and we passed through the last of it on the 12th. This, I am given to understand is a strange place to meet stream ice. We were then clear until we were within two days sail of this place, when we fell in with some magnificent bergs, upwards of 200 feet in height, and bulky in proportion. We fired a 24-pounder shot into one of them, which, of course, produced no effect. We sail to-morrow for Melville Bay, and from thence to Lancaster Sound, if we can get through. I suppose there never were happier ships' crews than ours. Sir James Ross does everything he possibly can to make everything comfortable for man and officer. Whilst here we have formed some pleasant shooting parties.

Letter from an officer of the *Investigator:*—

Whale Island, Davis's Straits, June 29th, 1848.—We are all well. The weather is very sultry, and the icebergs in the neighbourhood are disappearing very fast. We fell in with the first stream of ice on the 7th of June, in in lat. 57° 46′ N., long. 42° 5′ W., and with the first berg on the 12th, lat 60° 35′ N., long. 51° 43′ W., and we passed the meridian of the south point of Greenland (Cape Farewell) on the 8th June, and arrived here on the 22nd. We sail to day for the northern cruize, sanguine and full of self-established faith trusting that we shall be fortunate enough to accomplish our mission successfully. The head man residing here knows nothing of the Arctic Expedition of Sir John Franklin, beyond the fact of his having seen the expedition on its outward voyage. We hope to reach the entrance of Lancaster Sound by the 1st of Aug. The barrier ice was passed in lat. 68° 5′.

H.M. Ship Enterprize, Whalefish Islands, 29th June, 1848.

Sir.—I have the honor to acquaint you for the information of the Lords Commissioners of the Admiralty, that Her Majesty's Ships *Enterprise* and *Investigator* arrived at this anchorage on the 22nd inst., and that having completed all the magnetic and other observations, and swung the ships for the purpose of ascertaining the deviation, it is my intention to proceed on our voyage to-morrow morning. The Governor and all the Danish authorities being at present absent from this place and the contiguous settlements, I have been unable to receive any information respecting the state of the ice to the north.

The native Esquimaux informed me that the winter had been unusually severe, and that they have been badly off for provisions, so far however as I can judge, and not meeting with any drift ice in the narrows of the strait and the fine weather we have experienced, the season appears to me favorable, and I entertain a confident hope that we shall be able to reach Lancaster Sound at an early period of the season.

The officers and crews of both ships are in the enjoyment of perfect health and animated by as high a degree of ardour and zeal for the success of the good cause in which we are embarked, as any commander could desire.

With reference to your letters of the 8th ult. containing an extract of a letter from Sir George Simpson relative to the doubtful supply of provisions likely to be obtained at Fort Good Hope in the Mackenzie river. I beg you will be pleased to acquaint the Lords Commissioners of the Admiralty that, under the circumstances mentioned in Sir George Simpson's letter of the extreme difficulty of their own people procuring a subsistance, I do not consider it prudent to expose a party of people unacquainted with the country and unused to the mode of hunting and fishing to so great hazard of starvation as would evidently be incurred. But should the *Enterprize* winter at Melville Island or anywhere in its neigbourhood, I shall order the party which their Lordships intended should return to England by the Mackenzie river, still to proceed direct for Cape Bathurst or Cape Parry, with the hope of communicating with Sir John Richardson's party, but not to advance so far as to hazard their rejoining the ship before the breaking up of the ice, and thus by returning by a different route they will be enabled to examine a large portion of the most probable space in which the *Erebus* and *Terror* may be, than had they returned to England by the Mackenzie river.

I am, &c.
J. C. Ross, *Captain.*

Medical Report from the Arctic Expedition.

"Since the sailing of the expedition, the crew of the ship has enjoyed uninterrupted good health; there has been but one case (pleurisy), of any degree of severity, and that in due course terminated favourably. At present (28th June,) there is not a man on the sick list.

"The weather, for the most part, has been wet or foggy, causing considerable dampness between decks, but the occasional employment of the rarifying stove, has always been found sufficient to dispel it.

"The expedition has been at Whale Island for the last week, where it has experienced mild, dry, and pleasant weather, notwithstanding that the whole country around is covered with snow. The thermometer ranges from 34° to 53°, the mean being 44½°.

"The expedition will sail to-morrow, in pursuit of the main object of the voyage.

John Robertson (b).

Return to an Address of the Honourable The House of Commons, dated 26th May, 1848, for a "Copy of the Orders from the Lords Commissioners of the Admiralty, under which Captain Sir James Clark Ross, R.N., has proceeded on an expedition in search of Captain Sir John Franklin, R.N.'—By the Commissioners for executing the Office of Lord High Admiral of the United Kingdom of Great Britain and Ireland, &c.

"Whereas the period for which Her Majesty's ships *Erebus* and *Terror* were victualled, will terminate at the end of this summer; and whereas no tidings whatever of the proceedings of either of those ships have reached us since their first entry into Lancaster Sound, in the year 1845, and there being

therefore reason to apprehend that they have been blocked up by immovable ice, and that they may soon be exposed to suffer great privation, we have deemed it proper to defer no longer the endeavour to afford them adequate relief. Having, therefore, caused to be prepared and duly equipped, with extra stores and provisions, two suitable vessels, and having had them properly fortified, so as to resist the pressure of the ice, and having the fullest confidence in the skill and experience that you have acquired in those inclement seas, we have thought proper to place them under your command; and you are hereby required and directed, so soon as they are in all respects ready for sea, to proceed in the *Enterprize*, under your immediate command, and taking the *Investigator*, Captain Bird, under your orders, without delay to Lancaster Sound. In your progress through that inlet to the westward, you will carefully search both its shores, as well as those of Barrow Straits, for any notices that may have been deposited there, and for any casual indications of their having been visited by either of Sir John Franklin's ships.

"Should your early arrival there, or the fortunately protracted openness of the season, admit of your at once extending a similar examination to the shores of the Wellington channel, it will leave you at greater liberty to devote yourself more fully afterwards to your researches to the westward. The several intervals of coast that appear in our charts to lie between Capes Clarence and Walker, must next be carefully explored; and as each of your vessels have been furnished with a launch, fitted with a small engine and screw, capable of propelling it between four and five knots, we trust by their means, or by the ships' boats, all those preliminary researches may be completed during the present season, and consequently, before it may be necessary to secure the ships in safety, previous to the approaching winter. As that winter may possibly prove to be so severe as to seal up the western end of that extensive inlet, and as it would be unwise to allow both vessels to be beset there, we consider that it would be prudent to look out for a fit and safe port near Cape Rennel, and in that neighbourhood to secure the *Investigator* for the ensuing winter.

"From that position a considerable extent of the coast may be explored on foot, and in the following spring detached parties may be sent across the ice by Capt. Bird, in order to look thoroughly into the creeks along the western coast of Boothia, and even as far as Cape Nicolai; while another party may proceed to the southward, and ascertain whether the blank space shown there in our charts consists of an open sea through which Sir John Franklin may have passed, or, on the contrary, of a continuous chain of Islands, among, which he may still be blocked up. As soon as the returning summer shall have opened a passage between the land and the main body of the ice, this eastern vessel is to detach her steam-launch to Lancaster Sound, in order to meet the whale ships which usually visit the western side of Baffin Bay about that time, and by which we purpose to send out further instructions and communications to you, as well as to receive in return an account of your proceedings.

"The *Enterprize* in the meantime will press forward to the westward, and endeavour to reach Winter Harbour in Melville Island, or perhaps, if circumstances should in your judgement render it advisable, to push onward to Bank's Land; but in either case a distinct statement of the measures you are going to adopt, as well as of your future intentions, should be deposited in some spot previously communicated to Captain Bird. From this western station you will be able to spread some active parties, and to make some short and useful excursions before the season altogether closes, and still more

effective ones in the ensuing spring. One party should then pursue the coast in whatever direction it may seem likely to have been followed by Sir John Franklin, and thus determine the general shape of the western face of Banks' Land. It is then to proceed direct to Cape Bathurst or to Cape Parry on the main land, at each of which places we have directed Sir J. Richardson to leave provisions for its use; that party will then advance to Fort Good Hope, where they will find directions for continuing their progress up the Mackenzie river so as to return to England by the usual route of traders.

"Another party will explore the eastern coast of Banks' Land, and from thence make at once for Cape Krusenstern, where, or at Cape Hearne a *cache* of Pemmican will be placed for Sir John Richardson.

"They should communicate immediately with him, according to the agreement which he and you have made, and, placing themselves under his orders, they will assist him in examining the shores of Victoria and Wollaston Islands, and finally return with him to England, by whatever route he may deem advisable. Unable to foresee the variety of circumstances in which you may be placed, or the difficulties with which you may have to contend, and fully relying on the skilfulness of your measures, as well as by the zeal with which you and those under your command will be animated, we direct you to consider the foregoing orders as the general outline only of our desires, and not as intended too rigidly to control your proceedings, especially whenever, after due deliberation, you have become satisfied that the end we have in view may be more certainly accomplished by the substitution of some other course of operations; and if Providence should not be pleased to crown your efforts with success, we leave it to your own judgment when and from whence to return to England, as soon as you are convinced that every means within your reach have been exhausted.

"In case of any irreparable accident happening to the *Enterprize* you are hereby authorised to take the command of the *Investigator*, and to make such arrangements for the officers and crews as may be most consonant to the rules of the service, and most conducive to the objects of the expedition.

"If you should happily succeed in meeting with the *Erebus* afloat, and Sir John Franklin's pendant be flying, you will of course place yourself under his orders; but if you should find that ship blocked up with ice, or otherwise incapable of proceeding, you are hereby authorised and directed to retain the command of the expedition, and adopt all such measures as may be requisite for the safe removal of her crew, or that of the *Terror*.

"In the event of Great Britain being involved in hostilities with any foreign power during your absence, you are to abstain from the smallest act of aggression towards any vessel belonging to such nation, it being the practice of all civilized countries to consider vessels engaged on service of this kind as exempt from the rules and operations of war. Both vessels under your orders have been furnished with abundance of stores, and with more than a sufficiency of every thing that can in anywise contribute to the welfare of their crews; but we especially direct you to consider their safety, health, and comfort as predominant in every operation that you undertake. Each of them has likewise been supplied with numerous instruments for the purpose of making geographic, hydrographic, magnetic and atmospheric observations in those northern, and rarely visited regions of the globe; and we annex hereto a copy of the instructions given to Sir J. Franklin, in order that you may pursue a similar course; and though we estimate any such observations as of inferior importance to the one leading object of the expedition, you will nevertheless, omit no opportunity of rendering it as contributive to scientific acquisition as to the performance of the great duties of national humanity.

In carrying out the above orders, you will avail yourself of every practical occasion of acquainting our Secretary with every step of your progress, as well as with your future intentions: and on your reaching England you will call on every person in both vessels to deliver up to you all their logs, journals, charts and drawings; but which, they may be informed, shall be returned to them in due time.

Given under our hands this 9th day of May, 1848.

(Signed) AUCKLAND,
J. W. D. DUNDAS.

By command of their Lordships,
(Signed) "H. G. WARD."

By a dispatch from Sir George Simpson, it appears that Sir John Richardson arrived at Norway House, Lake Winipeg, on the 5th of June, and left the following day. The season was unusually backward, there still being floating ice in Lake Winipeg, obstructing Sir John's progress to Cumberland, and the loss of time arising from this unfavorable season, may prevent him from accomplishing the voyage along the coast from the Mackenzie to the Coppermine River, which he contemplated.

The last advices from Mackenzie River, are up to December, and from Churchill (Hudson Bay), up to the 10th of May, at which dates, nothing had been heard of Sir John Franklin's party.

No further accounts have been received from the *Herald* since those of the 13th of May, when she was in lat. 7¼° N., and long. 87¼° W., having been towed from Tobago in Panama Bay, by the *Sampson*, and the last account we have of the *Plover*, states that, she left Callao on the 8th of July for the Sandwich Islands, on her route to Bhering Strait.

MASSACRE OF MISSIONARIES IN OREGON.

The journals from the Sandwich Islands bring numerous and gloomy details of the massacre of an entire community of protestant missionaries settled in Columbia. For more than ten years this colony composed of members distinguished in the society of American missions, for their zeal, laboured under the direction of the Rev Dr. Whiteman, for the intellectual and religious culture of the Cayouses, one of the most ferocious and most ignorant of the Indian tribes of the river Columbia.

Many times already had threats of a disquieting nature proved the ingratitude of the people towards their benefactors, but still hoping that a higher degree of instruction would gradually do away with the perverse instincts of savage life, the Rev. Mr. Whiteman had peaceably continued his work, neglecting even to take such precautions as ordinary prudence dictates in the midst of actual and permanent danger.

Meanwhile, dysentery broke out at Waulatpou, the chief place of the tribe, where, among the Indians only, it made rapid and cruel ravages. In his capacity of physician, Dr. Whiteman was surrounded by a crowd of sick, who implored him to employ for their cure the supernatural power, with which they said he was endowed. The malady was at its highest point of intensity, almost all the sick died, and the Cayouses imagined that, instead of remedies, the missionaries administered poison to them, in order to destroy the tribe, and gain possession of its territory. Some convinced of the integrity of the pastor, combated this horrible suspicion, and proposed to test the effect of the medicaments upon three persons, two of whom should be ill and one in perfect health; but all three, as if by a fatality, were carried off by the

disease, and the tribe then resolved, in a moment of general rage, to put all the missionaries to death.

At two hours after mid-day the Indians arrived, one by one, at the mission, with an air of calmness, and under various pretexts, having arms concealed beneath their cloaks. Dr. Whiteman was employed in teaching the children, while his colleagues were occupied, some in study, and others in domestic cares. The ladies were assembled in a large room were they taught the native girls to read and sew. When the Indians found themselves in sufficient numbers to execute their atrocious project, they suddenly surrounded all parts of the establishment, and throwing themselves upon their unfortunate victims, some with hatchets, others with pistols, soon turned the house of God into a horrible slaughter-house. The doctor received a ball in the centre of his breast, and the blow of a hatchet on the head; he had just strength enough to drag himself to a sofa when he breathed his last. His wife, Mrs. Whiteman, was literally cut to pieces. The other ladies and their children were about to undergo a similar fate, when a voice from among the Indians cried, "Pity the innocent," and they were spared.

It has since become known that the fury of this savage horde was increased by the avowal of a Mr. Rogers, whose life the Cayouses promised to spare, if he confessed the treason of his superior. Terrified at the prospect of death, this missionary recounted that it was true that Dr. Whiteman wished to poison them, in order to give their territory to the Americans; that his intention, distinctly expressed in a council, was to give them a powerful dose of poison, which would carry them all off at once; but that, by the advice of Mr. Spalding it had been resolved to poison them gradually, and that this was the cause of the mortality.

After this melancholy evidence Mr. Rogers was allowed to go free; but an Indian, in the confusion, seeing him in a corner, discharged his gun at him, his death being thus caused by the very act which had aggravated the fate of his companions. Another missionary made similar avowals, adding that Mrs. Whiteman was in concert with her husband, which was doubtless the reason of the pity granted to the other females not being extended to her. The Cayouses asked this man if he were for their party or the Americans? He replied that he was for the Indians, and that he hated his companions; upon which the Indians asked him to prove the truth of his words, by killing the son of his chief, who was before them at the moment, at the same time putting a loaded pistol into his hand. The missionary hesitated a moment, pulled the trigger, and the young Whiteman fell dead at his feet.

Of the fifteen members of the mission who were left extended in their blood, four still lived after the carnage; these the Indians had struck less cruelly, believing them to be less guilty.

As soon as Mr. Abernethy, governor of Columbia, received intelligence of this dreadful event, he sent a report to the legislative council of Oregon, and obtained immediate authority to levy 500 volunteers, to punish the tribe of the Cayouses. In a few days from the departure of the above intelligence, Captain Lee was to put himself at the head of this expedition, and doubtless ample vengeance would be taken at Waülatpou. But vengeance is less an object than to prevent this sad example being followed by the neighbouring tribes, among whom the Society of Missionaries have founded numerous establishments, without gaining the sympathy of the people, or bringing about a reform sufficiently deep-rooted to prevent cause for continually fearing a return to the ferocity of savage life. We are assured that the Hudson's Bay Company has, on its part, sent a considerable reinforcement to Walla-Walla. The question is, whether they will arrive soon enough to prevent the recurrence of such a misfortune.

PIRACY, MURDER, AND SHIPWRECK.—The "*General Wood.*"

The melancholy fate of this merchant ship (says our Singapore correspondent) has excited deep grief throughout the east. The tale is a sad one. Like the *Freak* and the *Harriet Scott*, the *General Wood* has fallen a victim to that cruel policy which sends the most desperate characters transported for crimes, which in Europe would be punished with death, without affording on board any guard for the protection of the officers and crew of the vessel.

The ship *General Wood*, 700 tons, Captain Stokoe, belonging to Messrs. Jardine, Matheson, and Co., left Bombay, about ten months ago, for China. After remaining three months at anchor in Whampoa Reach, she proceeded to Hong-Kong. Tenders were invited by government officials at Hong-Kong; several applications were sent in; but, that of the *General Wood* was accepted; the tender being for about 1,800 Spanish dollars.

While the ship was at Whampoa, two Chinese lascars were shipped; one had previously been two years in the vessel; the other was a new hand. It will be seen in the sequel, that one of these Chinese lascars was the leader of the mutiny, and was a very ferocious character. The *General Wood* remained four days at Hong-Kong. When it was known that a number of convicts were to be received on board, Captain Stokoe authorised the Serang to ship eight additional hands, three to work as lascars, and five to do duty as sepoys. One of the latter was an European, named John Green, who had been employed as an assistant engineer, and desired to work his passage to Bombay.

On the 9th of November, 1847, the Chinese convicts, ninety-two in number, and one Portuguese (Goa), transported for piracy, were received on board. When taken on board they were secured by leg-irons and handcuffs, and accompanied to the vessel by a guard of the Hong-Kong police. A prison had been constructed between decks for their reception. When placed in the prison, the handcuffs were removed and taken on shore. Captain Stokoe informed the writer that, when he reached the vessel and found that the handcuffs were taken away, he applied to the authorities, and received fifty-three pairs of handcuffs, to be used in the event of any of the convicts being troublesome. When at Hong-Kong, a chain secured the convicts within the limits of the temporary prison. The convicts behaved so well during the passage down from China, that but seven pairs of handcuffs were in use. The writer visited the vessel several times while she was at Singapore, and was told by two or three of the Chinese, that they had experienced kind usage from the captain; they were, for the most part, under thirty years of age; one of the number spoke English fluently, having been interpreter at Hong-Kong, where giving a false interpretation to some witness's evidence, in a case of murder, by which the villains escaped justice, the interpreter was convicted and sentenced to transportation for life. Seventeen were transported for piracy, and several for murder. In fact they were the twice rejected of China. The Portuguese convict was kept apart from the Chinese; he was formerly the servant of Captain Chamberlain, who was cut off and barbarously murdered by the pirates, who attacked the schooner *Omega*, in March last. It was sworn at the trial that this Portuguese gave information to the parties at Hong-Kong, who fitted out the piratical expedition.

The *General Wood*, as noticed in the *Straits Times*, of December 1st, 1847, narrowly escaped being wrecked in a typhoon near the island of Hainan, on the 11th of November. On arrival of the *General Wood*, at Singapore, on November 23rd, it was endeavoured to procure freight to Bombay. At that time purchasers of sugar for that market were not buying, owing to the low

price of sugar at Bombay, and the expected heavy arrivals from Siam. This circumstance, trifling in itself, served to delay the vessel several weeks at this port. A good cargo was ultimately obtained, consisting of sugar, sago, tin, and cigars.

Lieut. Seymour, of the Bombay Cavalry, with his wife, (newly married,) and Mr. Andrew Farquhar, their cousin, the latter to Penang only, and the former two to Bombay. After the departure of the *General Wood*, some anxiety was felt for her fate, more especially as she had not been seen in the straits, or had reached her destination, Penang. The general impression was that, the ship had passed Penang in the night, and would be a long time in working up against the monsoon.

On the morning of February 10th, all doubts were set at rest by the publication of an "extraordinary" from the *Straits Times* announcing the arrival at Singapore of a native prow from the North Natunas, the nakoda of which, Aboo, stated that the *General Wood* was lost on the 23rd of January on Pulo Laut, the northernmost island of the North Natunas, in the China Sea. Other particulars were also given, which left no doubt as to the fate of the missing vessel. All was now anxiety for the fate of the passengers and other supposed survivors. This anxiety was increased by the occurrence at that time of a severe hurricane, in which it was feared the passengers would be lost. On February 20th all anxiety was set at rest by the *Straits Times* publishing in a second edition the following intelligence, which was corroborated by subsequent intelligence received by the government:

On Sunday morning, January 2nd, at six A.M., the *General Wood* got under weigh, and proceeded as far as the Carimons, where she anchored for the night. At one A.M. on the 3rd January a great noise was heard on deck, in consequence of the convicts having got loose. The convicts put out the cuddy lights. It was then the second mate's (Mr. Tummony's) watch, and he immediately roused the chief mate (Mr. T. Quintom) and the third mate (Mr. Gill). On reaching the main deck the chief mate was struck on the head with pieces of firewood. Mr. Quintom fell down the hatchway from the effect of the blows, and went to the lower deck quarter gallery from whence he managed to get into the sea, and was no more seen.

The second mate, finding he could no nothing against so many convicts as assailed him, ran forward and jumped overboard, and he was not seen more. Mr. Gill, the third mate, on being roused, and looking out of his cabin door, received a severe blow on the head; he then withdrew, got his pistols and went out and fired among the convicts. Mr. Gill proceeded to Lieutenant Seymour's cabin, and fell down groaning, from whence he made for the quarter gallery, and endeavoured to thrust his assailants with a bayonet; but, after receiving many wounds he got up through the gallery window to the deck and from thence to the mizen-top, from whence he was dragged to the deck, where his hands were tied. In this exhausting state he remained till morning, and then expired.

The captain (Stokoe) hearing the alarm, forced the cabin door, with the assistance of the gunner, but shortly after retreated to Mr. Seymour's cabin, where he seems to have lost all presence of mind; at one time he seized his pistols, loaded them and fired at random. Shortly after, Captain (Stokoe) endeavoured to cut away one of the quarter-boats, but was unsuccessful; he then got through the quarter gallery into the sea, and clung to the rope for some time, until quite exhausted, his hold failed, and he sank to rise no more. When the convicts rose *en masse*, the lascar crew, alarmed, made for the rigging, others jumped overboard, and some were killed by the mutineers. At the time of the alarm the passengers were asleep; on waking up, and finding the vessel in possession of the Chinese they kept for some time

in one cabin. Mr. Farquhar endeavoured to reach the deck from the quarter gallery, but observing a blow directed against his head, he dropped into the water, swam to the rudder, and held on till morning. At day-break the Chinese called all who were in the water to return to the ship, which they did, but on Mr. Farquhar attemping to regain the deck, he was struck by a cutlass on the hands, and compelled to let go his hold; he again swam to the rudder, and held on for some hours. A second time he tried to reach the deck, and succeeded

The Chinese then got the ship under weigh, and managed to work her themselves, with the assistance of some of the crew, who were compelled to labour. After sailing twenty days, in various directions (the Chinese not knowing where to proceed), about nine in the morning of January 23rd the ship grounded on a reef, distant about nine miles from Pulo Laut, North Natunas. The Chinese, as many as could, including the passengers, took to the boats, and steered for Pulo Laut, which place they reached at about sunset, and landed. When about half-way to the island, the ship went down, head foremost, carrying down with her some of the crew and Chinese, for whom there was no room in the boats. On making the island, four Malays (the only residents in the place) met them; the Chinese endeavoured to prevent the passengers (who spoke Malayu) holding conversation with the Malays. The latter succeeded in securing the whole of the passengers and the remainder of the crew, and conveyed them to their houses, from whence the Malays returned to the beach, to capture the convicts, but succeeded in getting only seventeen, the others having escaped in the ship's boats.

The Malays managed to communicate with the Orang Kya of Pulo Bungoran, who proceeded himself before day-break, to Pulo Laut. From thence he conveyed the passengers and others to Bungoran. The Orang Kya then went in search of the other Chinese who escaped, but the Malays did not succeed in falling in with them. The Orang Kya sent directions to the heads of the numerous islands forming the North Natuna group, to search for and secure the Chinese who escaped, and to forward them to Bungoran. Up to the date of the party leaving the latter place, nothing had been heard of the remaining convicts or the boats.

Lieutenant Seymour received two cuts over the knee, and was thrown overboard; he fortunately succeeded in getting hold of a rope and held on for some hours. From the statements of eye-witnesses it will be seen that the convicts possessed themselves of the arm-chest, which unhappily was left open under the poop ladder. The Chinese rigged themselves out in the captain's and mate's clothes, the better to disguise themselves if seen from another vessel.

The account of the capture of these convicts we are obliged to reserve for our next. But those brought over in the Malay prows have been examined at the police-office, and committed for piracy and murder, They appear reckless as to their fate; one of the number is the interpreter referred to above. The Portuguese is reported to have behaved well; he not only cooked for the passengers but at Pulo Laut he acted as sentry over the Chinese. The convicts will not be tried until the sessions next month: in the meantime the government has acted with great liberality towards the Orang Kya or Rajah of the North Natunas. The Straits executive has resolved to present the Orang Kya with a gold mounted kris, a silver seree box, and 500 Spanish dollars, as a token of remembrance for the great service rendered to British subjects thrown upon his shores. Nothing more has been heard respecting the 46 Chinese convicts that escaped in the long and quarter boats belonging to the ship; it is thought probable that they would endeavour to reach the Anambas or South Natunas: in either case they would be delivered up to the English. The

Hon Company's steamer *Hooghly*, and her Majesty's sloop. *Ringdove*, are about to proceed to the Natunas and Anambas in search of the escaped pirates.

GUTTA PERCHA —*By Thomas Oxley. Esq., A.B., Senior Surgeon of Prince of Wales' Island, Singapore, and Malacca.*

ALTHOUGH the trees yielding this substance abound in our indigenous forests, it is only four years since it was discovered by Europeans. The first notice taken of it appears to have been by Dr. W. Montgomerie in a letter to the Bengal Medical Board in the beginning of 1843, wherein he commends the substance as likely to prove useful for some surgical purposes, and supposes it to belong to the fig tribe. In April 1843 the substance was taken to Europe by Dr. D'Almeida who presented it to the Royal Society of Arts of London but it did not at first attract much attention, as the Society simply acknowledged the receipt of the gift; whereas shortly after they thought proper to award a gold medal to Dr. W. Montgomerie for a similar service. Now, as the discovery of both these gentlemen rested pretty much upon the same foundation:—the accidental falling in with it in the hands of some Malays who had found out its greatest peculiarity,—and, availing themselves thereof, manufactured it into whips which were brought into town for sale,—there does not appear any plausible reason for the passing over the first and rewarding the second. Both gentlemen are highly to be commended for endeavouring to introduce to public notice, a substance which has proved so useful and interesting. The Gutta Percha having of late attracted much attention, and as yet but little being known or published about it, I would now propose to supply, to the best of my ability, this desideratum, and give a description of the tree, its product and uses, so far as it has been made available for domestic and other purposes, in the place of its origin.

The Gutta Percha Tree, or Gutta Túban as it ought more properly to be called,—the Percha producing a spurious article,—belongs to the Natural family Sapoteæ, but differs so much from all described Genera, having alliance with both, Achras and Bassia, but differing in some essentials from both, that I am disposed to think it is entitled to rank as a new genus. I shall therefore endeavour to give its general character, leaving the honour of naming it to some more competent Botanist, especially as I have not quite satisfied myself regarding the stamens from want of specimens for observations.

The Tree is of large size, from 60 to 70 feet in height, and from 2 to 3 feet in diameter. Its general appearance resembles the Genus Durio, or well known Deorian, so much so as to strike the most superficial observer. The under surface of the leaf, however, is of a more reddish and decided brown than in the Durio, and the shape is somewhat different.*

Every exertion of myself and several others having failed in procuring a specimen of the fruit of the Gutta, I regret being compelled to omit the description of it in the present instance, but hope to rectify this omission in some future number of this journal. It is quite extraordinary how difficult

* The flowers are axilary, from 1 to 3 in the axils, supported on short curved pedicles, and numerous along the extremities of the branches.

Calyx, inferior, persistent, coriaceous, of a brown color, divided into six sepals which are arranged in double series.

Corolla, monopetalous hypogenous, divided like the calyx into six acuminate segments.

Stamens, inserted into throat of the corolla, in a single series, variable in number, but, to the best of my observation, the normal number is twelve, most

't is to obtain specimens of either the flower or fruit of this tree, and this is probably the reason of its not having been earlier recognized and described by some of the many Botanists who have visited these parts.

Only a short time ago the Túban Tree was tolerably abundant on the Island of Singapore, but already all the large timber has been felled, and few, if any, other than small plants are now to be found. The range of its growth, however, appears to be considerable; it being found all up the Malayan Peninsula as far as Penang, where I have ascertained it to be abundant; although as yet the inhabitants do not seem to be aware of the fact: several of the Mercantile houses there, having sent down orders to Singapore for supplies of the article, when they have the means of supply close at hand. The tree is also found in Borneo, and I have little doubt is to be found in most of the islands adjacent.

The localities it particularly likes are the alluvial tracts along the foot of hills, where it flourishes luxuriantly, forming, in many spots, the principal portion of the jungle. But notwithstanding the indigenous character of the tree, its apparent abundance, and wide spread diffusion, the Gutta will soon become a very scarce article, if some more provident means be not adopted in its collection than that at present in use by the Malays and Chinese.

The mode in which the natives obtain the Gutta is by cutting down the trees of full growth, and ringing the bark at distances of about 12 to 18 inches apart, and placing a cocoa-nut shell, spathe of a palm, or such like receptacle, under the fallen trunk to receive the milky sap that immediately exudes upon every fresh incision. The sap is collected in bamboos, taken to their houses, and boiled in order to drive off the watery particles and inspissate it to the consistence it finally assumes. Although the process of boiling appears necessary when the Gutta is collected in large quantity; if a tree be freshly wounded, a small quantity allowed to exude, and it be collected and moulded in the hand, it will consolidate perfectly in a few minutes and have all the appearance of the prepared article.

When it is quite pure the colour is of a greyish white, but as brought to market it is more ordinarily found of a reddish hue, arising from chips of bark that fall into the sap in the act of making the incisions, and which yield their colour to it. Besides these accidental chips there is a great deal of intentional adulteration by sawdust and other materials. Some specimens I have lately seen brought to market, could not have contained much less than ¼th of impurities; and even in the purest specimens I could obtain for surgical purposes, one pound of the substance yielded, on being cleaned, one ounce of impurities. Fortunately it is neither difficult to detect or clean the Gutta of foreign matter; it being only necessary to boil it in water, until well softened, roll out the substance into thin sheets, and then pick out all impurities, which is easily done as the Gutta does not adhere to any thing, and all foreign matter is merely entangled in its fibres, not incorporated in its substance. The quantity of solid Gutta obtained from each tree varies from 5 to 20 catties, so that, taking the average at 10 catties which is a tolerably

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generally all fertile, anthers supported on slender bent filaments, opening by two lateral pores.

Ovary, superior, terminated by a long simple style, six celled, each cell containing one seed.

Leaves about four inches in length, perfect, entire, of a coriaceous consistence, alternate, obovate lanceolate, upper surface of a pale green, under surface covered with close, short, reddish brown hairs. Midrib projects a little, forming a small process or beak.

liberal one, it will require the destruction of 10 trees to produce one picul. Now the quantity exported from Singapore to Great Britain and the Continent from 1st January 1845 to the present date, amounts to 6,918 piculs, to obtain which 69,000,180 trees must have been sacrificed. How much better would it therefore be to adopt the method of tapping the tree practised by the Burmese in obtaining the Caoutchouc from the Ficus Elastica, (viz., to make oblique incisions in the bark, placing bamboos to receive the sap which runs out freely,) than to kill the goose in the manner they are at present doing. True they would not at first get so much from a single tree, but the ultimate gain would be incalculable, particularly as the tree appears to be of slow growth, by no means so rapid as the Ficus Elastica. I should not be surprised, if the demand increases, and the present method of extermination be persisted in, to find a sudden cessation of the supply.

Remarks on the Dyaks of Banjarmassing.*

The Dyaks are, in many respects, a very interesting people; very different in character from the cringing, fawning Malays, who here, and more particularly on the west coast of the island, come in contact with them, they meet us with a free and open countenance, and express their opinions and wishes, although not always off-hand, yet without subterfuge or cloak. They have much natural sense and a sound judgemnt, so that, in the most difficult and complicated affairs, they often know how to assist with surprising ability and sagacity.

The persons of the Dyaks are more graceful than those of the Malays, and their colour is much fairer than that of the Javanese. Tatooing is very general amongst them,† and the flowers, circles, and other dark figures which they paint with great care, give a good effect to their slender and mostly muscular persons, which are wholy divested of all clothing. The only thing which a yet unpolished Dyak wears, is a headkerchief, and a small piece of cloth; or from want of it, a small strip of soft-beaten bark, around his loins, with which he conceals his shame. Both ends hang down in the manner of lappets, one in front, and one behind; a circumstance which has probably given rise to the singular assertion, "that some of them are furnished with tails." Far in the interior, the women also are but scantily clothed: a very narrow garment, which scarcely reaches from the waist to the knees, is usually their only dress.

In the middle of the island the people live, as it were, wholly in a state of nature; and neither men nor women appear to have any conception of shame. I, myself, have seen in the Kapus river, that the women with their children bathe naked in the presence of many men, and without any one perceiving the least impropriety or evil in it.‡ In proportion to the Dyak's indifference respecting his dress, is his passion for various ornaments, particularly agate stones, of which he wears large and long pieces on his neck; and gold, with which he ornaments his teeth and wooden ear pins, sometimes as large as a piaster, and of which large plates are likewise worn by the wealthy on the breast. They are also fond of copper rings, which are worn in great abundance on the arms, principally by the women.

* Translated for this Journal from the *Tijdschrift voo Neerlands Indie. Negende Yaargang, tweede aflevering*

† The Dyaks in the north-west of Borneo do not tattoo, although the Kyans do.

‡ Mr. Brook says, "Even the Malays speak highly of the chastity of the Dyak women; yet, they are by no means shy under the gaze of strangers, and used to bathe before us in a state of nudity."—*Kepp.l's Expedition to Borneo.*

In these things their whole riches generally consist, save that persons of consideration sometimes also possess one or more of those large far-famed pots, of which the finest called *blanga*, has not unfrequently a value of 2,000 guilders. But, poor or rich, the Dyak is generally good humoured; and even if he can possibly manage it, and though he, with his wife and children, should remain in debt, he must sometimes in the year kill a hog, which he, along with a numerous gathering of his friends, joyously devours, qualified with a large quantity of *tuak* or arrack.

Although there are no drunkards, properly so called amongst the Dyaks, a single person seldom remains sober at such feasts. The *tuak* is passed round in large cups, and that till the larger pots are emptied, or their heads are so full and giddy that they hardly know each other, when they become very noisy, declare themselves all rich *(tatu)*, frolicsomely embrace each other, and then, talking or singing, tumble to their huts. The principal feasts are those named *tiwa*, (death-feasts,) which last at least seven days. On such occasions ten buffaloes, and about the same number of pigs, are often killed. Nearly a thousand men are gathered, and by the time the seven days are ended, all the buffaloes, pigs, and twenty or twenty-five piculs of rice, part or which is made into tuak, are wholly consumed.

A chief part is played at such feasts by the *blians* (dancing girls): who day and night, sing improvising, with all their might; and the *olo maga lian* (the conductor of the soul), who brings the dead, likewise singing, and as he declares, in an iron ship, past hell, to a good place; for which service he receives, besides his share of the feast, from twenty to thirty bottles. The cost of such a *tiwa* sometimes runs as high as four to five hundred bottles, and brings the givers into such debt, that they have speedily to become pawns.

Their great superstition also costs them many sacrifices. If the Dyak goes on a journey, he first interrogates the *Antang Ulang*, a large bird of prey: that is to say, he goes to some secluded spot on a river's bank, where he cuts away some wood, brings an offering of rice and pork or fowl, and then calls his *Nabi*, until he takes his significant flight over him. If the flight of the bird is in the direction of the contemplated journey, there is no need to have any further concern, and he begins his journey in earnest; but if the bird flies in a contrary direction, he abandons his undertaking, at least for that day: however much may occasionally depends on the speed of his journey; and he continues to go with his meals to the *antang*, and every time with a more pressing invitation, till it, finally, satisfies the desire of his heart, and starts towards the intended point.*

The Dyak also makes offerings on the occurrence of sickness, when the *blians* must again be present, who, besides the observance of the ceremonies seek to sustain the patient by singing and beating the tambourine. This however, is often attended with an opposite effect, for the patient, by the continued noise, day and night, is all the speedier sent to his grave.

It often happens too, that a dream gives occasion to sacrifices. When, for example, I once went into the house of my neighbour the mistress of the house related to me, that in the preceding night a ghost appeared in a dream

* The Sibnowan Dyaks appear to be devoid of this superstition. (See Expedition to Borneo, vol. 1. p 60.) Dr. Leydeu, who writes on the authority of Radermacher, Dalrymple, Forrest, and Burn, says, "They hold particular kinds of birds in high veneration, and draw omens from the sounds which they utter, and from their flights. One of the principal of these is a large species of white headed kite, which preys on fish, snakes, and vermin. In all their wars, journies, and, in short, all matters of importance, they pay most attention to omens of birds, and sometimes too, they endeavour to penetrate the secrets of futurity by consulting the entrails of birds."

which had enjoined her to slaughter, and offer her largest hog; and, although, I took the greatest pains to enlighten her on the subject, and however much the woman wedded to money and goods, the behest of the ghost had to be complied with. In the same evening a heavy shot was discharged before the house, a signal to all friends and neighbours that they had to expect something on the following morning; and scarcely was the red of dawn visible, when they dragged the animal to the river side, and the whole campong re-echoed with its screech, the sweetest music to the ear of the Dyak.

There exist many other reasons for sacrificing besides these. The barrenness of women, a bad fall, getting wounded by the felling of trees, seeing ghosts, &c., cost many pigs their lives. All these offering are made to *Djata*. (water-god,) or *Sangiang*, a (higher good being,) or to the *Tellopapa*, (bad spirits). The greatest number are generally offered to these last, for said one of the Dyak priests to me lately, we have nothing to fear from the good beings and *Hatalla* (God), and we do not need to make any offerings to them, but we must feed the bad spirits to keep them away from us.

In the interior, men are still occasionally sacrificed, principally on the death of chiefs and other considerable persons. In Sirat, the furthest inhabited point of the Kapus River, where I, some years ago made a journey of investigation, they had a short time before our arrival, sacrificed two women. An acquaintance who had been present, gave me the following account of the horrible event :—

"One morning at Sirat, there gathered a great number of people, who streamed in from all sides to celebrate a great feast. There was firing of guns; the open plain before knotta (fort) was prepared for the occasion, and adorned with branches, flowers and cloths; a number of hogs were killed; and when, finally, by mid-day, everything had been arranged according to use and wont, the real objects of the festival were brought forward. Two women, still young, who had been purchased for the purpose from another race in the *Duson*. They had to seat themselves on the side of the ready-dug graves, and contemplate for some time the noisy rejoicings of the feasters. A lance of about thirty feet in length was then brought and laid on one of the victims. All now hurried to take a part in the impending detestable deed. A hundred hands seized the long lance, and, the instant the customary sign was given, they threw themselves, amidst the loud acclamations of the multitude, on the unfortunate wretch, and pierced her through, even transfixing her to the ground. They then cut off the head of the fallen victim, and carried it during the rest of the day, dancing and singing round it. The same fate also befell her unfortunate companion. Those who are thus offered become, in their belief, the slaves in the other world of the deceased friend to whose memory they are offered."

Respecting the mode of life of the Dyaks, I shall here merely say that they maintain themselves by rice cultivation, trade, and, in the interior, principally by the collection of gold dust, in which the ground, in many places, is very rich.

The Dyaks do not possess towns, but mostly dwell in small kampongs, of about four to ten houses. It is only in the interior, from dread of the barbarous Dyak Pari, the rapid *aiwat nyawong*, and the other enemies, of whom I shall hereafter give an account; and who, on their forays, usually destroy or carry away all that they have in greater number on certain points, which they surround with large fences, and bring into a certain degree of defence, and therefore named *kotta*. In such a kotta 1000 to 1,500 men often dwell. The whole population of Pulopetak consists of about 10,000 souls, and is distributed in nearly forty kampongs, over an extent of ground of some hours pulling in a fast boat.

Examination of Masters and Mates.

A List of all the Masters and Mates in the Merchant Service, who have voluntarily passed an examination, and obtained Certificates of Qualification for the Class against each assigned, under the Regulations issued by the Board of Trade, between the 2nd and 31st of August.

Name of Party who has received the Certificate.	Class of Certificate	Age	Present or last previous Service.	No. of Registe Ticket	Where Exam.	When.
Lulham, G. A.	3rd	22	Lysander, 467 tons ...	21615	London	
Banks, T. H.	2nd	30	Carleton, 206 tons.....	34614	London	Aug. 2nd
Westby, G.	2nd	31	Tasman, 567 tons ..... (*as mate*)	....	London	— 2nd — 2nd
Barton, H. G.	2nd	34	China, 630 tons ..... (*as mate*)	326244	London	— 3rd
Fenrose, J.	2nd	60	Camerons, 240 tons ... (*as mate*)	387007	London	— 3rd
Sullivan, D.	2nd	40	Gannett, 463 tons.....	.....	Plymouth	— 3rd
Gowanlock, J.	3rd	34	Baboo, 433 tons..... (*as mate*)	89639	London	— 4th
Stocks, G. L.	3rd	30	Jane, 280 tons ..... (*as mate*)	70451	London	— 7th
Clark, W.	1st	39	Teviot, 1800 tons ..... (*as mate*)	.....	London	— 7th
Snowdon, J.	2nd	39	Eden, 513 tons ..... (*as mate*)	34197	London	— 10th
Lewis, R. O.	2nd	27	Prince of Wales, 1350 tons (*as mate*)	32093	London	— 10th
Cunningham, J.	3rd	30	Sabrina, 450 tons ..... (*as mate*)	.....	Plymouth	— 11th
Underwood, E.	2nd	33	King William, 463 tons	.....	London	— 12th
Morrison, W. F.	2nd	21	Hope, 377 tons ..... (*as mate*)	32896	London	— 14th
Hook, J.	3rd	24	Prince Albert, 476 tons (*as mate*)	323899	London	— 14th
Sanders, J.	3rd	24	Clara, 367 tons ..... (*as mate*)	156925	London	— 14th
Cock, A. H.	3rd	24	Bristol, 212 tons ..... (*as mate*)	38437	London	— 14th
Downie, A.	2nd	22	Emerald Isle, 550 tons	328033	London	— 14th
Todd, J.	2nd	36	Vestal, 187 tons.....	.....	S. Shields	— 15th
Neatby, J.	3rd	30	Bermondsey, 507 tons (*as mate*)	325421	London	— 15th
Norton, T. L.	2nd	32	Emanuel Boutcher, 217 tons (*as mate*)	350418	London	— 17th
Walker, J.	2nd	23	East London, 335 tons (*as mate*)	99735	London	— 17th
Atkinson, R.	3rd	31	Hartley, 322 tons ..... (*as mate*)	324367	London	— 17th
Todman, J. G.	3rd	36	Statira 357 tons..... (*as mate*)	389458	London	— 17th
Bell, W.	1st	29	Caroline 370 tons	.....	Plymouth	— 16th
Walker, J.	1st	37	Apame, 169 tons ..... (*as mate*)	344972	Portsmouth	— 18th
Hutton, J. S	1st	26	Martin Luther, 500 tons (*as mate*)	.....	Glasgow	— 19th

R. E. Pinhey	2nd	23	Ariel, 820 tons ..... (*as mate*)	340452	London	Aug. 21st
W. H. Birt	3rd	30	Trent, 900 tons ..... (*as mate*)	265159	London	— 21st
R. F. Barnes	2nd	25	Florentia, 453 tons ...	49399	London	— 21st
E. M. Leeds	3rd	24	Mathesis, 365 tons ... (*as mate*)	323926	London	— 21st
John Earsdon,	2nd	24	Princess, Royal 338 tns (*as mate*)	25817	Newcastle	— 23rd
John Wilson	2nd	27	Earl of Newburgh, 307 tons (*as mate*)	309762	Newcastle	— 23rd
J. F. Cull	2nd	29	Sandwich, 253 tons ...	30957	London	— 24th
G. J. Burn	2nd	38	Elgin, 560 tons	.....	London	— 24th
H. P. I. Fladsrud	2nd	29	Maria Somes, 786 tons (*as mate*)	.....	London	— 24th
Rob. Blackall,	2nd	25	Thos. & Joseph Crisp, 371 tons	262551	London	— 24th
A. Y. Abbott	2nd	37	Amazon, 424 tons.....	.....	London	— 24th
Thomas Trew	3rd	21	Sybilla, 384 tons ..... (*as mate*)	182351	London	— 24th
W. G. Mitchell	3rd	27	Rachel, 500 tons ..... (*as mate*)	376817	Plymouth	— 25th
Wm. Frazer,	2nd	30	Carrs, 205 tons	.....	South Shields	— 26th
A. Graham	3rd	31	.....	68268	Newcastle	— 28th
W. Falconer	1st	36	Johanna, 295 tons.....	.....	London	— 28th
Robert Smith	2nd	25	Favorite, 332 tons ... (*as mate*)	377348	London	— 28th
E. J. Gibson	2nd	30	King William, 407 tns (*as mate*)	25788	London	— 29th
W. Lawrence	2nd	37	Reserve, 337 tons	.....	London	— 29th
Rob. Murray	2nd	27	James Cruikshanks, 320 tons (*as mate*)	259356	London	— 29th
John Crawfurd	2nd	28	Emperor, 672 tons ... (*as mate*)	19569	London	— 29th
J. Richardson	2nd	25	Edgar, 218 tons..... (*as mate*)	99866	South Shields	— 30th
J. Falconer	1st	66	Ealing Grove, 351 tns	.....	London	— 31st
J. H. Dalton	2nd	22	Blenheim, 808 tons ... (*as mate*)	14285	London	— 31st
G. Macqueen	2nd	45	Swallow, 208 tons.....	.....	London	— 31st
G. O. St. John	2nd	29	Aboukir, 816 tons..... (*as mate*)	395198	London	— 31st
Jesse Candler	1st	30	Tyro, 165 tons	.....	Yarmouth	— 31st

MATES.

Henting, F.	3rd	21	British Tar, 309 tons	119605	London	Aug. 2nd
Morrison, W.B.	1st	23	Concord, 323 tons.....	38721	Leith	— 3rd
M'Dougall, D.	1st	21	D. of Portland 535 tons	22986	Glasgow	— 5th
Willcocks, G.	2nd	22	Mercury, 243 tons.....	344922	London	— 10th
Bergman, H.	2nd	20	Johnstone, 436 tons ...	272079	London	— 14th
Hatch, P.	3rd	33	Velocity, 136 tons.....	1216	London	— 14th
Lewis, W.	3rd	26	Sir John Rae Reid, 317 tons (*as seaman*)	326500	London	— 14th

Cavell, T.	3rd	32	Eden, 523 tons	18098	London	Aug. 17th
Burne, G. C.	2nd	21	Sultan, 1100 tons	351434	London	— 21st
Aveling, R.	2nd	22	Bell, 367 tons..... (*as seaman*)	28100	London	— 21st
Bencraft, W.	3rd	24	Ariel, 820 tons	265353	London	— 21st
Shute, T.	3rd	25	Caroline, 370 tons.....	44317	London	— 21st
Bird, A. T.	1st	...	.....	.....	Leith	— 25th
Tulloch, E.	3rd	20	Southampton, 1000 tns (*as seamen*)	343940	London	— 28th
Furlonge, J. C.	2nd	26	Malta, 1200 tons	389700	London	— 31st

SIR.—I have looked over the List of Masters and Mates (contained in your number for September,) who have voluntarily passed and obtained Certificates of their proficiency in navigation, under the Government regulations, during the months of June and July last. The following table shews the number of persons examined and passed, the ports at which the examinations took place; the number that obtained 1st Class Certificates at each port, and the tonnag of the vessels in which the 1st Class persons had last sailed.

From this table it appears that the value of the talent of Navigation and Nautical Astronomy, varies vastly at the different ports, that is of the examinations at each are similar; viz. at Leith, Liverpool, Newcastle, and Portsmouth it has reached its full value 100 per cent.; at Glasgow 85 per cent.; at Plymouth 50 per cent.; and at London its minimum 4 per cent.; Shields, Yarmouth, and Hull having failed to reach the 1st Class in every case; and I beg to observe that *a seaman* of the "Mungo Park of 248 tons" is amongst the successful candidates, he having obtained a *1st Class* Certificate at Leith.

Port of Examination.	No. of persons exam.	No. which obtained 1st, Class Certificate	Tonnage of Ship in which the Officers last served.
London	99	4 or 4 per cent	261, 329, 503, and 620 tons
Glasgow	6	5 " 85 "	300, 201, 484, 603, and 533 tons
Leith	4	4 " 100 "	352, 603, 248, and 201 tons
Plymouth	4	2 " 50 "	187 and 250 tons
Liverpool	2	2 " 100 "	1400 and 535 tons
Portsmouth	1	1 " 100 "	1159 tons
Newcastle	1	1 " 100 "	not stated
South Shields	3	none	
Yarmouth	1	none	
Hull	1	none	
Total.	122		

TIME OF SUNSET

Portsmouth, Aug. 16th, 1848.

DEAR SIR.—I should feel greatly obliged if some one of your scientific friends would tell me how to calculate the exact time of sunset. I have been accustomed to work by Norie's Book, but finding that not to correspond with the proceedings on board the '*Victory*', I have consulted Lieut. Raper, but am not much better off than before.

Thus:—This evening the gun is fired at 7h. 30m. or 7h. 29m. Whereas

the best I can make of it is 7h. 12m. and in fact I never come within 5 or 10 minutes of the Portsmouth Authority. I hope you will pardon the liberty I am taking and give a helping hand to

"A YACHTSMAN."

[Surely our correspondent must have been indulging in a cigar, when he wrote the above, and the smoke of it obscured his vision, when he referred to the books he mentions. As we have Raper's first edition at hand out of Raper we will answer him

Referring to page 151 we find the following short rule, the same as that employed by our ancestors.

"Add together the log-tangents of the lat. and decl. the sum (rejecting tens) is the log. cos. of the hour angle at rising or setting."

Our correspondent, however, need not take all this trouble for he will find a table in Raper all ready cut and dried, which, with his latitude, and declination, found in another table a little further on, he will do the thing by inspection. But he must remember that this time is that of the sun's centre being, astronomically speaking, in the horizon, while refraction makes him appear above it, for which eleven minutes more is allowed to let him disappear, and hence possibly the difference which has puzzled our "Yachtsman." This is quite rational for it would scarcely be decorous to fire a gun for sunset when the sun is half a degree above it.—ED.]

NAUTICAL NOTICES.

MADRAS.

Extract from a letter from G. L. Bradley, Esq., Master of H.M Ship Fox, to Captain C. Biden, dated Trincomalee, 20th March, 1848.

"Well knowing the great interest you take in nautical affairs, I have great pleasure in forwarding an account of several important errors in the Admiralty Sheet Chart, No. 12, (by Lieutenant Blair and Captain Moorsom), 1789-1790."

Erroneous position of several places in Duncan's passage and S. Eastern part of the Southern Andaman, as determined by the chronometers on board H.M.S. *Fox*, Commodore Sir Henry M. Blackwood. Bart., on her passage from Moulmein to Trincomalee, during the month of March, 1848.

H.M.S. *Fox* sailed from Amherst on the morning of the 22nd February, 1848, bound to Trincomalee. It was the intention, at first, to have passed through the Preparis South Channel, but owing to very light winds, and southerly set, this object was relinquished, and a course shaped for Barren island; Duncan's passage, under these circumstances being considered preferable.

At noon, February 29th, Barren Island in sight, bearing S. ¼ E. 15 miles, (being the difference of lat. by meridian altitude). Our chronometers gave the lon. 93° 52′ 15″ E., which places this island in lon. 93° 53′ 45″ E., agreeing with Capt. Hall's account as given in Horsburgh's Directory, and also with the Sheet Chart, No. 12, of the Gulf of Bengal, by Lieut. Blair and Capt. Moorsom. At 3 P.M. March 1st, Barren Island N.E. ½ E. 40 miles, and the Southern of the Andaman Archipelago W. by S. 7 miles, our chronometers gave the lon. 93° 16′ 00″ E., which placed the ship by the chart within a mile of the land last named, although, to appearance, it was at least seven miles, as before stated. At 9 A.M. March 2nd, our lon. was 92° 55′ 30″, which again put us within a mile of the land, (Rutland Island), shewing about the same difference as before. At 9 A.M. March 3rd, when the Two Sisters bore W. 2 miles, the chronometers gave the lon. 92° 46′ 45″ E., and by another set of sights when these islands bore N. 2 miles, and 92° 44′ 30″ E. which may be considered their correct lon , and places them 12 miles to the westward of the chart, 11° 30′ 30″ E. of Fort Frederick (Trincomalee), and 12° 30′ 30″ E. of Madras Observatory. Observa-

tions were obtained again in the afternoon of this day, when near South Sentinel with similar result to those in the morning.

Immediately on the arrival of the *Fox* at Trincomalee, (11 days) observations were taken on shore by artificial horizon, the result of which proved the correctness of the chronometers.

The incorrectness of the places mentioned being considered established, renders the approach to this land from the westward, a matter of great consideration, as by reference to the chart it will be seen the dangers on the western part of this coast are many, and of very great importance, particularly in thick weather, which often happens. It is also reasonable to suppose the Invisible Bank, and the rock laid down on it on the chart are incorrectly placed, but, considering it, (the rock), to be fourteen leagues to the eastward, and of the Two Sisters, as stated in Horsburgh's Directory, its position by our chronometers will be in lon. 93° 26′ 00″ E. Captain Owen calls it in 93° 29′ 00″ E., and the chart places it in 93° 40′ 00″ E. There can be little doubt that the position of this very dangerous rock is but imperfectly known, and the fact of Barren Island being correctly laid down, and the Two Sisters twelve miles out, will tend much to bewilder the navigator.

(Signed) G. L. BRADLEY, *Master.*

H.M.S. *Fox*, Trincomalee, March 17th, 1848.

(True Copies) CHRS. BIDEN, *Master Attendant.*

Office of the Coast Survey, Washington, August 16th, 1848.

NANTUCKET SHOALS.—The following discoveries and determinations, recently made by the hydrographic party of the Coast Survey, employed on the Nantucket Shoals, under the command of Lieut. C. H. Davis, United States Navy, are of sufficient importance to be communicated immediately. They will be transferred at the close of the season to the preliminary charts of the Nantucket Shoals:—

1st. A shoal, two and a half to three miles long, making off from the southern extremity of Great Rip, with which it is connected by a short ridge of 3¼ fathoms. This shoal lies in a N.b.W. and S.b.E. direction, (mag.,) and has only eight feet on it in several places.

The distance between the east end of the South Shoal and the new determination is only 6¾ miles. The southern limit of danger on Great Rip, is fifteen miles from the shore Vessels passing to the southward of Great Rip, or to the eastward of the Old Nantucket South Shoal, should be careful to govern themselves accordingly The centre of the shoal bears from Sankaty Head S.E. ¾ E., (mag.,) and S. 62° 30′ (true), 13¾ miles distant.

2nd. A small shoal, having only eight feet of water on it in one spot, which bears N. ¼ W., (mag.,) and N. 11° W. (true), from eastern end of Old South Shoal, 4¼ miles distant.

3rd. A small shoal, with sixteen feet on it, a little to northward and eastward of the preceding, bearing N.b.E., (mag.,) and N. 3° 25′ E., (true,) from Old South Shoal, 5¾ miles distant.

4th. A small shoal, with thirteen feet on it, to the eastward of south end of Bass Rip. The middle of the shoal bears from Sankaty Head S.E.b.E., (mag.,) and S. 65° E., (true,) 6 miles distant.

5th. A very small shoal spot, having only ten feet of water on it, north of Bass Rip, and one mile distant from the shoal discovered in that vicinity in 1847, and now marked on the latest coast survey "Preliminary Sketch" of the Nantucket Shoals. This spot bears from Great Point Light, S.E. ¾ E., (mag.,) and S. 62° E., (true,) 6 miles distant.

The ground to the northward, and to the northward and eastward of the Old South Shoal, is broken, dangerous, and marked by occasional strong tide-rips.

Coasters taking the outside way, are advised to follow down the east side of 'Bass Rip," and, passing over the tail of it in 4 fathoms, to haul round under

the south side of the "Old Man," which (it is always visible), it is best to keep in sight. Here they will have a good beating channel, of, at least, two miles; —*i.e.*, from half a mile, to two and a half miles from the "Old Man." Vessels taking this course with an ebb (or westerly) tide, will clear the shoals in a few hours. They will also have more room, and be more favoured by the prevailing westerly winds, than in the Sound.

Hydrographic Office, September 8th, 1848.

MILFORD HAVEN LIGHTS DISCONTINUED.—Mariners are hereby required to take notice that, the two harbour lights of Milford, that is to say, the light off the Tongue Spit, of Weare Point, called Weare Point Light, on the north shore of the harbour, and the light off the Carr Spit, called the Carr Spit Light, on the south shore, being no longer required for her Majesty's packets, they will be discontinued on and after the fifth day of October next, and the two light vessels will be removed from their stations.

SHOALS IN THE CHINA SEA.—R. B. Forbes, Esq., furnishes to the editors of the *Boston Journal* the following important information to navigators. He says, "Captain Watkins, of the brig *Antelope*, informs me that several shoals exist not marked, except on the latest charts of the China Sea. They are as follows:—

Pratt's Shoal.....	lat.	1°	33′	N.,	long.	107°	27′	E.
Rob Roy's	"	8	41	"	"	111	37	"
Spralty's Island	"	8	39	"	"	111	55	"
Another act. gives...	"	8	39	"	"	112	03	"
Owen's Shoal	"	8	07	"	"	112	00	"
Johnson's Reef	"	7	51	"	"	111	26	"
Another act. gives...	"	7	45	"	"	111	43	"
Pearl Island.....	"	7	35	"	"	111	29	"
Ganges Bank	"	7	47	"	"	110	22	"

The latter, several miles in extent, bearing north-westerly from Prince of Wales's Bank. These shoals are laid down on the new charts, but, as many navigators are not furnished with them, I trust the above, if published, will be of service.

Naval Yard, Port Royal Jamaica, June 20, 1848.

NOTICE TO PILOTS.—Notice is hereby given that the beacon on the Three Fathom Bank, off "Healthshire," commonly known as the "Warrior Beacon," having again broken adrift, the same will not be renewed, as such beacon is unnecessary, for the purpose of piloting vessels either into, or out of, the Harbour of Port Royal.

NAUTICAL MISCELLANY.

SUSPENSION BRIDGE AT NIAGARA FALLS.—The *Albany Journal* says, it is contemplated to have the foot bridge at the Falls, ready for crossing, on the 4th of July. This will be a great curiosity. The following is to be the composition of the railroad bridge:—

Number of cables for bridge, 16; number of strands in each cable, 600; ultimate tension, 6,500 tons; capacity of the bridge, 500 tons; number of strands in the ferry cable, 37; diameter of the cable, $\frac{7}{8}$ inch; height of stone tower, 68 feet, 1 inch; height of wood tower for ferry, 50 feet; base of the tower, 20 square feet; size at the top, 11 square feet; span of the bridge, 800 feet; whole weight of the bridge, 650 tons; height from the water, 230 feet; depth of water under the bridge, 250 feet.

This suspension bridge is the most sublime work of art on the continent. It makes the head dizzy to look at it, and yet it is traversed with as much

security as any other bridge of the same width. Not an accident has happened since the first cord was carried across the river at the tail of a kite. It is impossible to give the reader a clear idea of the grandeur of the work. Imagine a foot bridge 800 feet in length, hung in the air, at the height of 230 feet, over a vast body of water rushing through a narrow gorge, at the rate of 30 miles an hour. If you are below, it looks like a strip of paper suspended by a cobweb. When the wind is strong, the frail gossamer-looking structure sways to and fro as if ready to start from its fastenings, and it shakes from extremity to centre, under the firm tread of the pedestrian. But there is no danger. Men pass over it with perfect safety, while the head of the timid looker-on swims with apprehension. The first person passed over it, Mr. Ellett, the builder. His courageous wife soon followed him, and for two days hundreds, attracted by the novelty of the thing, took the fearful journey. It is worth a trip to the Falls, to see this great work, although, it is not probable, that one in twenty, will have the nerve to cross upon it. For, strange as it may seem, there were those who had no hesitation to slide over the awful chasm in a basket, upon a single wire cable, who could not be induced to walk over the bridge. And this aërial excursion is thrillingly exciting.

Messina. On the 2nd of September, General Pronio sent a note to the Consuls, advising them that Messina would be attacked the following morning at sunrise. The English and American families, as also many Messinese ladies and children, took refuge on board her Majesty's steamer Gladiator; the French and others on board the French steamer Panama, from whence we all had a view of what was going on. At six a.m. on the 3rd, two frigates, 16 steamers, and 23 gun-boats, after landing a thousand men in the citadel, and disembarking as many more to the southward, took up a position to bombard the Sicilian forts, and also to shell the city. A sortie of a thousand men was made from the citadel at eight a.m., but was met and repulsed in gallant style by the Sicilian troops. The other Neapolitan division succeeded in storming and carrying Fort Sicilia, but, finding the sortie repulsed they abandoned it and retreated to their boats. The loss of the Neapolitans in killed, wounded, and prisoners, was about 300 men. The Sicilians suffered severely, for they attacked in such dense masses that every bullet must have told. The squadron then embarked the troops, and returned to Reggio. I am sorry to have to add that the prisoners, especially the Swiss, were cruelly tortured. The dead and dying had their heads cut off and paraded on poles through the city. Many prisoners were stabbed in cold blood. I have heard of many other acts, to which, for the credit of the human civilised world, I am unwilling to give credence. The city is much damaged by the shells from the citadel which never ceases firing, but generally sends over a shell or two every hour. During the engagement a sergeant and a corporal deserted from the Neapolitans, and got on board the Gladiator. They have offered to join the Sicilians, but they refuse them *in toto*; in fact, if they were to land, they would be murdered.

New York.—Our fashionable world is returning homewards. Fancy balls are already forgotten. The shady side of Broadway, and a grove of New York chimnies, to use the expression of one of your celebrated men of fashion, are now all the country which is considered desirable; and yet, a return to to the city is not without its alarms. We have the yellow fever prevailing to some extent at our quarantine, six miles below the city, and a few cases have made their appearance in the city itself. Business is not yet effected by its approach, and the medical men tell us there is no danger. Probably there is not; but we learn with horror that the cholera is approaching from the east.

The yellow fever has caused great alarm among the inhabitants of Staten Island, about seven miles from the city of New York, several residents having died of the disease. It was probably introduced by soldiers returned from Mexico.

The American steamers for the Liverpool trade, are getting ready as fast as possible, and are said to be fine vessels by persons competent to form an opinion. It is thought here that, the time is not far distant, when we shall have a steamer arriving from Liverpool daily in our port.

CONSTANTINOPLE.—September 5th.—This city appears to be doomed to calamity; no sooner is one conflagration stifled, than another breaks out. On the 28th, at three in the morning, another fire broke out in a house at Foundoucli, close the grand Mosque of that name. As the wind was strong from the north, it spread rapidly, consuming in its progress the palace of Ahmet Fethi Pacha, and extending as far as the villiage of Tophana, where it was providently stopped. During the eight-hours that it raged, it entirely destroyed the quarters of Sali-Bazar and Foundoucli, which are now a heap of cinders. A Mosque, and upwards of two hundred houses and palaces, belonging to government officers, have been destroyed. Several bodies have been discovered in the ruins.

AUSTRALIA.—An exploring party, headed by the Governor, had discovered a quarry of good building stone, at Yorke's Peninsular. Some tolerable specimens of building stone had also been discovered in the hill, ranges near Adelaide. The *South Australian Register* of the 16th of February, states, that "In following up two of the lodes of rich silver lead ores, lately intersected in the Wheal Gawler mine, the very promising prospects which they presented when cut off, are being realised."

NEW CHARTS.

Published and Corrected at the Hydrographiic Office, Admiralty, during the month of August.—Sold by R. B. Bate, 21, Poultry, London.

RIVER HUMBER, corrected to 1848, *Mr. Calver, R.N.*, Price 3s.
SAN JUAN NICARAGUA, *Ditto* *Ditto*. Price 6d.
FALKLAND ISLANDS, *Ditto* *Capt. Sulivan, R.N.*, Price 3s.
LEMNOS ISLAND, *Archipelago, Capt. Copeland, R.N.*, 1835. price 2s.
MITYLENI ISLAND, *Eastern and Western Ports, Archipelago, Capt. Copeland, R.N.*, 1834, price 2s.
MOSKO-NISI AND AIVALI BAY, *Ditto* *Ditto* price 2s.
PORT LINDO, *Rhodes Islands, Archipelago, Capt. Graves, R.N.*, 1842, price 6d.
MAKRY HARBOUR, *Ditto* *Ditto* price 1s.
KARUGHATCH TO MACKRY, *Ditto* *Ditto* price 2s.
DENUSA ISLAND, *Ditto* *Ditto* price 6d.
SUDA BAY & CANEA, (*Candia I.* *Ditto* *Ditto* 1843 price 1s.
LEVITHA ISLAND, *Ditto* *Ditto* 1838 price 6d.
TIGANI PORT, *Lieut. T. Spratt, R.N*, 1844, price 8d.
CIVITA VECCHIA, *Italian Survey*, 1841 price 1s.
CARGADOS CARAJOS, *Capt Sir E. Belcher*, 1846 price 1s. 6d
ARACAN RIVERS, *Capts. Lloyd, and Weston, I. N.*, 1845 price 2s.
MAZATLAN HARBOUR, *Capt. Beechey, R.N., F.R.S.*, 1828 price 1s. 6d.
MUGERES HARBOUR, *Capt. Barnett, R N.*, 1844 price 1s. 6d.
RIVER GABOON, *Lieut. A. F Langle, French Survey*, 1845 price 1s. 6d.

Note.—The addition to Towson's Great Circle Table will be presented gratis to the purchaser of the 1st Edition on their application.

Hydrographic Office, Admiralty.

BIRTHS.

Sept. 3, at Hampton Court, the lady of Capt. Montgomery, R.N., of a daughter.

Sept. 10, the lady of Capt. C. Talbot, R.N., of twins

Sept. 14, at Chiswick, Capt. Smart, K.H., R.N., to Elizabeth Isabella, daughter of the late B. Sharpe, Esq..

Sept. 19, St. George's, Hanover Sq., Capt. T. O. Knox, R.N.. to Louisa Isabella. daughter of the late Major-Genl. Griffith.

MARRIAGES.

Aug. 31, at Marylebone church, by the Rev. C. S. Ellicot, the Rev. Charles John Ellicott, M.A., to Constantia Anne, the only surviving daughter of Com. A. B. Becher, R.N., of Upper Gloucester Place, Dorset Square, London.

DEATHS.

Lately in Canada, Com. J. Roche.

Sept. 10, at Stonehouse, T. Miller, Esq.. Deputy Inspector of Hospitals.

Lately at Sheerness, Mr. T. Webster

Sept. 21 Catherine Anne, daughter of Rear Admi. Bourchier.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory From the 21st of September to the 20th of October 1848.

Month Day.	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade				Wind. Quarter. Strength.				Weather.	
		9 A.M	3 P. M.	9AM	3PM.	Min	Max	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
		In Dec	In Dec										
21	M.	29·76	29·56	52	58	51	65	S	SW	6	6	qbcp (2)	bbcp (3
22	Tu.	29·61	29·58	58	58	52	60	SW	W	3	5	bcp 2)	qbcprh (3
23	W.	29·66	29·73	57	65	49	67	W	W	3	3	bc	bc
24	Th.	29·95	29·97	53	61	47	63	W	W	4	4	bcp (2	bc
25	F.	30·07	30·05	54	63	46	64	S	S	1	1	o	bc
26	S.	29·87	29·89	60	68	53	69	S	SW	4	4	or 2)	bcp 3
27	Su.	29·87	29·91	65	68	62	69	SW	SW	1	3	od (2	bcd 4)
28	M.	29·92	29·96	66	72	62	73	S	SW	5	3	qo	bc
29	Tu.	30·05	30·02	63	66	58	67	SW	SW	1	1	bc	bc
30	W.	30·13	30·11	56	67	52	68	W	W	1	1	bc	bc
31	Th.	30·08	30·06	56	60	51	65	W	N	1	3	bcm	bcmtr (4)
1	F.	30·18	30·24	53	63	48	64	N	NW	4	3	b	bc
2	S.	30 39	30·39	54	66	47	67	W	W	2	2	bcm	bcm
3	Su.	30·41	30·37	57	68	49	69	W	W	2	1	bcm	bcm
4	M.	30·25	30·18	60	71	46	73	SW	SW	1	1	bm	b
5	Tu.	29 90	29·84	65	75	52	76	S	SE	2	2	b	bcp (4
6	W.	29·86	29·94	60	66	59	67	W	W	3	2	bc	bc
7	Th.	30·10	30·08	58	63	50	64	W	W	2	2	bc	o
8	F.	30·04	29 94	58	65	56	66	SW	SW	4	4	o	o
9	S.	29·96	29·96	58	66	53	67	SW	SW	3	5	bc	qbc
10	Su.	29 80	29 70	64	63	57	65	SW	SW	4	5	bc	qor 3) (4)
11	M.	29·98	30·09	50	55	43	57	N	N	3	5	b	qbc
12	Tu.	30·30	30·32	46	55	40	56	N	N	3	3	bc	bc
13	W.	30·32	30·29	45	55	36	56	NE	NE	2	2	b	bc
14	Th.	30·25	30·24	50	61	44	62	NW	NW	4	4	o	bc
15	F.	30·39	30 40	49	58	41	59	NE	NE	2	2	b	bc
61	S.	30·48	30·42	50	62	40	64	S	S	2	2	b	b
17	Su.	30·38	30·36	49	61	39	63	SE	NW	1	2	bm	bcm
18	M.	30·30	30·26	51	61	44	62	NW	N	1	2	bc	bc
19	Tu.	30·00	29 92	49	61	39	62	S	SW	1	3	bc	bc
20	W.	29·78	29·79	58	64	43	67	S	S	2	2	b	b

AUGUST 1848.—Mean height of Barometer=29·888 inches; Mean Temperature=59·0 degrees; depth of rain fallen=5.09 inches.

TO CORRESPONDENTS.

We have received the YACHT VOYAGE to NORWAY, SWEDEN, and DENMARK, by Mr. Ross, but too late for notice in our present number.

Hunt, Printer, 130, St. Alban's Place, (late New Church Street, Edgware Road.

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

That future pilgrims of the wave may be
Secure from doubt, from every danger free.

NOVEMBER 1848.

Papietee Harbour and Pitcairns Island.

January 1st. 1848.—Sailed from Raiatea for Tahiti. On this passage we experienced easterly winds to N.E.b.E., with a heavy swell from the northward and eastward, with heavy squalls, and rain: on the 2nd we fetched up between Sir C. Saunders, and Eimeo Islands, and continued beating round the north end of Eimeo, till the morning of the 5th, when we anchored in Papietee Harbour. Here we remained till the 4th of February, when we weighed for Pitcairns Island, and Valparaiso.

Melville gives the following amusing account of the pilot of Papietee:—"Even with a competent pilot, Papietee Bay is considered a ticklish one to enter. Formed by a bold sweep of the shore, it is protected seaward by the coral reef, upon which the rollers break with great violence. After stretching across the bay, the barrier extends on to Point Venus, (the most northerly point of the island, and so called from Cook's observatory being placed there during his first visit,) which point is in the district of Matavai eight or nine miles distant. Here there is an opening, by which ships enter, and glide down the smooth deep canal between the reef and the shore to the harbour. But, by seamen generally, the leeward entrance is preferred, as the wind is extremely variable inside the reef. This latter entrance is a break in the barrier directly facing the bay and village of Papietee. It is very narrow; and from the baffling winds, currents, and sunken rocks, ships now and then grate their keels against the coral.

"But the mate was not to be daunted; so stationing what men he had at the braces, he sprang upon the bulwark, and bidding every body keep wide awake, ordered the helm up. In a few moments we were running in. Being towards noon, the wind was fast leaving us, and by the time the breakers were roaring on either hand little more than steerage-way was left. But on we glided, smoothly and deftly; avoiding the green darkling objects here and three strewn in our path: Jermin occasionally looking down in the water, and then about him with the utmost calmness, and not a word spoken. Just fanned along thus, it was not many minutes 'ere we were past all danger, and floated into the placid basin within. This was the cleverest specimen of his seamanship that he ever gave us.

"As we held on toward the frigate and shipping, a canoe coming out from among them approached. In it were a boy and an old man, both islanders; the former nearly naked, and the latter dressed in an old naval frock coat. Both were paddling with might and main; the old man once in a while tearing his paddle out of the water; and after rapping his companion over the head both fell to with fresh vigour. As they came within hail, the old fellow springing on his feet, and flourishing his paddle, cut some of the queerest of capers, all the while jabbering something at first which we could not understand. Presently we made out the following:—

"'Ah! you *pemi*, ah! you come!—What for you come?—You be fine for no come pilot.—I say, you *hear?*—I say, you *ita maitai* (no good).—You *hear?*—You no pilot:—yes, you d—— me, you no pilot 't all;—I d—— you, you *hear?*'

"This tirade, which shewed plainly that whatever the profane old rascal was at, he was in right good earnest, produced peals of laughter in the ship. Upon which he seemed to get beside himself; and the boy, who, with suspended paddle, was staring about him, received a sound box over the head, which set him to work in a twinkling, and brought the canoe quite near. The orator now opening afresh, it turned out that his vehement rhetoric was all addressed to the mate, still standing conspicuously on the bulwark.

But Jermin was in no humour to be trifled with, so with a sailor's blessing he ordered him off. The old fellow then flew into a regular frenzy, cursing and swearing worse than any civilized being I ever heard.

"'You *sabbee* me? he shouted. You know me, ah?—Well, me *Jim*, me *pilot*—been pilot now long time.'

"'Ay,' cried Jermin, quite surprised, as indeed we all were, "you are the pilot then, you old pagan,—why didn't you come off before this?'

"'Ah! me *sabbee*,—me know you *piratee* (pirate).—See you long time, but no me come—I *sabbee* you—you *ita maitai nuee* (superlatively bad).'

"'Paddle away with you,' roared Jermin in a rage; 'be off, or I'll dart a harpoon at ye!'

"But instead of obeying the order, Jim, seizing his paddle, darted his canoe right up to the gangway, and in two bounds stood on the deck. Pulling a greasy silk handkerchief still lower over his brow, and improving the sit of his frock coat with a vigourous jerk, he then strode up to the mate, and in a more flowery style than ever, gave him to understand that the redoubtable '*Jim*' himself was before him; that the ship was *his* until the anchor was down; and he should like to hear what any one had to say to it.

"As there seemed little doubt that he was all he claimed to be, the *Julia* was at last surrendered.

"Our gentleman now proceeded to bring us to an anchor, jumping up between the knight-heads, and bawling out 'Luff! luff! keepy off! keepy off!' and insisting upon each time being respectfully responded to by the man at the helm. At this time our steerage-way was almost gone; and yet in giving his orders the passionate old man made as much fuss as a white squall aboard the Flying Dutchman.

"Jim turned out to be the regular pilot of the harbour, a post be it known, of no small profit; and in his eyes, at least, invested with immense importance. Our unceremonious entrance therefore was regarded as highly insulting, and tending to depreciate both the dignity and lucrativeness of his office.*

"The old man is something of a wizard. Having an understanding with the elements, certain phenomena of theirs are exhibited for his particular benefit:—unusually clear weather with a fine steady breeze, is a certain sign that a merchantman is at hand; whale-spouts seen from the harbour, are tokens of a whaling vessel's approach; and thunder, and lightning, happening so seldom as they do, are proof positive that a man-of-war is near.

"In short, Jim the pilot, is quite a character in his way, and no one visits Tahiti without hearing some curious story about him."

During the last ten days, at Tahiti, it blew very hard from north-west to south-west, with almost incessant rain, which was the heaviest, and most enduring of any I have ever encountered. On the 7th February, passed the Island of Tooboai; on making it from the northward, it appears like two islands, but on closing it, you discover that it is the base of one hill in juxta-position with a higher one. Steer for this ridge between the two hills, and it will carry you to the passage through the reefs to the anchorage inside. The harbour inside the reefs, is very unsafe and fit only for very small vessels, and the anchorage outside is very insecure, and rocky, bad holding ground: the *Ana*, French brig of war, about 200 tons, lost an anchor here in the month of January, and damaged another which got foul of the rocks. I observed the French protectorate flag was flying on the island. In rounding south-west Point,

* For a few years past more than 150 sail have annually touched at Tahiti. They are principally whalemen, whose cruizing grounds lie in the vicinity. The harbour dues going to the Queen, are so high, that they have often been protested against. Jim, I believe, gets five silver dollars for every ship brought in.

give it a very wide berth, as the reef extends full a mile off it. The winds we had on our way to Pitcairns Island, though we went into 33° S. before making our northing, were found hanging to the east and north-east, and from having very strong breezes with a heavy swell from the north-east, I had some difficulty in getting to it. There is nothing very particular in its appearance on making it. I consider it in lat. 25° 4′ S., and long. 130° 16′ W., it is about 1200 feet above the level of the sea, and about four miles and a half in circumference, and in clear weather may be seem 50′ off. Situated in the midst of the wide expanse of the Pacific, it may be said to lay almost in the variables, as the true trade wind does not blow home.

It is thickly clothed to its summits with the most luxuriant verdure, terminating in lofty cliffs, skirted at their bases with thickly branching evergreens, which afford a welcome retreat from the burning rays of an almost vertical sun. The coast is fringed with formidable barriers, which seem to present insurmountable obstacles to landing, except in Bounty Bay, situated on the north-east side, and even here, all communication is impracticable, when it blows strong. A flag hoisted at the flag-staff, in the village, indicates that landing is practicable in Bounty Bay. On passing round the east end from the southward, St. Paul's point is shaped by the most grotesquely formed tall spiral rocks, and the Island called Adams Rock becomes visible. Having passed this rock a cable's length to the north-west, you are abreast of Bounty Bay, where you must stand off, and on, as there is no safe anchorage. The inhabitants at the time of my visit, amounted in all to 134, 69 males, 65 females, descendants of the Bounty's mutineers; they are the most interesting people I have ever met. They have a capital school (which also serves as a church) in which 47 children receive the ground work of a truly religious education. They cultivate Irish potatoes, yams, sweet potatoes, Indian maize, a small quantity of taro (mountain kind), and a small quantity of Bread fruit; the latter, does not thrive well. Stock of all kinds, such as fowls, pigs, goats is plentiful and reasonable. During the year 1846 forty nine-vessels (whalers) touched here for refreshments, out of these 47 were American, 1 Bremen, and 1 English.

THE BRITANNIA ISLANDS, OR UEA, *Pacific Ocean.*

(Continued from p. 517)

THE Britannia Islands, named Uea by the natives, consist of one large island (thirty miles in length in a N.N.E. and S.S.W. direction), and a number of smaller ones to the westward of it, connected by coral reefs joining on to Uea, with three good ship passages leading into a large and beautiful bay, having regular soundings all over it. Its formation is similar to some of the Lagoon islands near the equator. The south-eastern part of Uea presents an iron-bound shore, with perpendicular cliffs and no soundings within one hundred yards of the breakers; from

that round the north-east and north part of the island the shore is generally rocky. Boats may land in some places on the N. and N.E. parts in fine weather. The west side of the Island fronting the anchorage is low land thickly studded with cocoa-nut trees, and a white sandy beach runs along its whole margin, giving the shore a beautiful appearance from the lagoon. The Juno's entrance is one-eighth of a mile wide, and has not less than 6 fathoms water in any part of it. The Bull's entrance is rather wider, and has 12 fathoms water in mid-channel; this entrance may easily be known to a stranger by the island forming the east side of the entrance having a clump of tall pine trees on it. This is the only island near the passage which has any timber on it, the others being merely low rocky islets covered with grass and brushwood. I should decidedly prefer entering by the Bull's channel.

If bound to the anchorage off King Whiningay's village, a direct course should be steered for it, if the wind will allow, taking care not to come under five fathoms until near the place you intend to anchor, as many sunken rocks exist inshore of that line of soundings, which cannot be discerned even from the mast-head; when they can be seen, they appear to have a dark brown colour. The natives generally have fish pots set alongside the rocks, with small black buoys on them, about the size of a cocoa-nut; by keeping a good look out for those buoys, the rocks can mostly be avoided. The course from the Bull's entrance to the anchorage off Whiningay's village at Fitzaway is S.E.b.S. by compass; this course will take a vessel clear of all dangers, and when she shoals her water to four fathoms she will then be abreast of the king's village, and about one and a third miles from the shore, where she may anchor. The palisades of the fort will be seen about one hundred yards from the sandy beach, and in front of a large grove of cocoa-nut trees; to the left of that will be seen the fortification around the chief Koumah's village near the beach, and fronting the cocoa-nut trees. The two villages are about one mile apart, with few or no cocoa-nut trees betwixt them.

From Whiningay's village to the south point of Uea is about five miles; a boat harbour is formed between this point and the next island to it, fronting the small island Wassau. The next island to the westward of Wassau is of large extent, and inhabited by a chief and his dependants, who in consequence of being married to the daughter of a king, has much power over the natives, and ranks next to Koumah. This chief is named Boumulli. All the other islands of this group have no permanent inhabitants, but are merely visited occasionally by the natives when they go on fishing excursions.

The best entrance into the lagoon is on the west part of the group. This passage is four miles wide and clear of all hidden dangers. The land of Uea cannot be seen until a vessel gets some miles to the eastward of the entrance. I did not try for soundings when beating in this channel in the brig *Naiad*, but I rather think no soundings are to be got in the lagoon until the land of Uea is visible from the deck. A vessel may anchor in any part of the lagoon within sight of the land, as the soundings are very regular on a bottom of fine white sand. With

westerly winds a short sea sets into the lagoon, which renders it difficult to communicate with the shore ; but those winds are of short duration, and only happen from October till April. A vessel anchoring here in these months, should ride with a long scope of cable, as the holding ground is not very good.

The Island of Uea is of coral formation, elevated on the south-east part about 250 feet and quite level on the top; the other parts of the island are not quite so high, and the whole of it is thickly wooded. From the east side to the centre of the island the ground is rocky and destitute of soil, but on the west side, around, and a little inland from the villages, the soil is good, and capable of producing every variety of tropical fruits and vegetables, and is well cultivated. These plantations produce beautiful tarro, sweet potatoes, bananas and sugar cane; but yams are not much cultivated.

Fresh water can be got in several places near the beach by digging wells in the sand, but there are neither running streams nor springs on the island.

The prevailing winds are from south-east, but from October until April westerly winds are frequently experienced, and gales happen some years in these months; they generally commence at north-east, haul round to north and north-west from whence they blow hardest, then round to south-west and moderate. Very little rain falls during the year.

I made Whiningay's village to be lat. 20° 34′ S. and long. 166° 34′ E. It is high-water on full and change of the moon at six hours, greatest rise and fall of the tide six feet. At neaps, there is only one tide in 24 hours, and this is generally in the night; the water does not rise then above two feet.

Uea is divided into two tribes,—the southern tribe is governed by a king, named Whiningay, who is possessed of much power. The northern tribe has no king, but is governed by a council of chiefs. The two tribes are almost constantly at war, and are extremely jealous of each other. Their arms consist of clubs, spears, slings, and stones, and since our arrival tomahawks. The stones are of an oval shape, and when at war carried in a bag tied round the waist. The spear is thrown by the *sip*. Tomahawks are used as battle-axes, and preferred to any other weapon. Their wars are sometimes carried on in open fight. but stratagem is more generally resorted to. They frequently prowl about in small parties near the enemy's tribe, and lie in ambush for stragglers, whom they massacre without regard to age or sex. When one party is desirous of peace, some neutral person is sent to the other tribe with the king's tappa, which if accepted ends war for a time. But upon such frivolous pretences, are these treaties sometimes broken, that the chiefs seldom visit each other even after peace is declared.

The climate of these islands is salubrious, and well adapted to a European constitution. The warmest months are in the summer season from October till March, and during the other months the weather is cool and agreeable. Earthquakes are frequently experienced during the

summer months, and some of them are sufficiently severe to overthrow a stone house; but the shock seldom lasts more than two minutes, and the natives exhibit no fear on account of them.

The natives appear to be tolerably free from diseases; and those which came under my personal observation were colds, elephantiasis, hydrocele, and rheumatism; the latter disease appears to be the most prevalent, and attacks them in the bones of the legs, which they relieve by making an incision in to the bone with a shell over the part affected.

The Uea natives are generally above the middle size and display much variety of figure. Their complexion lies between that of the black and copper-coloured races, although instances of both extremes are met with, which would lead one to suppose that some of them are descended from two different stocks. They are much fairer than the Isle of Pine natives, and less savage in appearance; but like all savages, are treacherous and cruel, and are much addicted to thieving, coveting every thing they see. Both sexes have the lobe of the ear bored, which operation is performed at the age of puberty: the men distend the holes to a large size, by inserting rolls of tappa, pieces of wood and bunches of leaves, which completely alters the original shape of the ear, and gives it a most unnatural appearance. Their hair is frizzled, and they take great pains in dressing it, with a comb made of two long and slender pins or prickers; when dressed it has a large bushy appearance similar to a mop. Many of the boys and girls whiten their hair with lime, which when they grow up gives it a brown appearance, similar to the colour of their skin. The wooden hair pricker or pin is worn as an indication of rank. The king wears it in the front of his hair; the chiefs a little on one side, while the lower class have it tied round the neck, and hanging down the back. These natives are seldom seen painted unless when going to war, at which time they use a sort of lamp black, or soot, to blacken the face and breast. They pay great respect to their king and chiefs, and never attempt to pass them without stooping, and lowering their clubs. The men go entirely naked, and are not circumcised. The women when married wear a fringe around the body about six inches in breadth, which has a more decent appearance than that worn by the females of the other islands.

The daughters of chiefs are usually betrothed to chiefs' sons, by the parents of both parties, several years before they are marriageable. At this island strict chastity is observed among both sexes before marriage, and promiscous intercourse expressly forbidden. It is difficult to account for this difference in the morals of the inhabitants of two islands so near to each other as this and Lifu. There, neither men nor women are under any restraint in this respect before marriage.

The ornaments worn by these people are beads made of Jade stone, and strung on a thick string made from the down of the vampire bat, or flying fox; these strings are also worn by the chiefs around the knees and waist. Shell armlets are worn by some of the chiefs and their children. The shells of which the armlets are formed are held in much estimation, and are only to be found in New Caledonia. Since their

intercourse with Europeans, glass beads form their chief ornaments. The large blue beads are the most highly esteemed.

Although otherwise cruel, these people are kind and affectionate to their children, and seldom punish them even for the most insolent or passionate behaviour.

The natives of Uea are cannibals, and invariably eat the bodies of their enemies slain in battle with as much relish and satisfaction as any of their neighbours. When at war, women are often cut off (by small parties of the enemy) when fishing on the reefs, and their bodies carried home to administer to their cannibal appetites.

In regard to the population, I found it difficult to obtain correct information, but I should estimate it to be about 4,000 souls.

Beaupre's Islands are correctly placed in the charts. They consist of three small low islands, covered with cocoa-nut trees, and surrounded by a coral reef which extends from the islands some distance to the north-west and north. The largest island is inhabited by some Uea natives.

A dangerous coral reef of about one mile in extent was seen by me in October 1842. It is situated in lat. 19° 55′ S., long. 165° 25′ E. This danger is not laid down in any charts which I have seen.

Mr. Thomas Beckford Simpson, master of a sandal-wood vessel, discovered a dangerous reef in 1846 off the east part of New Caledonia. He examined it and found it to be of large extent. The position he assigns to it, is lat. 21° 30′ S., long. 166° 50′ E.

Walpole Island is only about a mile in extent, elevated about 200 feet, and level on the top, with high perpendicular cliffs on the west side. It is covered with brushwood, and in fine weather a landing might be effected on some parts of the east side. I found it correctly placed in the charts, its position being in lat. 22° 40′ S., long. 169° 15′ E.

The French corvette *La Brilliante* on the 28th of August, 1847, discovered a dangerous coral reef forty yards in extent in lat. 23° 13′ 52″ S., long. 167° 35′ 18″ E. of Paris.

I passed near St. Matthew's Rock in 1841, on my passage from Sydney to Manila in the *Diana*, and made it in lat. 22° 25′ S., long. 171° 20′ E., by chronometers from Sydney.

The position I have assigned to Hunter Island in my chart is according to Captain Wilke's of the United States Exploring Expedition, who examined it on his passage to Sydney.

The positions of the following dangers are from the authority of Mr. Thomas Beckford Simpson of Sydney: a group of low coral islands covered with cocoa-nut trees, and inhabited in lat. 4° 52′ S., long. 160° 12′ E., and a dangerous reef lies in each of the following positions:—

Lat. 5°	0′	S., Long	159°	20′	E.	Lat. 20° 5′ S., Long.	160° 30′ E
" 4	16	"	149	8		" 22 40 "	156 10
" 5	24	"	147	6		" 15 44 "	176 27
" 16	52	"	149	50		" 18 11 "	175 15
" 21	8	"	161	35		" 21 43 "	174 45

A dangerous reef lies forty miles east of Rotumah.

A dangerous reef lies between the island of Malanta and Guadalcanar, Solomon's Archipelago, supposed to be in lat. 9° S. I have been told by masters of whale ships that it lies nearly in the middle of Indispensible Straits. I believe the brig *Melrose* was wrecked on it.

I discovered a shoal off the Eddystone Island, New Georgia, in 1843. It bears from the Eddystone S.S.W., distant three miles, and has not less than five fathoms water on the shoalest part.

In February, 1843, I came through Bougainville Straits from the northward in the night; and at daylight in the morning when about midway between Cape Alexander and Choiseul Bay, off shore five miles, we saw the rocks under the bottom, and had a cast of the lead in nine fathoms; we then hauled off to the westward, and immediately got out of soundings.

The weather being squally with a threatening appearance I did not think it prudent to stand in again, but the idea I formed at the time was, that the whole line of coast from Cape Alexander to the north side of Choiseul Bay was fronted with dangerous shoals and coral patches, and that a vessel bound through Bougainville's Straits should not approach nearer to that coast than five miles until better examined. A master of a whaler told me some years ago that he once came through Bougainville's Straits in the night, and that in one place he saw the bottom, and had a cast of the lead in seven fathoms.

The whole of the Solomon Archipelago requires to be surveyed, as the charts in use at present are very erroneous. Merchant ships passing through this Archipelago should hold no intercourse with the natives, as they are not to be trusted.

Stewart Islands consist of five small coral islands, covered with cocoanut trees, connected by coral reefs, forming a lagoon inside, and visible from a ship's deck about twelve miles. The easternmost and largest island is about one mile and a quarter in length. It is situated in lat. 8° 24′ 24″ S., long. 163° 2′ E. This position will be found nearly correct, and I would advise all ships bound to China or Manila, from New South Wales, to sight this group for the purpose of testing their chronometers. No danger need be apprehended from the hostility of its inhabitants, as they are very hospitable, and few in number, there being only thirty-eight able bodied men on the group.

The whole pupulation in 1847 amounted to 171 souls. Nearly all the males can speak English. They rear pigs and fowls, which they bring off and sell to ships for tobacco, calico, &c. A hog weighing 100lbs. can be purchased for 5lbs. of tobacco, or 10 yards of cheap calico. I have had much intercourse with these natives and can recommend them as being trustworthy.

Bond Reefs and New Caledonia appear very correctly placed in the charts.

The Island of Anatam, New Hebrides, is about thirty miles in circumference. It is very high land, and may be seen forty five miles in clear weather.

I made it in lat. 20° 8′ S., long. 170° 4′ E. It has a harbour on the

south-west side formed by a sand islet and reefs, but it is open to westerly winds.

It is however safe from April till October, (the south-east trade blowing steady during these months), and is resorted to by sandal-wood vessels occasionally.

Excellent fresh water can be obtained within a short distance of the anchorage, and firewood can be obtained in abundance. The natives are similar in appearance to those of Tanna, and their manners and customs much the same. The immolation of widows is practised here. The island hardly produces food enough to supply the wants of the inhabitants, and consequently visitors can obtain no refreshments from the natives.

Mr. James Paddon formed an establishment at this island in 1843, and has remained there since. He has several houses built on the sand islet where he resides, and three or four small vessels, engaged collecting sandal-wood from the other islands. Ships in want of supplies can generally obtain anything they require from Mr. Paddon at a moderate price.

The island of Tanna is very fertile, and well inhabited by a stout race of men, similar in complexion to those of the Loyalty Islands. Like their neighbours they are all cannibals, and by no means should be trusted. The entrance of Port Resolution bears east from the volcano; therefore a ship bound in may always find the harbour by steering towards the volcano, after getting it to bear west. Tanna produces an abundance of excellent yams, and ships may obtain a large supply at a moderate price. Port Resolution is situated in lat. 19° 32′ S., long. 169° 44′ E.

Erromanga is high and rocky, and presents an iron bound shore nearly all round, with deep water close to the breakers, and no hidden dangers. It has no harbours, but anchorage may be found in Cook's Bay on the east side, and Dillon's Bay on the west. In Dillon's Bay, the bank is steep to; the soundings extend a very short distance from the shore, and the best anchorage is in twelve fathoms off the mouth of the river. No stranger should anchor here unless in a case of necessity, as the natives are hostile and treacherous, and should the wind set in from the westward a large vessel would have little chance of getting underway or beating out. The sandal-wood vessels are always ready for slipping in case of a westerly wind setting in. This island produces nothing beyond the immediate want of the inhabitants, and consequently holds out no inducement for vessels to visit it, except for sandal-wood. Its natives are cannibals, and are darker in complexion than those of Tanna, with woolly hair like negroes.

Sandwich Island is of large extent, moderately elevated, and presents a beautiful appearance. It is the finest island of the New Hebrides, and the best adapted for colonization. It produces many varieties of fine timber; the soil is good, and the vegetation luxuriant, yams, and sweet potatoes of a superior quality are extensively cultivated by the natives. It also produces bread-fruit, cocoa-nuts, bananas, and sugar cane in abundance. The sandal-wood tree grows on this island.

It is possessed of several good harbours,—the one on the west side is spacious, easy of ingress, and sheltered from all winds. It is formed by two large islands, with a narrow passage between them having five fathoms water in mid-channel. The southern entrance to this harbour is a mile wide, clear of hidden dangers, and may easily be known by a remarkable island which lies off the entrance to the south-west. This island has the appearance of a broad brimmed hat, and may be passed on either side. The anchorage is at the north-east part of the harbour, where soundings will be found; and a ship of any size may anchor in 15 fathoms, one-quarter of a mile from the shore, perfectly land-locked, and secure from all winds. Excellent fresh water and abundance of firewood can be easily obtained near the anchorage. The natives of this island are cannibals, and should not be trusted, no matter how friendly they may appear.

The whale ship *Cape Packet*, of Sydney, was cut off at this island some years ago, and nearly all the crew massacred; and since that time they have made several unsuccessful attempts to cut off sandal-wood vessels.

Pleasant Island is situated in lat. 0° 25′ S., long. 167° 5′ E. It is about fifteen miles in circumference, rather low, covered with cocoa-nut trees, and of circular form. A fringe reef projects from the shore about 200 yards all round the island. It has neither harbour nor anchorage, is steep to on all sides, and clear of hidden dangers. This island is thickly populated by a good looking race, of a light copper complexion; and to a stranger appear inoffensive in their manners; but, notwithstanding their mild appearance they are not to be trusted, as they succeeded in cutting off a whale ship at this island some years ago. I have been told they had some runaway convicts residing among them at the time, who not only planned the attack, but assisted them to capture the vessel. A good supply of cocoa-nuts and poultry may be obtained at this island. Vessels touching here should be on their guard, and not allow many natives on deck. There were two white men living on this island when I visited it in 1845.

Covel Group, in lat. 4° 30′ N., long. 168° 42′ E., consists of thirteen low coral islands, covered with cocoa-nut trees, and connected by coral reefs forming a large lagoon inside. The group is thirty miles in circumference, has a good ship passage leading through the reef to the lagoon on the west side, and is thickly inhabited by an able-bodied race of men, who are of a light copper complexion. They have large canoes, or rather proas, at this group, capable of carrying fifty men. I visited these islands in February 1845, and before even getting to an anchor was attacked outside the reef by three large proas, carrying 150 men. I had allowed too many of them on board, thinking they were friendly; but seeing us unprepared, they made a furious rush, yelling like fiends, and drove us all off the deck; the greater part of our crew were driven out on the jib-boom. We soon retook the vessel however, but we had four of our men severely wounded.

Hope Island is said to exist,—I have not seen it; but the master of an

American whaler told me he had passed close to it; that it was of large extent, high in the centre, and well inhabited.

Ocean Island in lat. 0° 48′ S., long. 169° 49′ E. is of a circular form, high in the centre; has no harbours or anchorage, and is steep to all round, clear of hidden dangers. It is about ten or fifteen miles in circumference, and thickly inhabited by a race similar to those of Pleasant Island. When I visited it last in November, 1845, there where seventeen white men living on shore, several of whom were runaway convicts, from New South Wales, or Norfolk Island. Cocoa-nuts and fowls may be obtained at this island at a moderate price; but strangers should be continually guarded against treachery; more especially at islands where reprobate white men are found domesticated with the natives. This island can be seen twenty-five miles distant in clear weather.

Shank Island does not exist: the person who reported it must have mistaken Pleasant Island for a new discovery. The mistake in all probability has been occasioned by the current, which runs sometimes at the rate of two miles and a half per hour near the equator.

Strong Island in lat. 5° 21½′ N., long. 163° 0′ 42″ E.; is about sixty miles in circumference. It is of volcanic formation, moderately elevated, and may be seen thirty miles in clear weather. The island is surrounded by a coral reef, between which and the main are small passages for canoes. This island is possessed of two good harbours; the one on the east side is formed by a small island situated on the margin of the reef, and on which the king resides: this is the harbour usually resorted to by the American whalers. The other is on the west side of the island, and is formed by the main land. Both these harbours are safe; and ships touching at either can obtain abundant supplies of wood and water. A good supply of yams and fowls can also be obtained from the natives. Two vessels were cut off at this island some years ago; but of late, the natives have got the name of being friendly and hospitable. Strangers, however, should not allow too many of them on deck; and have their boats armed when wooding and watering. Their complexion, form of government, manners and customs, &c. are similar to that of the natives of Ascension Island, New Carolines.

Mac Askill Islands in lat. 6° 13½′ N., long. 160° 48′ E., are of small extent, covered with cocoa-nut trees, of coral formation, and connected by coral reefs forming a lagoon inside, with a good ship passage through the reef on the west side leading in to it. The group is about fifteen miles in circumference, and is well inhabited by a light complexioned race. They live chiefly on fish and cocoa-nuts. The reefs produce biche de mer.

Wellington Isles in lat. 6° 39′ 40″ N., long. 159° 49′ 3″ E., are similar in size and formation to Mac Askill Isles. They form a small group of low islands covered with cocoa-nut trees, connected by coral reefs forming a lagoon with a ship passage on the north-west side leading to the lagoon. This group is thickly populated. The reefs produce biche de mer; and a good supply of cocoa-nuts may be obtained for trifles; but strangers touching here or at Mac Askill Isles should be on their guard

against treachery, as the natives are not to be trusted, no matter how friendly they may appear.

Musgraves, two islets, said to exist in lat. 6° 15′ N., long. 159° 15′ E., have not been seen by me I have several times passed near the position assigned to them in the charts, without seeing any appearance of land. I think their existence may be considered doubtful, for, if they did exist, it is probable the natives of Ascension Island would know something about them, which they do not.

The Island of Ascension, called Bornabi by the natives, is eighty miles in circumference. The land is high, of volcanic formation, and may be seen, in clear weather, forty miles from a ship's deck. The island is surrounded by coral reefs, between which and the main land, are many islands. Some of these are small, and of coral formation. They are situated near the margin of the reefs, elevated a few feet only above the water, and are mostly covered with cocoa-nut trees, and other timber. Others are of a larger size, moderately elevated, thickly wooded, and inhabited.

The Island of Bornabi has several good harbours, the two principal of which are named Matalanien, and Roan Kiddi. The former is situated on the north-east side of the island, and the other on the south side. Both these harbours are safe, and resorted to by whalers; but from December until April, the preference is always given to the south harbour, on account of the strong N.E. winds which prevail during these months, and which render it impracticable for vessels to beat out of the one on the N.E. side of the island. The other harbours are situated as follows:—

One at Lord, on the east side, which, though small, has lately been resorted to by American whalers. The next is at Joquoits: this harbour was visited by me in the brig *Naïad*, in December, 1844, and I remained there nearly two months, collecting biche de mer. From December to April, the anchorage is safe, but it would not be prudent to anchor here during the other months, especially in September and October, when strong westerly winds frequently prevail.

The water is very deep. I was obliged to anchor in 30 fathoms muddy bottom, within one quarter of a mile of the shore, and under the high perpendicular cliff which terminates the Island of Joquoits to the westward.

I would by no means recommend this harbour to whalers, as a ship could not fetch the anchorage without tacking, unless the trade wind hangs far to the northward; and a large vessel would hardly have room to make a board, unless well inside.

There is another opening in the reef, near the Island of Mant, on the N.N.W. part of the island, and which leads to a good harbour inside; but this place has never been resorted to by any whaler. There are one or two other passages in the reefs with anchorage inside, but they offer no inducement to vessels to visit them. The Ant Islands, marked on the charts Frazer's Island, lie in a S.W. direction from Roan Kiddi harbour, and are distant from it about twelve miles. They form a group of four

low coral islands, covered with cocoa-nut and bread fruit trees, and surrounded by a coral reef, forming a lagoon inside, with a passage leading in to it, between the two large islands on the east side of the group.

The group is about eight or ten miles in diameter, in a N.E. and S.W. direction, and about seven miles in a N.W. and S.E. direction. These islands belong to the chiefs near Roan Kiddi harbour. They have no permanent inhabitants, but are resorted to from May till September, for the hawk's bill turtle fishery. They are also visited at other times to procure supplies of cocoa-nuts and bread fruit. The N.E. part of this group is situated in lat. 6° 42′ N., long. 158° 00′ E.

The only other group near the Island of Bornabi is named Pakeen. The centre of this group is situated in lat. 7° 10′ N., long. 157° 40′ E., and bears about west from Joquoits distant twenty-two miles. It is composed of five small islands, surrounded by a coral reef, forming a lagoon inside, into which there is no passage through the reef. The westernmost island is inhabited by a Bornabi chief, his family and servants, in all, about thirty souls; and this chief claims sovereignty over the whole of this group. The islands are very low, of coral formation, and produce abundance of cocoa-nuts and bread fruit, and the lagoon plenty of excellent fish to supply the wants of the inhabitants. The group is about five miles in length from east to west, and about three miles in breadth from north to south.

This place is celebrated for its canoe sails, which are manufactured from the leaves of the pandanus tree, and which are eagerly sought after by the natives of Bornabi. Poultry are also plentiful in this group. In fine weather the natives frequently visit Bornabi in their canoes, for the purpose of obtaining tobacco, and other foreign commodities.

The harbour of Roan Kiddi is situated in lat. 6° 49′ N., long. 158° 11′ E. This longitude may be considered nearly correct, being the mean of many chronometrical admeasurements from places whose positions have been well determined.

A vessel bound to this harbour from the eastward, from December till April, should endeavour to get into the latitude of the island as soon as possible, after passing the Wellington Isles, and continue running to the westward on the same parallel of latitude, until the island is sighted; as strong westerly currents prevail at times during these months, with much hazy weather; and a stranger would be liable to get set past the island, if a proper allowance were not made for the current. After making the land, continue steering to the westward, until the reef is visible from the deck; at which time, if the weather is moderate, it is presumed a pilot will be alongside. Should no pilot, however, make his appearance, the entrance to Roan Kiddi harbour may be known by attending to the following directions:—

Stand boldly in, until within one quarter of a mile of the reef, then steer to the south-westward, keeping along the edge of the reef at about the same distance off. When the centre of Bornabi bears about N.W., a vessel will then be abreast of two or three small islets, situated on

the margin of the reef, which will then be found to trend more to the westward; and, shortly after passing these islets, the course along the reef will be found to be W.b.S., or W. Two small islands will then be seen ahead, or a little on the starboard bow, which are called by the natives Naalap: they bound the entrance to the harbour on the west side, and a sand bank, with a few bushes upon it, (situated on the edge of the reef, and bearing about E.N.E., a quarter of a mile from Naalap), forms the eastern boundary of the channel; the entrance to the harbour being between Naalap and the sand-bank.

On passing the sand-bank, give it a berth of about a cable's length, then haul more up, and keep the reef on the starboard hand, (which will be seen from the mast head), close aboard on running in. The channel now becomes contracted by two sunken rocks, which must be left on the larboard hand. The course from the sand-bank, to pass between these rocks and the reef, on the starboard side, is about N.W.b.W. ½ W. The narrowest part of the passage is, on passing the inner rock, the channel at that place being only 40 fathoms wide. This forms the entrance to the basin or harbour, and a vessel must now haul her wind, and steer N.b.W. ½ W., which is the mid-channel course from the inner rock to the anchorage, near the head of the basin. The best anchorage is in about 7 or 8 fathoms, muddy bottom, where a vessel will lie completely land-locked, and perfectly safe from all winds.

Roan Kiddi River, is about a quarter of a mile from the anchorage, from whence a plentiful supply of good fresh water can always be procured, and an abundance of firewood can be easily obtained on the low land, at the mouth of the river. It is high water at this place on full and change of the moon, at four hours, rise and fall, five and a half feet. A stranger before attempting to enter this harbour, will require to send a boat in, and place buoys on the rocks, and east side of the channel.

By having a careful officer at the mast-head, when running in, all dangers can be seen and avoided in a clear day. The best time to enter this harbour is on the first of the flood, as, should a vessel unfortunately get on shore, through a sudden shift of wind, while passing the narrows, she will stand a much better chance of getting off without injury than at any other time.

The anchorage at Metalanien harbour is situated in long. 158° 17′ E., and is perfectly safe, and sheltered from all winds. This harbour has a wide entrance on the north side of the island of Naa, and the only hidden danger to be avoided when running in, is a sunken rock, some distance within the entrance, and which lies nearly in mid-channel. The sea sometimes breaks on it; but it can always be avoided by keeping the starboard side of the channel close aboard. The barrier reef at this place extends a long distance from the main land, and between which, are many coral flats, with deep water channels amongst them in some places. The harbour is formed by the main land, and is similar, in shape, to a horse shoe; and the channel through the reefs, which leads to it, run nearly in a direct line from the entrance in the barrier reef, to the heads of the harbour.

This harbour may be easily known to vessels standing in from sea, by a remarkable peaked hill, resembling a spire or sugar-loaf, which is situated on the north shore, within the harbour. The channel leading to this harbour, lies in a S.W. and N.E. direction. An abundant supply of fire-wood, and excellent fresh water can always be obtained at this place.

Strong N.E. winds prevail from December till April, with much hazy weather, and frequent squalls, attended with rain. During these months, strong westerly currents are frequently experienced. From March to August, the winds are generally light and variable, but chiefly from the eastward, with much fine weather.

In September, October, and November, strong westerly winds, with severe squalls and rain, may be expected; and strong easterly currents are frequently found during these months. On the whole, the climate must be considered very moist, as scarcely a day passses without rain, especially in the winter months. These continual showers produce rapid vegetation, and keep up a constant run of fresh water from the mountains, the chasms and rivulets between the hills.

ALGOA BAY, AND PORT ELIZABETH.—*By J. C. Chass. Esq.*

"ALGOA Bay, and its neighbourhood, is a classical locality."

It was on a Wednesday, the 14th of September, in the year of Grace 1486, (three centuries and a half ago), that imperial Venice, 'ocean-bound,' the crowning city, whose merchants were princes, and whose traffickers were the honourable of the earth, was collected under the lofty and thousand-columned roof of St. Mark's gorgeous Cathedral. All that was high born, wealthy, proud and lovely, were there assembled, celebrating with the pomp peculiar to the ancient Church, its solemn and stately rites, on the great anniversary of the high festival of the Holy Cross. While the long line of procession was moving towards the Duomo, which the exquisite art of that age had rendered no unworthy tabernacle, wherein human devotion might ascend along with the fragrant incense flung from innumerable censers, doubtless there were, among the dense throng of worshippers, some worldly-minded ones, whose thoughts—wandering from the immediate object of the occasion, as their eyes surveyed the proud palaces surrounding the Piazzetta in which they were collected—rested upon the glorious recollections of what the enterprize of themselves and their ancestors had achieved; and looked forward, with confident anticipation, that their policy and prudence would secure an illimitable career of prosperity and fame, and command—like their neighbour, Rome, (not then quite extinguished) universal empire.

The holy services were consummated, and the banquet-hall deserted, and no untoward or ominous event had occurred to shroud the memory

of the past, to cloud the prospects of the future, or to mar the hilarity of present enjoyment. No "Mene, Mene, Tekel Upharsin," had been observed upon the Mosaic walls of the noble altar of the holy sanctuary: but nevertheless, the sentence was written there that day. No sword of Demodes alarmed the guests in the more than regal festal chambers, decorated with all the riches of eastern grandeur, "barbaric gold and pearl"—but it nevertheless hung there, though unperceived, by its slenderest thread, that very evening. Little dreamt the lords of the Adriatic—the wedded husband of the Ocean, the monopolizers of the richest trade of Europe—that, at that present time, a blow had been struck at their greatness in a far, lonely, sea-lashed islet, ten thousand miles away, in an ocean whose very existence, indeed, was unknown to them; and that men, with equal ardour, but surpassing courage, were then offering up the increase of their adoration, at the very same time with themselves, to the Supreme Being, for a discovery destined to wrest from the fair brow of their country her oriental diadem: to destroy her commerce, and direct it into other channels, never to return: to extinguish the foreign empire she had acquired; and so to cripple her then gigantic power, that she should never recover the stroke!

It was on that memorable day, and in the poor and unknown Bay of Algoa, that Providence decreed 'the sceptre should depart' from Venice —'and it was so'.

The illustrious Bartholemew Diaz, the discoverer, whose purer fame has been lost in the corruscation of a very questionable glory that encircles the head of the great Vasco de Gama, the conqueror—was the first navigator of the southern seas. He was sent out by King Henry of Portugal in search of India, and, in his voyage, passed by the great promontary of South Africa, without discovering it. After leaving the Cape Voltas, at the mouth of the (now) Orange River, on the west coast, the first land he made was the western horn of the present Mossel Bay, called by him Cape Vaches, from the cattle seen there; but in vain he attempted to acquire information regarding the object of his wishes, India, from the natives; he therefore, again set sail, on the 14th of September, 1486, arrived at a small rocky islet, in a bay, now called Algoa Bay, the chief port of the Eastern Province of the Cape Colony: and which island he named, in honour of the day *San Croiz*, where he erected his second cross,* as a token of discovery and possession.

At this place the spirits of his mariners began to droop; and, fearful of the boisterous seas—more violent than those they had been accustomed to—they began to clamour, and declared they should go no farther. Their objections, vexatious as they were to the ardent commander of the expedition, were couched in respectful, reasonable, but firm language; they explained that their supplies were diminishing, and that it was, therefore, necessary to return and look after their small provision-tender, from which they had been parted: for it had remained so long away, that they began to grow alarmed for its safety, as should it be

* His first cross was erected at Sierra Prada, lat, 24°.

lost, they must inevitably be starved; that they considered their commander ought to be satisfied with their past labours, as they would carry to their native homes more information than any prior navigators, having discovered much land; and they expressed their conviction that—as the coast appeared to bend further in from whence they came, that is, north-easterly—they must have left some great cape behind them; and, that they thought it was better to return, and, in passing look for it.

Diaz, forced to satisfy their scruples—and, at the same time, determined to carry home with him an authorative proof of the obstacles he had met to oppose his progress—landed on Santa Croiz:—

> "The isle of Holy Cross!—
> That isle, where 'erst a Lusian, when he past
> The tempest beaten Cape, his anchors cast;
> And own'd his proud ambition to explore
> The kingdoms of the morn."
>
> CAMOENS LUSIAD.

Here he assembled the chief officers of the expedition, and several seamen; perhaps, trusting that the touching solemnities of religion would soften a decision so harsh to a jealous spirit like his own, panting for glory, and eager for enterprize. He, therefore, caused the holy eucharist to be administered to his followers, at the foot of the cross he had planted with his own hands; and thus, upon this rugged isle, at present only visited by the stealthy sealer in search of his prey, where human foot had never before trod, were the sacred symbols of our holy faith displayed; and there the hoarse Indian Ocean first mingled its wild music in harmony with the voices of the first Christians who had ever ploughed its waters, in holy anthems to the Redeemer of men.

Having performed this duty, Diaz made his colleagues swear to their written opinions of what was now best to be done for the King's service. With one tongue they all declared for return; and, as he had been directed by the King how to act in such an emergency, he made them sign a document to that purpose. This effected, he conjured them, like Columbus, to indulge him by sailing only for two or three days further along the coast, pledging himself, should no trace of India be found to induce them to proceed, that he would obey the general wish;—to which they agreed. In their further voyage, the Rio d'Infante, our present Great Fish River was discovered, which received its name from Joao Infante, Captain of the second ship *Santa Pantaleone*,—the first man who landed there.

This river they entered, and remained there three days, without having any news of India, the only object of the expedition—"The inhabitants (says the chronicle) being a savage sort of people." During their stay at this place, the mariners renewed their complaints, which forced poor Diaz to desist from prosecuting his voyage, and he returned to Santa Croiz, in Algoa Bay. The narrator of the voyage says, that when Diaz left this monument of his labours, he parted with the cross he had himself planted on that barren rock, "as if he had been leaving a son in perpetual banishment." He was destined never to re-visit the

object of his tender emotions, being wrecked, many years after, off the Cape.

On the homeward-bound voyage, Diaz discovered the great and famous Cape, to which he, by no means as friendly disposed as to his little cross upon his lone island in Algoa Bay, gave the ominous name of Cabo das Tormentas, or the Cape of Storms, altered afterwards, by the sage Henry, into that of Buona Esperanza, or Good Hope, from the expectations it afforded of reaching, by sea, the grand goal—Eastern India.

From the period of the discovery of the South Coast of Africa, by Diaz, no notice of Algoa Bay appears to be recorded, until the visit of the celebrated Sir James Lancaster, (who attempted the north-west passage, and gave the name to Lancaster Sound,) who, in 1593, anchored in its capacious waters for six weeks, during the prevalence of contrary winds.

In 1652, the colony of the Cape of Good Hope was established by old Surgeon Van Rebeek who had for some years recommended it as a valuable settlement to the Dutch government; and Algoa Bay (the Bahia de la Goa, distinguished by the Portuguese navigator from the Rio de la Goa, or Delagoa Bay), appears to have been first visited by the Dutch in 1669. In 1772, the Dutch East India Company set up several beacons, or perpetual land-marks, along the coast; one at Zwartkops River, and another on a sand-hill, at the Sharks' River, to the southward of the anchorage, where it is still to be seen,—a small obelisk, of Robben Island blue slate, on which the Company's cypher is engraven.

The acquisition of such a valuable means of commercial intercourse was, of course, not appreciated at the time of its discovery. It was through a mere accident that the importance became apparent; and that was a chance visit of an Englishman, whose countrymen were destined, within a very few years afterwards, to occupy in full sovereignty, this vanguard of the Dutch possession of her Indian empire.

On the 2nd of May, 1785, an event occurred which drew the particular attention of the Cape government to Algoa Bay. The English East India Company's ship *Pigot*, put in there, and, with the permission of the country authorities, landed upwards of one hundred scorbutic patients, who were lodged in the farm of F. Potgleter, (now Michael Muller's, or, as the estate is called, Welbedagt). The notification of this event did not reach the then nearest government authority, at Swellendam, until the 10th of July, a distance of 350 miles, so slow was communication in those days. Colonel Dalrymple, a passenger by the vessel, hired a wagon from that place, and, to the astonishment of the somnolent heads of office in Cape Town, appeared there, and seems to have awakened them from a quiet, and perhaps, pleasant, slumber!

Visited from such an unexpected quarter, by a British officer, who had the reputation of being a very skilful engineer and surveyor, the Dutch Government took alarm, and the immediate consequence was the formation of a new district, Swellendam and Stellenbosch, districts which had hitherto gloried in boundaries in some terra-incognita to the east,

were shorn of those unknown regions, and the site of a new magistracy, at Graaff Reinet, was fixed, including the Bay; the object being, as then stated, "to prevent any Foreign Power from settling at the Bahia Delagoa."

In 1797, the state of the Kafir boundary led Lord Macartney to contemplate removing the seat of magistracy from Graaff-Reinet to Zwartkops River, but the design was abandoned until the year 1804, when the town of Uitenhage was founded on the banks of that stream.

In 1799, the site of the present town of Port Elizabeth was occupied by British troops, in consequence of the disturbances on the Frontier. Fort Frederick, a small work, still existing, was built at this time, but given up at the peace of Amiens, along with the rest of the colonial dependencies, all of which were restored to the British after the second capture of the colony in 1806.

The year 1820 witnessed the arrival of the immigration of British settlers, when 2,020 men, 607 women, and 2,032 children were safely landed, owing to the security of the bay, and the kind vigilance of Capt. Evatt, the hospitable and attentive commandant of the Port. The first party of these settlers arrived in the bay on the 10th of April; a day much to be remembered in the annals of the Cape colony. In the same year, Sir Rufane Shaw Donkin visited the port, to locate the settlers, when he ordered the erection of a small pyramidal monument, in memory of his lately deceased lady, on the height above the rising village, to which he gave her name, "Elizabeth."

At that time the only buildings were the fort just alluded to, a small barrack, a mess-house, the Commandant's quarters, a few temporary huts, besides the original farm house, (almost all of perishable materials) belonging to a Boor of the name of Hartman. The population was about 35 souls, and its trade confined to the occasional visit of a coasting vessel, with long lapses between each voyage, bringing in exchange for butter, a few articles of clothing, and supplies for the military.

The progressive state of the trade of this port is as follows:—

	Vessels.	Imports.	Vessels.	Exports.
1822	—	£13,090	—	5,200
1832	46	20,288	44	90,304
1842	95	162,232	92	94,674
1844	114	135,919	113	118,860
1845	130	195,163	124	179,254

The population, two-thirds of whom are English, has increased to 3,382 souls. The number of houses inhabited by one or more persons is 416. Huts or other dwellings without walls, 278. The value of fixed property as assessed for road rates is £125,780.

A splendid pile of buildings has been completed for the use of the Commissariat, and a *place d'armes*, at a cost of about £14,000. There is a church for the Episcopal congregation, called St. Mary; a Wesleyan and Independent chapel; besides a place of worship for the Roman

Catholics. There is also a small court-house, with public offices attached, a gaol, and a very neat and ornamental structure, intended for an Exchange.

A fine steamer, the *Phœniz*, regularly plies, between Table Bay and Port Elizabeth, the passage occupying each way, the average period, of from three to four days.

There is no correct Chart of Algoa Bay, published at present. Lieut. Rice's sketch, made in 1797, to be found in Barrow's Travels, and reprinted by the Hydrographical Office, in 1801, is the only one extant, and used by navigators; and as there is only one danger in entering the anchorage—the Roman Rock, as it is denominated, the imperfect chart has, perhaps, been thought sufficient for the common purposes of navigation; but the rapidly increasing commerce of the port, *imperatively* calls for a fresh and more accurate survey.

Rice's chart represents the bay as open to nearly half the compass,—whereas it is now well known, beyond all possibility of dispute, that, from the anchorage, the extremes of the land, (that is, the horns of the bay,) extended only six points—which is from E. ½ S. to S.b.E. ½ E.; and it is only when the wind blows within six points, that ships can be placed in danger at the anchorage. For the observation of these bearings, we are indebted to Sir John Marshall, commanding H.M. frigate *Isis*, on his visit here, in July, 1843—when they were taken by his orders with an improved azimuth compass. Taking a fair average of the year, it may be safely said, that the wind blows four days *from* the land to one day *upon it*.

A reference to the chart in question; as well as to the various maps of the south-east coast of the Colony, copied from Lieut. Rice's sketches, will shew that Algoa Bay is there represented as little better than a mere open roadstead; whereas it is, in fact, a deep, horse-shoe shaped indentation, well protected from the violence of the wind—except under peculiar visitations, occurring at long intervals apart.

A slight survey—perhaps it should rather be called an inspection of the bay—was made in 1820, by Capt. Fairfax Moresby, of the *Menai;* and, in his report, he states: "Should Port Elizabeth ever become a place of commercial consequence (which there is no doubt it soon will,) chain-moorings, or even anchors of a large size, with chain cable, should be laid down for the ships that wish to approach near shore, for the purpose of loading or unloading." "I do not," adds he, "make the remark from the insecurity of the bay—for I consider it, at all times, equal to Table Bay, and, for six months, very far its superior." And the gallant commander goes on to say—"Had I my choice of trusting my ship for the year round to Torbay, in England, Palermo Bay, in Sicily, or Algoa Bay, I should without hesitation prefer the anchorage of Port Elizabeth, (Algoa Bay.)"

To make this bay what it deserves to be, and must sooner or later become, a place of extensive commerce, there are four improvements yet to be introduced, viz.:—a landing jetty, a supply of water to the beach, a buoy on the Roman, or Despatch rock, and a lighthouse on

Cape Recife.—It is satisfactory to state, that arrangements have been made for the commencement of the latter immediately.

Port Instructions for Algoa Bay.

Should it be the intention of the master of a vessel to discharge or receive on board any considerable quantity of cargo, a convenient berth will be pointed out by the Port Captain, as close to the landing place as the safety of the vessel and other circumstances will admit. The vessel must then be moored with two bower anchors, with an open hawse to the S.E. and especial care taken not to overlay the anchors of other vessels, or in any way to give them a foul berth. Ships or vessels touching for water and refreshments, may ride *at single anchor*, but they must then anchor well to the northward, so as to prevent danger (in case of drifting) to the vessels moored, aud it is particularly recommended, when riding at single anchor to veer out 70 or 80 fathoms of chain, the other bower cable should be ranged and the anchor kept in perfect readiness to let go; strict attention should be paid to keep a clear hawse, (when moored,) the more so when it is probable the wind may blow from the S.E., and whether at single anchor or moored, the sheet anchor should be ready for immediate use. The situation of the vessel must be taken by land marks, and the depth of water, and should any accident occur by which she may drift from such situation, or lose her anchors, the same must be notified in writing to the Port Captain.

It is recommended that vessels be kept as snug as possible; especially such as may have to remain some time in the anchorage, for the periodical winds blow occasionally with much violence.

Vessels having Marryatt's Code of Signals, can make their wishes known to their agents, in blowing weather through the Port Office;—Vessels not having the Code, can make the following with their Ensigns:—

1.—*Ensign in the Fore Top-mast Rigging*,—I am in want of a Cable.
2.—*Ensign in the Main Top-mast Rigging*.—I am in want of an Anchor.
3.—*Ensign in the Fore Rigging*.—I have parted a Bower Cable.
4.—*Ensign in the Main Rigging*.—I am in want of an Anchor and Cable.
5.—*Whift, where best seen*.—Send off a Boat.

Whenever a red Flag may be hoisted at the Port Office, it denotes that it is unsafe for any boat to land.

(Signed) H. G. Dunsterville, *Port Captain.*

Approved.

By Command of His Excellency the Governor,
(Signed) John Montagu,
Sec. to Government.

Colonial Office, 6th February, 1844.

Roman Rock, Algoa Bay.

Position of the Roman Rock in Algoa Bay, in some Charts called Despatch Rock.

The following bearings are taken by compass from the rock, which has from 7 to 8 feet of water upon it at low water.

The outermost rocks of Cape Recife bear S.b.W. distant five miles.—The Breast beacons, W. one mile and a half.

A whitish looking rock off Rocky point, on with the flag staff at the Fishery W.N.W.$\frac{1}{4}$N.

Pyramid over the Town, N.W.$\frac{1}{4}$N.

Store on the beach in a line with the Church, N.W.$\frac{1}{2}$N.

Anchorage N.W. distant five miles.

The beacons are erected near the beach, that next the sea has a tar barrel on the top, painted white; the mason work also shows white, at the bottom the space between the two is black.

The inland beacon has a white cross; and when brought in a line with the other beacons forms like a small windmill, bearing due W. from the rock.

A vessel entering the bay, round Cape Recife, with a proper offing, to steer N.N.E. until the Breast Beacons are in one; and when the cross is well open with the other beacon two or three ships' lengths, she may haul up for the anchorage N.W.

There is sufficient room and depth of water for any ship between the Roman Rock and the Main, the channel lying S.b.E. and N.b.W.

Heights of Mountains, &c.—Uitenhage District.

Cock's Comb.....5,400 feet
Winterhoek Peak.....2,752, "
Latitude of Uitenhage, 33° 45′ 57″

Chamtoos River Ferry.

Is 430 feet wide, 9 feet deep, the Pont or Floating Bridge cost £300, takes over 1 wagon with 16 oxen, laden with 15 muids of meal at a time, within 3 minutes.

The Report of Examiners at Liverpool; *with comments and queries thereon.*

Report of the Board, for the Examination of Masters and Mates, appointed in pursuance of the recommendation of the Board of Trade, for this port, at the meeting of Commissioners, held in the Town Hall, in October, 1845.

The Board may be permitted to premise their report by a few observations on the nature of, and necessity for, this institution.

The institution is not for the especial benefit of shipowners; as they, when appointing masters and mates to their vessels, require a knowledge of many qualifications beyond those of nautical skill, science, and general character, which alone can form the subjects of a public examination.

But the objects sought by this institution are, principally for the public good and safety, by preventing unqualified persons from being entrusted with the charge of vessels, and of the lives and property embarked therein: and also to promote education, knowledge, and good conduct throughout the mercantile marine; so, that, the advancement and improvement of officers therein may be, at least, concurrent with the improvement now taking place amongst seamen, by the exertions of wise and benevolent individuals, in establishing Sailors' Homes, &c.

It is, therefore, obvious that the institution should be public, and directed by the local authorities, as is the case at most other sea-ports; and, in accordance with the plan recommended by the Board of Trade.

The necessity and desirableness of a public institution for the examination of masters and mates in the merchant service, are now, clearly and firmly established; *the Admiralty having issued notice, that they will give the preference of freight, in all Government shipments of stores, &c.*, and that, in chartering transports, convict ships, &c., they will restrict themselves to those vessels the masters and mates of which have been examined and certified: and the President of the Board of Trade recently stated in Parliament, that this system of examination is useful and desirable, and will, probably, soon be made compulsory on all masters.

Since this Board discontinued its operations in March last, there have been numerous applicants for examination, and the inconvenience and expense occasioned to them have been considerable. The following letter from Capt. Harvey is one instance:—

"55, *Seel Street, Liverpool,*
" *June 9th*, 1848.

"Sir.—Having applied to Mr. Dobie, Secretary to the Board of Examination of Masters and Mates for this port, by whom I am informed there is no Board acting at present, I beg to address you thus, as chairman of the said Board, to assist me, as I am so circumstanced that I cannot go elsewhere to obtain a certificate; and as it is indispensable for me to have one before I leave England, you would infinitely oblige me by ordering a Board to be formed for my special case.

" I am, Sir, &c.,
" William Harvey."

" *To the Chairman, &c.*"

The hardship and expense thus occasioned to masters and mates furnish strong additional proof of the necessity for maintaining an efficient Board in this great sea-port.

With these remarks, the Board will now proceed to report briefly their proceedings.

It will be recollected that, the Commissioners of Pilotage did not assign any funds, nor authorise the Board to incur any debt. It therefore required much patience and perseverance, with some individual responsibility on the part of the Board, to organise an establishment, provide an office with the books, registers, charts, &c., indispensably necessary.

The Board was *fortunate* in obtaining the assistance of Messrs. Eshelby, *Macauley*, *Mitchell*, and Nelson, who have undertaken the nautical examinations hitherto, and are entitled to great credit for the perseverance, zeal, and ability with which they have gratuitously attended to that department.

Mr. Livingston, and Mr. Monteath, have conducted the scientific examination, receiving one-fourth the amount of fees.

Mr. Dobie has assisted the establishment greatly as secretary, receiving five shillings for each meeting.

The number of certificates issued is 53 masters' and 6 mates.'

The fee for examination is two guineas for master, and one for mate.

In March last, the Board resolved that, it was essential to have the scientific examination conducted by a salaried officer, debarred from teaching; and that the Board would discontinue examining until such an officer was appointed.

The Board have. therefore, provided *excellent* nautical examiners, a good secretary, *office*, and all the *requisite books and machinery*, requiring only *a good* scientific examiner to enable the Board to resume examinations in a very efficient manner.

It is understood that *Mr. Cox*, who has been engaged by the Dock Committee, for the last two years, under Lieut. Lord, surveying the port for the new chart, would undertake the office at £150 per annum; he is a master in the navy, and Lieut. Lord considers him well qualified, and a very fit and proper person.

The Board have hitherto defrayed all expenses by the fees received; and there is every probability that an efficient establishment will soon be self-supporting, or nearly so.

Believing that the Commissioners of Pilotage are stringently confined in the appropriation of the Pilotage funds, and knowing also that the Corporation receives a large amount annually from the trade of the port as town dues, probably £60,000 or £70,000 per annum, this Board made application to the Town Council for a guarantee to the extent of £150 per annum, to enable the Board to engage Mr. Cox, or some suitable gentleman, and carry on the operations of the Board; the Council, however, on the recommendation of the Finance Committee, declined.

In conclusion, this Board considers it desirable and necessary that an efficient Board for the examination of masters and mates should be maintained in Liverpool; and they recommend the Commissioners of Pilotage immediately to adopt the necessary steps for maintaining such a Board, on a footing befitting this great sea-port.

To the Commissioners of Pilotage for the Port of Liverpool.

Comments and Queries on the foregoing Report.

1st.—Of whom did the Board consist, from which *this anonymous report* emanated?

2nd.—One of these nautical examiners first proposed the *extra* for Capt. Judkins; and he talks of parallels of longitude, and says, scientific examiners may call them meridians, but he calls them parallels. A story is related of him that, in examining a mate, he said "Pray young man, do you know the reason why a little round cloud sticks over the moon for a day or two, about the time of full moon?" Surely he must have

mistaken the moon's unenlightened limb, when visible after new moon for a round cloud, and thought it had been at full moon. It is even said by a person who was mate with him that, he cannot compute the longitude by chronometer.

"Another 'nautical examiner' petitioned to be appointed one, at or about the same time Capt. Hawkins of the *Bahamian*, applied for examination. He is over-looker for a firm, in whose employment the captain formerly was, and it is said, offended his employers by leaving their employ to join a ship belonging to another house. Capt. Hawkins had a certificate from one of the scientific examiners for first class, and a letter from Mr. Riddell of Greenwich school, expressing a hope that he would be allowed the "extra." On that day two of the examiners were informed that they were not to attend the examination. The captain was rejected on the alleged ground, that he was not sufficiently acquainted with charter-parties and bills of lading.

3rd.—It is supposed more than 53 Masters have been examined, and there were several forfeitures, but even on the shewing of this Report the fees amounted to £112, one fourth of which is 28. The examiners have received £23 12s. 6d.

4th.—The secretary issued orders to the scientific examiners as to the class each candidate was to receive a certificate for, and one of the scientific examiners refused to certify that a Captain Case was entitled to the "extra". The secretary and nautical examiners however, gave him the "extra" for, as a newspaper expressed it "his superior knowleds of Nautical Astronomy". Mr. Case had stated that he had been revising for a considerable time under Mr. Coleman, in London, prior to being examined here; and the examiner having been blamed for refusing the "extra," and learning it had been granted, wrote to Mr. Coleman, who in a reply dated 17th of July 1847, says, "I remember Captain Case well: am surprised to hear he obtained the "extra" class; I much doubted whether he would be able to secure himself the first class certificate".

Soon after Mr. Dobie was nominated secretary, he started a Tea and Coffee shop, where it was well understood candidates were permitted to be customers, and the meetings for examination were transferred from the observatory to a room over his shop, of a polygonal figure of about 10 feet by 8 for which he receives payment. Such a room furnished as a bedroom in the same situation would not let for more than 2s. or 2s. 6d. per week.

5th.—Mr. Dobie states the books cost upwards of £30. The machinery consists of a parallel rule, and a pair of compasses. There is one Norie's chart of St. Georges' Channel, and a slate also.

6th.—No faults or deficiency of abilities are alleged against the scientific examiners, but that they are teachers. So was Dr. Inman at Portsmouth; so is Mr. Gray at Newcastle. Both the examiners here have had classical educations, one of them at Edinburgh College; both of them were for many years commanders of various vessels; and it is well known how much both of them have contributed to Purdy's North

Atlantic Memoir, Columbian Navigator, &c., and one of them to the late revered Major Rennell's work on Ocean Currents. They have made no complaint of the insufficiency of their emoluments; but no doubt they reaped some advantage from persons applying to them to be prepared for examination.

7th.—Mr. Cox is probably an able navigator as he is a half-pay master of the Royal Navy, and £150 per annum added to his half-pay, and the rental of his house-property in Rodney and Mount Streets, might be acceptable to him, more particularly at present, as there has been a resolution of the Committee of the Dock Trustees recommending that his services under the Dock Surveyor be dispensed with; and on the subject being a second time brought forward, a late *Liverpool Mercury* states, *that the Committee saw no reason for altering their recommendation that Mr. Cox's services be dispensed with*," or words to that purpose.

8th.—It appears certain that neither the Dock Trustees, nor the Corporation of Liverpool will furnish the funds to pay a salaried examiner, therefore the voluntary examination of masters and mates, in Liverpool, is virtually at an end.

9th.—As from anything this Report shows it does not appear that there is any intention of paying the nautical examiners; it is presumed the whole of the fees would then go to the secretary, which does not seem to have been the intention of the Board of Trade.

10th.—Great fault, it is said, has been found by Mr. Boulter J. Bell, the scientific examiner, at the Trinity-House, with the scientific examiners here, as having passed the examinations too slightly. Now, copies of almost all the examinations have been lodged with Mr. Dobie, and there can be no doubt that both the examiners would be truly rejoiced that these examinations should be ordered up by the Board of Trade, and examined by any competent and unprejudiced, as well as uninterested person; but, probably, they would consider Mr. Bell as both of the latter, as from persons being driven from hence to be examined in London; and his emoluments depending on the numbers examined there, he cannot be presumed to be uninterested.

11th,—No one has been passed by the scientific examiners here who was not fully competent to answer all as far as is required by the regulations of the Board of Trade, for such certificates as the secretary ordered them to be examined for; and no one has received a recommendation for the "extra" without a good knowledge of great circle sailing, some knowledge of spherical trigonometry, of marine surveying, and a superior knowledge of nautical astronomy,—such as computing altitudes of celestial bodies, finding the latitude by altitudes of stars, or by the altitudes taken for clearing a lunar distance; and several have computed eclipses and occultations by Kerigan's methods. A few volunteered a few examples from Euclid, and understood somewhat of algebra, but these were almost all from Greenwich school.

12th.—The examiners had to find apartments, coals, candles, &c., for all they examined, without any additional allowance therefore.

13th.—A vice chairman of the Pilotage Committee has hitherto directed every thing, and it is understood is the *unit* member of the Board of which this Report professes to express the opinions; and if such is the case (as he introduced Mr. Dobie, and recommend Mr. Cox) all patronage lies in his disposal. True, he is a very rich man; and probably may acquire some knowledge of what ought to be done, if he consults competent advisers who dare venture to advise him.

14th.—The suspension of the examination here has given rise to great inconvenience, and some expense to many persons:—one or two have had to proceed to London, and some to Glasgow to be examined. During the last fortnight there have been at least seven applications for examination: one very gentlemanly young man came all the way from Belfast, and like many others was disappointed.

15th.—The classification of the certificates depended entirely on the nautical examiners, and the secretary. The scientific examiners neither having been allowed to be present at the public examinations, nor required to sign the certificates.

16th.—Mr. Bell is said to have lately refused a person a first class certificate, (who certainly was entitled to one, if it be permitted to judge by a comparison with others to whom at the commencement of the examinations he did grant such,) explaining to him that the Admiralty were satisfied with second class certificates; and this person adds, he was told there was no more pay, and much more trouble to both parties with first class than with second; a truism which the secretary here has also stated.

17th—Perhaps an alteration in the charges would be advisable, say

Third Class Masters . .	£1	10s.	First Class Masters . .	£2	10s.
" Mates . . .	0	15	" Mates . . .	1	5
Second Class Masters . .	2	0	Extra Masters	3	0
" Mates . .	1	0	" Mates	1	15

18th.—It would be most desirable that the Board of Trade should explicitly state if candidates must be examined in, say the first six books of Euclid, and in algebra for first class, or first class extra; but if they insist on that, it is much to be feared, more *college-bred* than *able seamen* would get into commands. Another thing, ought the nautical examiners to cross question candidates as to insurances, averages, partial averages, charter-parties, bills of lading, &c., which appear to be things which the merchants and shipowners are competent to judge of themselves.

19th.—Great inconvenience frequently arose from examiners failing to attend on the days the secretary appointed for examination, it being difficult for the secretary frequently to prevail on two to attend, which gave him much trouble; prior to the attendance of two being forbidden, there were only one or two days of disappointments. A Mr. Oates attended three days, and a Capt. McDougal also three days by the secretary's express appointment; and no Board meeting they had both to sail unexamined. Many others were in similar predicaments.

20th.—There are many retired master mariners in Liverpool who having little to do, would possibly gladly attend for a fee of five shillings *per diem*, which would be no great tax upon the funds.

21st.—One of the Trinity-House Examiners who is said to talk so much about Euclid, analytical demonstrations, &c.; and to speak with so much contempt of all the scientific examiners out of London, must surely have acquired more knowledge than he possessed when he edited Thomson's Tables, printed in 1845, as he seems then to have been unaware of precession, aberration, and nutation.—*Vide* p. 21.

	On February 27th 1844		✱ Regulus			
He gives ✱	Rt. Ascn.	10h. 00m. 04s.00	should be	10h. 00m. 06s.56	error	−2s.56
	Decl.	12° 43′ 34″8N.	"	12° 43′ 21″·1N.	„	+13″7
	Same✱	25th March				
	Rt. Ascn.	10h. 00m. 04s.00	"	10h. 00m. 06s.48	„	−2s.48
	Decl.	12° 43′ 37″5N.	"	12° 43′ 21″7N.	„	+15″8
	Castor✱	6th January				
	Rt. Ascn.	7h. 24m. 38s.46	"	7h. 24m. 41s.39	„	−2s.93
	Decl.	32° 13′ 27″N.	"	32° 13′ 19″8	„	+7″2

All Examiners ought to be themselves examined by some person whose abilities are undoubted and who can neither have prejudiced nor interested motives, say some one nominated, by Admiral Beaufort, Mr. Raper, Mr. Riddel, or many others, such as Mr, Coleman *senior;* but such as Mr. Griffin, or Mr. B. J. Bell could not be supposed impartial.

ANONYMOUS.

(The report being also anonymous.)

Liverpool, 12th Oct., 1848.

THE SAILOR'S HOME.

In 1835.—In Well Street, London Docks, this establishment, to improve the habits and raise the character of British Seamen, was opened. Under the patronage of the Bishop of London a society was formed and officers of the Institution appointed, and rules were adopted for its management, among which we find the following :—

"That this Institution be designated, "The Sailor's Home, or Brunswick Maritime Establishment," having for its object, the providing a receptacle for seamen paid off from their respective ships in the port of London, or otherwise out of employ, where they may be boarded and lodged at as low a charge as possible, during the time they may have occasion or choose to remain there; and where the utmost efforts will be made to improve their moral condition, by affording them religious instruction, and by urging upon them a careful performance of their duties, both to God and man.

"That all subscribers of one pound annually, be members of this Institution; and contributors of ten pounds, or upwards, be considered members for life.

"That the chaplain of the Institution shall be a Clergyman of the Church of England, to be nominated by the Directors, subject to the approval of the Bishop of London.

"That there shall be domestic worship morning and evening at the Sailor's Home; and that all meetings of the Institution, whether public or private, shall be commenced with prayer.

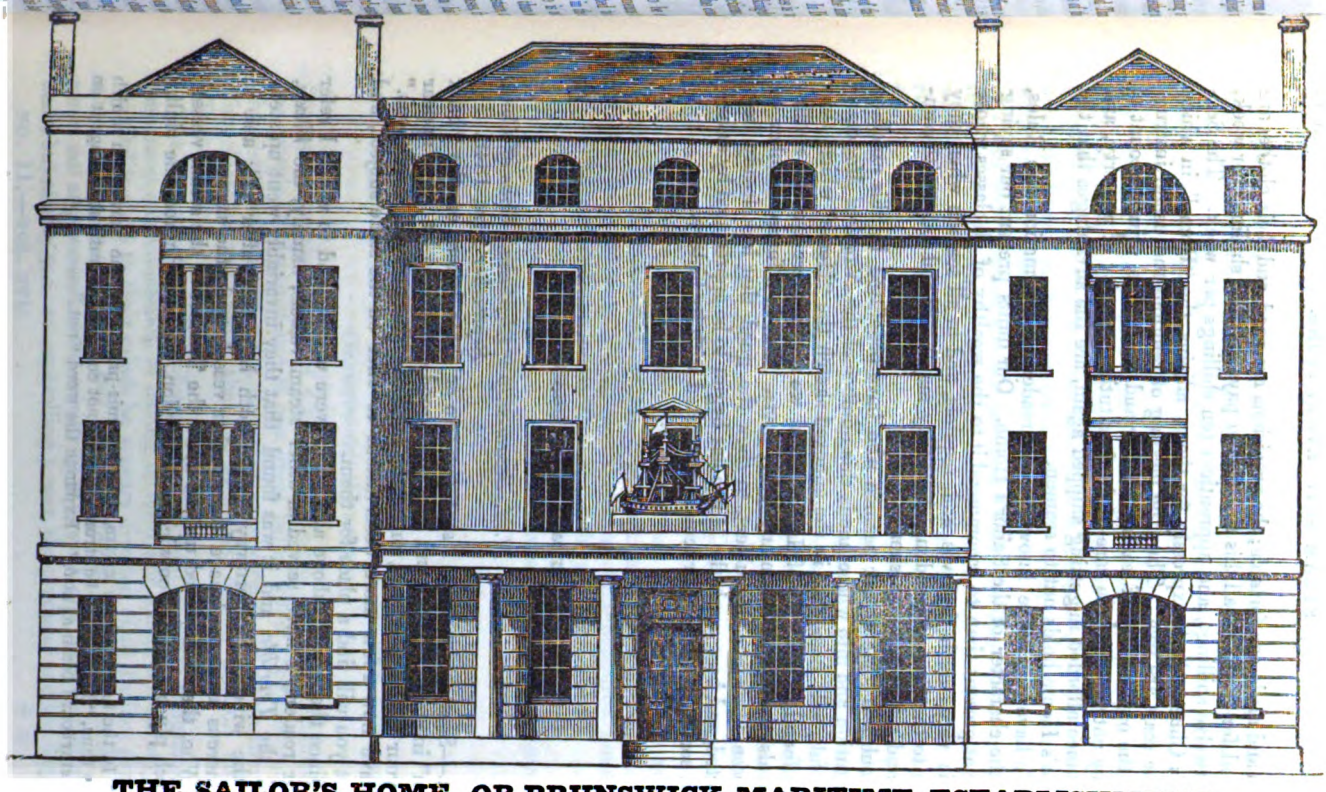
"The Directors meet at the Sailor's Home the second Thursday in each month, at twelve o'clock, for transacting the business of the Institution".

The institution is designed to afford protection to sailors from a long established and well organized system of extortion and imposition to which the acknowledged carelessness of their professional character, their habits of intemperance, and the pecularity of their circumstances render them singularly liable.

No one in England can be indifferent about the condition of the seaman without the danger of incurring the blame of neglecting the interest, or of being willing to compromise the credit of the nation. In Divine providence the security of this country from outward enemies is made materially to depend upon her seamen; the prosperity of the kingdom is closely connected with the success of its commercial transactions; and the character of the land stands immediately associated with the conduct of its seamen in all the distant parts of the world.

But there is still a higher and more important purpose to be considered in the object of the Sailor's Home, and it rests in the means that are adopted to impart, and the opportunities that are presented to the inmates, of receiving religous knowledge while they remain in the institution. From the very nature of their employment, there is not a class of men in Britain who labour under greater disadvantages than seamen do, with respect to the momentous concerns of a future state, and from the long removal they frequently experience in many cases, from the privilege of attending public worship. The seaman, on his return from a foreign voyage, and discharged from his ship the moment she arrives in the Dock, falls as a matter of necessity into the hands of the publican, or the crimp; his health, his morals, and his hard-earned wages, are alike sacrificed in scenes of riot and debauchery, and he again leaves the shores of England with the bitter feeling of having been robbed and injured in that land which should have afforded him a kind and christian reception.

But now the establishment of this Institution forms a board and lodging for seamen and sea apprentices, during the time they must unavoidably remain on shore between their voyages, where they live comfortably and pay moderately. It registers their characters, ships them when they are ready to go to sea again, and provides instruction without any charge to those who wish to improve themselves in navigation. The Building (on the site of the Brunswick Theatre) is large and well ventilated and is now capable of receiving 300 boarders, giving to each man a sleeping cabin to himself, which, with every other part of the building is kept



THE SAILOR'S HOME, OR BRUNSWICK MARITIME ESTABLISHMENT,

WELL STREET, LONDON DOCKS.

clean and made comfortable; the provisions are good, and their clothes are washed for them; for all this the seaman pays fourteen shillings per week, lads twelve shillings, and apprentices ten shillings per week. The Seamen's Church, built expressly for them, adjoins the "Home", in which all the seats are free. Thus the blessing of religious and useful instruction, the opportunity of leading a sober and decent life, a just account of money entrusted to the care of the Institution, security of property, and assistance afforded in getting shipped again, are the advantages that the Sailor's Home holds out to seamen.

We have thus made known to our readers, the formation, the Rules, and the character of the Sailor's Home. Our limits prevent our saying more at present than to recommend it to the wealthy of all classes whose aid it very much deserves and requires, and to all seamen when they come to the Port of London, where they may board and lodge with comfort and safety while on shore.

Doubtless some of our seamen who have benefitted by this excellent Institution and into whose hands this number of the *Nautical Magazine* may fall, will recognize in the annexed sketch the "Home" which they have found in the Port of London, and we regret there are not similar ones also to be found in many other ports. But in a future number we purpose to resume the subject, to shew the good that has already been effected, and how much the Home has begun to be appreciated by sailors, with some interesting particulars connected with its history.

Steam-Ship Evolutions.

H.M. Steam-ship "Blenheim," Cove of Cork, September 21st, 1848.

Sir.—Some years since, I sent you two or three letters on the "back turn" in steam vessels, and you were good enough to let them appear in your volume for 1840, under the head of "Steam Boat Evolutions." I have now a few more observations to offer on the same subject, and trust you will find a place for them.

Since the letters* above alluded to were written, and to which I refer your readers, I have served in other steam vessels, namely, the *Vixen*, and the *Terrible*, and it was found that they invariably went up stern to the wind, with sternway against both helm and after sail; and in numerous instances I have known other vessels to do the same.

Who, that has passed up and down the Thames in the steam vessels, which ply between Woolwich and London, has not admired the skilful

* In the first of those letters, there is a mis-print. In the paragraph which runs thus, "If the wind be strong, she will not come round until she brings it on the starboard beam as at *b*." Expunge the word "not."

manner in which they are handled? On one occasion, I observed one of those small vessels, with sternway, in a very strong breeze, present her stern to the wind, against her helm; and the conductor was foiled in his attempt to lay her alongside the floating pier. Upon questioning him on the subject, he said "They will go contrary sometimes;" but he had not the most remote idea that the wind had anything to do with it. Now, in those vessels, the length of the rudder bears a much greater proportion to the length of the keel, than is the case with sea-going vessels, which will probably account for their being obedient to the helm under ordinary circumstances.

I will now mention another instance. The *Blenheim* went out of this harbour one day last week, for the purpose of trying some experiments with her engines. An opportunity was taken to try the effect of the rudder with sternway. The wind was blowing a "royal" breeze, and the ship was hove-to with the wind on the starboard beam; the spanker and main trysail were set, all other sails being furled, and the helm put hard to starboard. The engines were then backed at full speed, when to the astonishment of every one, she payed round off and presented her stern to the wind, *against her helm and after sail.* This experiment, made on board a ship of the line, propelled by a screw, supported as it is by what has already been said on the subject, establishes, beyond all question, the fact, that the rudder of a sea-going ship is of no service to guide her with sternway.

It is obvious, therefore, that we ought not to endanger the rudder pintles any more, by shifting the helm with sternway, for however loth we may be to give up a long-cherished and time-honoured notion, it cannot be regarded any longer than as a fallacy.

I remain, yours, &c.,

ROBERT C. ALLEN, *Master.*

To the Editor N.M.

A GENERAL VIEW OF WHAT ARE REGARDED BY THE CHINESE AS OBJECTS OF WORSHIP.

THROUGHOUT the empire of China some vague idea is entertained by the people of the existence of one great being whom they designate as Shang-ti, the supreme ruler, the supreme sovereign, or whom they call Tien, Heaven; and believe that he, by a fixed destiny controls all the affairs of men.

The learned among the Chinese speak of him as he is designated in their most ancient classics, as having no form, nor sound, nor savour, nor tangibility; and to their minds he appears divested of all distinct personality. They do not regard this sublime being as the creator of the universe, nor as possessed of the attributes of eternal, and independant existance; but merely as a vast controlling power, the producer and the disposer

of all things. The work of creation, or of "evolving the heavens and the earth;" they ascribe to the first man whom they call P'wan Koo; yet he is never regarded as an object of worship.

In very ancient times idolatry was unknown in China. But as age succeeded age the ideas of men concerning God became more and more darkened, until idolatry became generally prevalent, and now the people generally conceive of Shang-ti, or T'ien Kung, Heaven's Lord, as residing far, far above, enshrined and secluded amidst his unapproachable majesty. Their ideas of him are mere amplifications of those they entertain regarding the emperor. They believe also that the supreme being employs a host of spiritual ministers of various ranks, just as the Chinese emperor has his ministers, or officiating rulers of every grade, set over the various provinces, and attending to the complicated affairs of the empire.

These Spiritual ministers of heaven they call Shin, expansive spirits, or Shin-ming, illustrious spiritual beings. They divide them into the two large classes of T'ien-shin, heavenly or superior spiritual ministers, and Ti-k'-i, earthly or inferior ones. These Shin are the objects whom the Chinese universally worship.

They rarely build any temple for the worship of Shang-ti: there is not one such temple in Amoy, and only one has been erected in the city of Chiang Chow. Still the people generally pay to heaven or heaven's lord a sort of heartless homage daily. Every Chinese house has a lantern suspended outside the street door, and directly over the middle of the door-way, that they call T'ien-kung-tang, heaven's lord's lantern, or simply T'ien-tang, heaven's lantern. These lanterns are all lighted up, and incense is burnt for him, during a short time every evening.

Also, one day in every year they profess to devote to his honor, the 9th day of their first month, which they call his birth day! Then they have plays acted to please him! They spread out tables also, and load them with cooked meats, cakes, and fruits, and have pigs and goats killed and placed whole and raw on frames beside those tables.

With this meagre outward homage paid to heaven the people rest quite satisfied. They never think it is their duty to worship God in the spirit, nor of regarding in any way his authority over them.

But to Shang-ti's supposed spiritual ministers, the innumerable Shin, they erect very many temples throughout the whole land; and to the images they make of these Shin they render perpetual worship. The people generally are aware that their images are merely the work of man's hand; and before they are consecrated they regard them simply as toys. But after an image has become sacred by the performance of certain ceremonies, they believe that the idol or Shin, has taken possession of it, and that then it should be regarded as a proper object of worship. These ceremonies are performed by a Taouist priest, the Buddhist priest being considered incapable of performing them. After a particular image has been obtained and set up in its place, a table is covered with food, candles are lighted, and incense sticks are burnt, the priests meanwhile audibly reciting the set number of prayers. He

then takes a pencil, and with the blood of a full grown fowl places a red mark between the eyes of the image. All this being done it is supposed by the people that one of the Shin has entered into the image, and then incense, and offerings, and prayers are presented to it.

Nevertheless, the Shin are believed to be sometimes absent from these images; and therefore when worshippers come with large offerings to their temples bells are rung, drums are beat, and gongs are sounded in order to call them to be present at their offerings, and attend to the requests or the demands of their worshippers.

As the people conceive of the Shin, or spiritual ministers of Shang-ti as invested with characters and dispositions similar to those displayed by the mandarins of the Emperor, they believe that their displeasure may be averted, and that they may become inclined to hear their petitions, by their offering to them liberal presents, and procuring plays representing the manners of former dynasties to be acted before them. Hence have originated the specific characteristics of idolatrous worship in China.

In times of extreme drought the suffering people resort in crowds to the temples of these idols, which are considered most powerful and efficient; and after clothing the images in old coarse attires, they bring them out of their temples and expose them to the rays of the burning sun, in order that, while the people are all there kneeling before them, they may be constrained to supplicate their high sovereign Shang-ti, to send down rain upon the thirsty ground.

Near the close of the year, on the 24th day of the 12th month, all the Shin are believed to go up to the court of heaven to render to Shang-ti an account for the past year of the state of affairs under their charge; and on that day offerings are presented, and incense is burnt to honour them on their departure.

On the 4th day of the first month of the new year they are believed to come down to earth again; and crackers are fired off, and incense and offerings are presented, to welcome them on their return.

Yet the Chinese generally place entire confidence in the efficacy of their idol worship, notwithstanding its earthborn and utterly worthless character.

Here then we behold a widely extended nation of immortal beings manifestly shewing that the true God is not in all their thoughts. The living God to whom they owe all they possess, and in whom they "live and move and have their being" is to their minds as if he had no existence; and never is he spontaneously enquired after by any individual of the vast population of this so called "Celestial Empire."

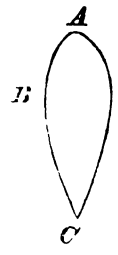
These facts are deeply humbling to the foolish pride of man: but they should also excite in all who know the truth, an irrepressible zeal to promote the speedy diffusion over this gloomily dark land, of the light of the knowledge of the Glory of God in the face of Jesus Christ.

A. STRONACH.

On the Sternboard in Steamers; *by Commander L. G. Heath, R.N.*

It has long been known* that if sternway be given to a paddle-wheel steamer, she will, even against her helm and after-sail, pay round off before the wind. An experiment was lately made in H.M.S. *Blenheim*, which shewed, that the rule holds good also in vessels fitted with the screw. The following reasons are suggested to shew, firstly, why the rudder has less effect with stern than with headway.

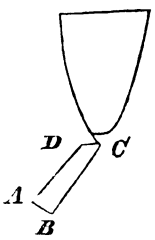
Firstly.—To show why the vessel should pay off.



Let A, B, C, D, be the section of a vessel at the water-line; A being the stem, and C the stern-post.. A little consideration will shew that, with sternway, the sides BC and DC may be considered as two rudders, BC being a port, and DC a starboard one, and that so long as the vessel remains upright, the pressure upon these two rudders, being equal and opposite, counteract one another, and the vessel goes straight astern.

Now, suppose the wind to be a-beam, and the vessel, consequently, to heel over, (say to starboard), the rudder BC will then be raised out of the water a certain quantity, whilst the rudder DC is more immersed by that same quantity; so that the effect upon the vessel is that of a reduced port-helm, accompanied by an increased starboard-helm, and, having sternway, she will slue her stern to port; or in other words, pay off. In short, a similar cause to that which makes a vessel gripe when going-a-head, will make her pay off when going-astern; but as the centre of rotation is always in the fore part of the vessel, the steering effect of the lee side is greater with stern than with headway, because it acts on a longer lever.

Secondly.—To shew why the rudder has less effect with stern than with headway.



Let A, B, C, D, be the horizontal section of a rudder placed at any angle a with the keel.

Let p = pressure of the water on a unit of surface, when the vessel has sternway.

Then by the resolution of forces we have $p.\ sin\ a.\ cos\ a$ = pressure on each part of BC in a direction at right angles to the keel; and $p.\ cos\ a.\ sin\ a$ = pressure on each part of AB in the opposite direction.

Hence, we see, that at whatever angle the rudder be placed, the turning effect of the back face, exactly counteracts the turning effect of an equal portion of the side face;† so, that, supposing the breadth of a rudder to be six times its thickness, it will lose $\frac{1}{6}$th of its effect when going astern. This reasoning does not apply

* The fact was first pointed out to the public by Mr. Allen, now Master of H.M.S. *Blenheim*.

† For simplicity's sake we have supposed the back of the rudder to be flat and we have taken no account of AB having greater leverage than BC.

to headway, because the fore side of the rudder is shielded by the stern-post.

These explanations taken together, will sufficiently account for the apparent paradox which we have been considering; for the steering effect of the lee quarter, (by which is meant the whole line of the ship's side, from the greatest beam to the stern-post), when going astern, is very much greater than that of the lee bow when going a-head, both from its greater surface, and from its greater leverage; and there is, as our second problem shews us, a smaller counteracting effect on the rudder.

All that has been said above, applies equally to a sailing vessel, as to a steamer; but, the manœuvre being less frequent, its results have not been so apparent, and have been attributed (erroneously I believe,) rather to the action of the wind on the sails, than to that of the water on the hull.

Pursuit and Capture of the General Wood Convicts.

(Concluded from page 553.)

Cambodia.—Via Singapore we have intelligence from Cambodia, or the gamboge country, to the beginning of May. The valuable product which gives name to the country has, for more than thirty years, been the subject of rival claims by Cochin China and Siam. At the south-western extremity of the country is a small island called Pulo Oby, to which place the greater part of the Chinese convicts had escaped who took part in the *General Wood* catastrophe. To this island and the coast of Cambodia the Hon. Company's steamer *Phlegethon* was despatched by the senior naval officer (Captain Mac Quhae, H.M.S. *Dædalus*) at Singapore. The *Phlegethon* returned in the latter part of May, after a most successful search. From the *Straits Times*, of May 10th, we abridge the particulars of the *Phlegethon's* mission:

The *Phlegethon*, after a pleasant run with fine weather, sighted the island on the eveving of the 11th. At 11h. 30m. P.M. lowered two cutters, the first in charge of the chief officer with boatswain, carpenter, and 14 European and Malay seamen, accompanied by the doctor and purser (volunteers), also the mate of the *Celerity*, as guide; the other boat, with second officer, midshipman, and gunner, the same number of men, and chief engineer (volunteer,) all armed. Upon leaving the vessel it was soon perceived the task would be no easy one, a strong current running two and a half knots to S.W.; this however, did not dispirit the men, who pulled manfully, and reached the S.E. point of the island about half past 2 A.M. of the 12th. At 4 A.M. their spirits began to lose vigour, fearing the day would break and defeat all efforts; soon finding the current in favour, it was rightly concluded the N.W. point had been rounded and the work must be more easily accomplished, having already gone two-thirds round the island.

Upon opening the bay the sight of two boats at anchor cleared all doubts. Orders were passed for perfect silence; the oars muffled but stoutly pulled. At 5 A.M. the boats grounded some distance from the shore. It being low water the landing was effected with difficulty, many severe cuts were got on the rocks, the rain causing them to afford very uncertain footing. In a short

time the village (which consists of a few mat huts, and a Joss house of the same materials) was surrounded, but in consequence of the over zeal of the guide the sleepers were disturbed before plans were quite matured. There finding the doors guarded, they rushed through the mat work on every side, and thus only eight of the right men were secured, about the same number making their escape into the jungle. One man got dangerously pricked in the lungs with a bayonet, upon his making resistance, but is now recovered. Search was instantly made for articles that would identify them. These were not long wanting: the first being a lady's card case, enclosing a note addressed to Miss Burton, Mrs. Seymour's maiden name; also a lady's work box that had been converted into a receptacle for opium. Government blankets, marked Victoria goal, an English boat's rudder, masts, and sails; these, with the wounded man's confession, confirmed their guilt. Parties were immediately despatched to scour the jungle, and a guard left in the village. The prisoners were secured with their hands tied behind them. Several of them with the false tails they had on, did not stand the test of Jack's steady pull, and in this condition they were sent to the boat. At 8 A.M. finding the steamer not in sight, it was concluded she had also mistaken the situation, and the boat with prisoners was sent to look out. On passing some rocks they observed two China-men issue from a cave, evidently unconscious of what had occurred to their companions. Being hailed and desired to stand they coolly returned to the cave, secured weapons and cloths and took to the jungle. Two or three from the boat immediately landed to give the alarm and one was taken by the look out, but upon making resistance with a knife and bayonet he received a thrust from a boarding pike that passed through his abdomen, causing his death in four hours. In this cave the chronometer was discovered with a large quantity of fish and rice. The steamer now came in sight and anchored in the bay at 8h. 30m. Prisoners, nine in number, including the two wounded, were sent on board: thus ended the first night's enterprise. During the day a second Joss house was discovered on the hills, and one or two large fish and rice depots. It was also ascertained from the inhabitants who had regained confidence, that there was a third Joss house on the opposite side of the island much frequented by the Macao men, and they volunteered to guide.

Two parties were made for the night; one by water and the other through the jungle to meet before daylight; at 2h. A.M. they started, the boat searching the coast, the other the jungle. The Joss house was surrounded at 4h. 30m. but the birds had flown, leaving evident signs of their having recently decamped. Here were discovered, secreted in the long grass, a number of ship's carriages, and bayonets, a large China boat, undergoing repair, and a quantity of salt fish, cooking utensils, &c., all of which were destroyed, the hut and boat burnt; the remainder of their effects they had contrived to carry to the jungle. The only hope now was to regularly hunt them out, no easy task with so few men on such extensive and suitable ground for concealment, the island being one mass of granite, mountainous, and ten or twelve miles in circumference, with numerous caves and almost impenetrable jungle. A *ruse de guerre* was now attempted. The steamer proceeded to Combodia, leaving a guard secreted in the village, with orders to remain quiet, in hopes they might venture from concealment. On arriving at the entrance of the Camoo river it was considered not prudent to take up the steamer, in consequence of a bar at the entrance, having only one fathom at high water spring tides; consequently the visit of ceremony was performed in a cutter fully manned, which left the ship with the captain, third officer, and doctor, at 3h. 30m. A.M., on the 22nd, and succeeded by great efforts in reaching the town

at 4h. P.M. the same day, having to pull a distance of not less than fifty miles. The mandarin was prepared for the reception, a boat having been despatched the previous day, intimating the approach of strangers. Invincibles lined the landing, the court, and audience chamber of the palace, with drawn swords and pikes.

After a little delay his Excellency appeared in considerable agitation, doubting our peaceable intentions; but upon ascertaining the mission was merely to request his assistance in capturing murderers, he regained confidence, and ordered the usual luxuries of betel nut, tea, cheroots, &c.; at first he affirmed his inability to comply without reference to the king. This delay, he was made to understand, would not answer the purpose, and his reply would be forwarded to the Queen of England. This produced the desired effect. A consultation was held with his courtiers, and after some controversy it was agreed that a boat with thirty men should proceed to Pulo Obv immediately and remain to secure any convicts not taken; at the same time he would write for permission to send two or three hundred more to search the jungle. He was then requested to assist in procuring live stock, and afford shelter for the night, the men being much fatigued: the audience chamber was then pointed out as the most suitable dormitory; but this was not accepted; a small house near the boat being preferred, which he ordered immediately to be prepared, and the interview ended at 6h .P.M.

The third officer again visited him to urge fulfilment of his promise, reporting the intention of the steamer to await the arrival of his party, at the same time displaying the usual civility on leaving. Upon this occasion he was more familiar and polite, making many inquiries, taking down the name of the vessel, officers, &c., and expressed his regret and surprise at the short stay contemplated. Assuring him that the thirty men and stock should leave the next morning, the boat at once returned to the ship, arriving at 9h. P.M. the same evening, and next morning proceeded to the island, having been absent five days, during which time nothing had been seen of the guilty parties. Active measures were again taken: the following day every available person on board was sent on shore, formed into parties in charge of officers, to hunt, and proved their zealous exertions by taking six and viewing four others the first day; the next was not so successful, one only being seen and secured, they having again contrived to conceal themselves. The ship's time-piece was, however, discovered under a tree carefully preserved in a blanket and covered with leaves. This constant search was kept up for five days without success, when a second *ruse* was tried: the steamer anchoring on the opposite side of the island, and the village being abandoned, leaving directions with the inhabitants, who expressed great alarm at our departure, should any appear, to encourage them, and despatch immediate intelligence. This succeeded. The second morning information was brought that some of them had ventured down to get rice; parties were sent quietly through the jungle, and three captured, two making good their escape. In this affray one villian, in making resistance, got his left arm broken. The following day four others were reported to have shown themselves. A party of six, disguised as Cochin Chinese, secretly entered the village, with directions to secure without noise all that approached; but during two days only one appeared; he was, however, persuaded to show some of their hiding places, by which means two others were taken; thus making the number 30, including one killed.

Twelve days having now elapsed since the interview, at Camooe and no signs visible of the promised assistance, the provisions nearly exhausted and none to be procured, four officers and twenty-four of the ship's crew suffering from jungle fever, were circumstances, however unfortunate, that rendered the

return of the steamer imperative. At the same time knowing four or five were left, the inhabitants having decamped to the main land the same day with the steamer, there is little chance of their escaping immediately unless they have money secreted to pay their passage in some of the trading boats, that constantly call for fresh water. This is not likely, none having been found on their persons. They might also be taken away by the piratical junks that infest the island at this season. Two very suspicious craft appeared during the stay of the steamer, but immediately decamped. The villagers report that not less than 70 trading vessels were cut off last year within sight of the island, and that they are obliged to keep all valuables buried, or they would lose everything. Upon carefully comparing evidence, the following account appears most to be depended upon. They were about seven days at sea, and arrived at Pulo Oby early in February in two boats. After sailing about the island to reconnoitre, they landed well armed at the village, and immediately took possession. The inhabitants about thirty in number, fled to the jungle; they helped themselves to everything. The largest boat in which it was supposed most of the valuables and treasure were deposited they never left without a strong guard, anchoring in deep water every night; this boat they decked over and otherwise disfigured in the night; with about twelve of their number they left, promising to send a junk for the remainder, the other boat was sunk on the appearance of the *Celerity*; others have also left by various opportunities. From one of them, Asee, said to be the ringleader, we learn the following result: drowned at Natunas, 15; captured by the natives, 18; gone to China in long boat, 12; to Siam in pukat, 15; gone to Singapore in pukat, 3; gone to Hainan in pukat, 3; gone to Chinchew in pukat, 2; Captured by the *Phlegethon*, 30; left on Pulo Oby, 5; total Chinese convicts, 93. Two having escaped from the village there is reason to suppose they gave the others information of the danger they were in by exposing themselves. In illustration, of the desperate, reckless, and determined characters now brought within the pale of justice, we need only remark that two of the number, whilst on board the steamer, were overheard inciting an attempt to take the vessel; two jumped overboard in the China Sea, one of which got struck by the paddle wheel and perished, the other was saved; a third nearly succeeded in hanging himself.

Charts of the Coast of Brazil at the Entrance of the Rio Grande.

The following account of the loss of the brig *Victoria* of Liverpool, in consequence of the incorrectness of the charts, has been sent to us for insertion. We trust that the energetic appeal of the writer, who also appears to be the unfortunate owner of the *Victoria*, will not be made in vain; and that the British Government having already presented to the civilized world a survey of nearly three-fourths of the coast of South America, will not allow her Merchant Shipping to be lost by the deficiency of the remainder, which from the supineness and want of sufficient scientific resources of the Brazilians may be long looked for in vain.

"I have the painful duty to inform you of the total loss of the brig *Victoria* of Liverpool, from Cadiz to this port, (Rio Grande Brazil) on the night of Saturday last, June 3rd., under the following circumstances.

"The vessel arrived off the bar of this port on Monday May 28th, and the wind being light from the north-east came to anchor in 6 fathoms, the tower bearing due north from the ship. The wind continuing from that point, and

there not being sufficient water on the bar for the ship, I went in the boat and proceeded to the bar to obtain a Pilot. The bar-boats came alongside, measured the ships draught of water, and gave us the proper signals to hoist and left a pilot on board. On Thursday, June 1st, the signal for sufficient water on the bar for the vessel's draught being made we got under way, and the signal from the tower being made for us to enter we proceeded to do so in tow of a steam tug, the current setting out strong to the south-west.

On arriving at the bar the vessel fell off and struck the north side of the bank, and the steam tug had not the power to bring her to the channel again, and she drifted off the bar into deep water where she came to an anchor, and remained until night, when the wind shifted, and it was deemed prudent to stand off the land. A strong breeze accompanied by a heavy swell followed, and the ship under proper sail, was kept in company with several other ships standing off and on under easy sail until half past seven o'clock on Saturday night, when standing in for the land, the pilot at the lead and the captain at the helm, the sounding 6 fathoms, the pilot ordered the ship to go about. The helm was instantly put down, but before she had time to come round she struck upon the bank to the south-west of the tower, distant about 12 miles. The ship continued to strike with tremendous force, and upon the carpenter sounding the pumps found 2½ feet of water in the hold, and the pumps choked with salt. Immediately after the water increased to 6 feet in the hold, and as the ship was rapidly sinking, the windlass and part of the deck under water, the launch was got out and the hands left the ship; but before they were twenty yards from her she went down, leaving her mast heads only above water.

The gale now increased, and the boat was kept before it, and continued running to the south all night; and the next day at daylight land had disappeared, but during the day was again seen, and after several ineffectual attempts to land we at length succeeded in doing so, about 50 miles south of the tower, and having secured the boat commenced walking towards the harbour of Rio Grande. Not having anything in the boat to eat or drink, the captain, one man, and a boy, became so weak as to be unable to proceed; the others after great suffering arrived at this place on Tuesday last, June 6th; and the men sent by your orders in quest of the crew again proceeded in search of the captain and those left behind, and they were also fortunately found, and arrived here last night, June 8th,

I have now, Sir, only to add that in my opinion the coast of Brazil near this Port is both improperly and imperfectly surveyed as to the existence of a bank like the one on which the *Victoria* struck, and was lost. I will prove we had on board charts of the latest date, 1847; but in my opinion they are more calculated to mislead than otherwise. And as the bar of this port requires from its situation a degree of boldness in approaching it, I feel assured that a proper survey of this coast is not only wanted, but actually necessary for the preservation of lives and property, and you, Sir, as the proper source will be conferring a great boon upon masters and owners of ships by representing it in as strong a light as possible to Her Majesty's government, in order to obtain a proper and complete survey of this coast by one of Her Majestys ships-of war.

I have to thank you most kindly for the great interest you have taken in endeavouring to save the lives of the captain and crew; and also to beg that you will be pleased to make known my thanks to the authorities here for the kindness we have received from the Inspector of the bar.

I am, &c.,

(Signed) W. R. WALKER, *Owner*.

We also understand that the brig *Thomas Battersby*, of Belfast, John Clark Wright, master, which cleared out from Paraiba for Liverpool, on the 12th of August, with a full cargo of sugar and cotton, drawing 15 feet 6 inches, in going down the river on the 13th, was run aground upon some rocks, opposite Stewards Island, having at the time a licensed pilot on board. On the following day, they succeeded in getting her afloat; but, as she has been severely strained, and is making much water, the master purposed putting back to discharge cargo, when it is expected, as her back is broken, she will be condemned.

Passed Masters and Mates.

London, 5th October, 1848.

Sir,—In your last number, appears a statement of the per centage of *first-class* certificates, awarded to ship-masters in two months; perhaps the following statement, which shows the proportion that first-class certificates bear to the whole number issued, from the commencement of examining masters, may prove more interesting to your readers. The total number of masters passed up to the 16th ult. is 950, viz.:—

In London	616	whereof	76	obtained 1st class Certif., or	12½	per cent.
Liverpool	54	,,	52	,,	96⅓	,,
Dundee	23	,,	11	,,	48	,,
Newcastle ...	27	,,	8	,,	29½	,,
Leith	16	,,	16	,,	100	,,
Gt. Yarmouth	9	,,	6	,,	66⅔	,,
Portsmouth.	18	,,	18	,,	100	,,
Plymouth ...	30	,,	6	,,	20	,,
Hull.....	1	,,	not	,,	00	,,
Glasgow	13	,,	6	,,	46	,,
South Shields	143	,,	7	,,	5	,,
Total	950	total	206	first class certificates, or	21⅔	per cent.

In the above number of first class certificates are included 27 first class *extra*, viz., 1 issued in London, 19 in Liverpool, 4 in Leith, 1 in Portsmouth, 2 in Plymouth.

I am, &c,

C. B.

To the Editor N.M.

Alexandria, September 12th, 1848.

Mr. Editor,—May I request you to rectify an error in your No. 6, for June, 1848, page 323, where you have entered my name, (Henry Newbolt, of the *Novelty*,) as having received a second class certificate, whereas I hold in my possession a first class certificate, signed by Captains Pixley, Trobyn, and Foord.

If there is any advantage in having one's name inserted in a printed list of passed masters, I believe it is the only one which a first class has over a second or third; to be deprived of this miserable privilege through any gratuitous publication of one's name, is, to say the least of it, not pleasant.

As I am one of those holding the rank, if rank it may be called, of that class of persons which the different consuls have thought proper to stigmatize in such unmeasured terms in B.C.'s article on British Merchant Ships, page 309, in *Nautical Magazine* for June, 1848, I think it a further reason,

Mr. Editor, to impress on you the necessity of being careful that masters' names should be printed in your list with their proper cla s.

In conclusion, I will just remark, that were similar enquiries as those alluded to by B. C. made as to the general fitness of British Consuls for their office, it might possibly be discovered that a little previous training, and even an examination would be found most desirable in many cases.

I am, &c.,

H. NEWBOLT.

P.S.—I beg leave to remark that I have been seven years a subscriber to your valuable Magazine.

To the Editor N.M.

PANAMA.

26th July, 1848.

Panama is indeed a city of ruins, and a feeling of melancholy is excited on contrasting it with what it once was. It stands on an area of about twelve acres, entirely surrounded by fortifications, the sea wall of which is in the best state, but even that in many places fallen away. Only in one part on the land side to the north-west have I seen any symptoms of repairing. The ditch and walls luxuriant with weeds, and grass not uncommon in the streets. On the south-east bastion there are a few beautiful brass guns, three only mounted, but the carriages in such a state that I doubt much their standing a couple of rounds. Should a war ever take place (which God forbid) Panama would certainly be a place worth having, (even if only in trust for the present possessors,) from its being the key to the Pacific. The country around is beautiful and capable of producing everything: that is as far as I am capable of judging, and comparing the soil with other countries well known as fertile.

On the morning of the 24th, I saw a sight which certainly raised feelings of pride at being an Englishman, and knowing that all before me was going to my home. Before the house of the British Consulate were upwards of one hundred and twenty mules loading with upwards of half a million of treasure, which had been landed the day before from the steamer just arrived from the ports between Valparaiso and this. It is to be shipped at Chagres on board the Royal Mail steamer for England, which I certainly think the best and quickest mode of transmitting specie, instead of by Cape Horn, and when steam boats from the northward are running more will go this way. The quantity has been gradually increasing, commencing about sixteen months ago with 16,000 dollars.

When the merchants can get over the idea, that the way and means of transit are attended without risk, our ships of war on the station will get but little. As far as I have seen and can learn from others, the arrangements are perfect, and now only want the road between Cruces and Panama widened and repaired. At present it is in a terrible state; but still nothing to prevent a good mule travelling with a load of specie, which is packed in boxes or bars in hide or canvass, two of which are a load, when each weigh from from one hundred and twenty to one hundred and forty lbs. The treasure is landed here in large canoes, certainly I cannot accuse their crews of smartness, but for trustworthiness I do not think there can be better men; nor was a fraction ever known short of what they have had charge. It left on the 24th, with a guard of sixteen soldiers, thirty-five muleteers, and three gentlemen, and will arrive at Cruces, distant twenty miles about the middle of the 26th; it is then put in the Royal Mail Company's fire proof store, and before embarked in the canoes every package buoyed and will arrive at

Chagres about noon of the 27th. There it is put into the Company's boats (two of which are kept there, and very fine boats they are, and well adapted for the service) still buoyed, which is not removed till landed safely on the deck of the steamer. If the treasure should arrive before the steamer it is housed in a fire proof store.

At present voyaging from Chagres to Cruces is performed in canoes. The large ones for one person can be made very comfortable, and in the dry season the voyage can be performed in a day and a half; in the wet season of course longer, the downward current being very strong. I left Chagres on Thursday afternoon about three o'clock, and arrived a Cruces on Saturday at twelve. We had a few showers of heavy rain and were obliged to stop one night at Gorgona, twelve miles from Cruces, which twelve miles was the most difficult of accomplishment; the current so strong. The road from Gorgona to Panama is preferable in the dry season till the Cruces road is repaired. Gorgona from Chagres is about thirty-five miles. As far as I can judge of the depth of this river Chagre I see nothing to prevent a small steamer running on it. An accident has seldom or never happened with the canoes. The men are fine athletic fellows and very civil. People landing from the steamer ought to get away from Chagres as soon as possible; it is a miserable dirty place and very sickly. The charge for a canoe for one person and luggage is twenty dollars. The harbour is certainly not a good one, only fit for small vessels. The steamer Dee anchored about three miles off.

The population of Panama with its suburbs is about 6000. What is here greatly wanted is capital backed up with English energy, and I certainly think the Royal Mail West India Company will reap great benefit by what they are about to do respecting the repair of the Cruces road; not forgetting that thanks and praise are due to those who first advocated such a thing. We may then expect to see Panama in a different state from what it is now. All the ruins of immense convents turned into stores, with plenty throughout the land.

The Arctic Expeditions.

Continuing our records of the Arctic Expeditions we annex the following. That from Sir James Ross shows the condition of the ships when visited by Dr. Rink; whose account of the disappearance of the ice, and the consequent progress of Sir James to the northward, completely confirms the anticipations expressed in the letter of this officer. The letters following it from Sir John Richardson, and Mr. McPherson, an experienced officer of the Hudson Bay Company's service, contain the report which has been lately exciting public attention, and the opinion of this experienced officer as to the little value that should be attached to it.

H. M. S. Enterprize, July 12th, 1848.
Uppernawich Lat. 72° 48′, *Long* 55° 54′ *W.*

Sir.—I have the honor to acquaint you, for the information of the Lords Commissioners of the Admiralty, that H.M.Ships *Enterprize* and *Investigator* arrived at this place on the 7th inst.

From the masters of the following whale ships, *True Love* of Hull, *Lady Jane* of Newcastle; *Joseph Green* of Peterhead; *Alexander* of Dundee, which we fell in with on the evening of the 4h inst., I learnt that having waited five weeks in lat. 73° N., and finding the ice still firm and unbroken, they had abandoned the attempt of getting round to the North of the main pack, and were intending to proceed south, and try to cross in a low latitude. On the 10th inst., all the rest of the whale ships (with the exception of two that are

beset to the westward, and unable to return) have passed to the southward. The information received from them as they passed us confirmed the accounts we had already received, of the unbroken state, and unfavourable appearance of the ice to the northward.

From the Danish Governor of this settlement, I have learnt that the winter was unusually severe, the fixed ice extending about 25 leagues from the land, and that the spring has been later than usual, which, combined with a long continuance of light southerly winds, and very calm weather, has prevented the breaking up of the ice to the north.

Under these circumstances I should probably have made an attempt to cross in a more southern latitude, had any number of the whale ships determined to pursue the northern route, but as they have nearly all gone to the southward I consider it more imperatively necessary that the *Enterprize* and *Investigator* should persevere to the north; for, otherwise, if the *Erebus* and *Terror* should, in running down the west coast, find the ice so close in with the land as to oblige them to take the pack, they would most likely endeavour to return, and round the north end of it, rather than incur the risk of getting beset, and detained in it for another winter; there would be no vessels to meet them, or if in their boats, to receive their crews on board, whilst if they should succeed in getting down the west coast to the south, they cannot fail to fall in with some one of the many ships that will be prosecuting their fishing along that shore, until a late period of the season.

So soon therefore as the strong south wind which is now blowing, shall have sufficiently moderated, I intend to proceed to the northward, and although I cannot but regret, that I am unable to give a more satisfactory account of the present state of the ice, I beg leave to observe that it is still early in the season; that the ice, though not broken up, is near the land in a very decayed state; and, that a strong gale from the northward would, probably, in a few hours, totally alter the aspect of affairs; and, perhaps, open for us a clear passage along the land. At any rate, we know there is plenty of space for the ice to drift to the southward, whenever it shall once break up; and I have still no doubt, of eventually getting round to the north end of it, and of reaching Lancaster Sound before the *Erebus* and *Terror* shall have been able to leave their winter quarters, or their crews to have reached that Sound, if compelled to take to their boats.

I enclose a copy of the instructions I have given Capt. Bird, in case of unavoidable separation.

I have the satisfaction to add, that the officers and crews of both ships continue to enjoy perfect health.

I have the honor to be, &c.,
(Signed), J. C. Ross, *Captain.*

Translation of a letter from Dr. Rink, to the British Consulate at Copenhagen.

Godham, in North Greenland,
August 21st, 1848.

While on a scientific journey in Greenland, I had the good fortune, in the northernmost colony at Upernavik, to fall in with the English expedition, sent under the command of Capt. James Clark Ross, in search of Capt. John Franklin, and, I now take the liberty to send herewith, three packages with letters, which, on this occasion, were delivered to me. I reached Upernavik in the afternoon of the 13th of July, and saw the two ships *Enterprize* and *Investigator* lying moored to an ice field, north of the island. Whereupon I immediately repaired on board to visit Capt. Ross. After having spent half an hour in conversation with him and the commanding officer of the other

ship, I left them about 7 o'clock in the evening, the wind having then become easterly, and Capt. Ross having given orders for getting under sail. They both proceeded along the coast to the northward, and next day were out of sight. Everything appeared to be well on board up to the moment that they left us.

On the following Saturday and Sunday, the 16th and 17th of July, we had a severe storm from the S.W., which has certainly broken up the ice, which, in the early part of July, still lay ten (Danish) miles to the north of Upernavik, and, has, thereby removed the last hindrance to the expedition, proceeding farther to the northward. As this will, most likely, be one of the latest accounts received from this important expedition, before its return to Europe, I therefore thought that the present communication might be of interest to the Consulate. I am, yours, &c.,

(Signed), H. RINK, *Doctor Phil.*

"*Methy Portage**, *July 4th*, 1848.

"My dear Sir.—The public letter in which this is enclosed will inform you of Mr. Rae and myself having joined the boat party on this portage. But though I was desirous that the Admiralty should be acquainted with the rumours mentioned in the accompanying letter from the chief officer of the Hudson's Bay Company's service in Mackenzie River district, I did not think it right to mention them in a public letter, as I place no confidence in them, but merely consider that they have originated in the queries of the traders and the desire of the Indians to excite the curiosity of the questioner in the hope that they obtain something thereby. I conclude that the supposed guns were claps of thunder, which, though very uncommon in October in that region, is not absolutely unknown. Franklin was not likely to fire his great guns for amusement, and even in distress he could not hope to bring assistance by so doing. Neither would he remain two seasons near the Mackenzie without communicating with the posts of the Company.

"We have accomplished the greater part of this portage rather more easily than I expected, and we hope to leave it on the 7th: but the men are much fatigued, and we shall go to the sea much less fresh and fit for the voyage than would have been the case had we had the help of horses in making this very laborious portage.

"I remain my dear sir, yours very faithfully,

Capt. Hamilton, R.N., Admiralty. "JOHN RICHARDSON."

"*Fort Simpson, Mackenzie River, March 1st*, 1848.

"My dear Sir,—When I had the pleasure of being your guest at Haslar, on my last visit to England, I certainly did not then think that we should next meet in this country, but I am now led to expect that pleasure next July, somewhere between Athabasca and Portage la Locke.

"I take the earliest opportunity to offer you my most cordial co-operations in all matters connected with the interests of the expedition, that may come within the influence or means of the company in this district, or of my own personal services.

"The Indians here about, and the Dog-ribs of Martin Lake, are already prepared to give their assistance to the expedition, and in the course of the last week in May, when I expect to visit Fort Good Hope and Fort Norman, I shall have a personal interview with the Indians who resort to Bear Lake.

* Near the sources of the Mackenzie.

"We have Indian reports from the coast that, if we could vouch for the truth of them, would be of general interest.

"In the fall of 1845*, a party of Peel's River Indians, who passed that season on the coast, reported that they heard, about the beginning of November, an unusual noise (at that season) like 'distant thunder' to seaward. Another report of a similar noise being heard in the same direction, late in October, 1846, was made at the post on Peel's River, and from that place Mr. Peers writes, under date 17th of December last, 'I have reason to believe that some white men were off the coast last summer, as a party of Indians who came here this fall stated that they were some days in company with the Esquimaux, east of Mackenzie River in the summer. The latter showed the former knives (like our scalpers) and files, that they said were given to them gratis by some white men whom they saw in two 'large boats', and who spoke to them in a language they did not understand.'

"I would not mention these reports to one unacquainted with the character of our northern Indians, and the very slight grounds on which they will sometimes spread a report. I am, however, in great hopes that the object of the expedition will speedily be attained, and that our mutual and gallant friend, will, like Sir John Ross, find himself.

"With every good wish and high respect,

"I remain, my dear sir, yours, very sincerely,

Sir John Richardson. "M. M'Pherson."

It may be remarked that "boat" and "ship" are expressed by one and the same word in the Esquimaux language.

Nautical Notices.

The Fastnet Rock Lighthouse,

One of the most remarkably advantageous positions for a light is that offered by the Fastnet Rock. There it stands, a solitary bold mass, at a short distance from Cape Clear, on the south-west extreme of the coast of Ireland, courting the eye of the engineer for a lighthouse, which somehow in preference has long been awarded to Cape Clear. Operations however are going forward, and the Fastnet, so much dreaded by the storm-beaten barque in a dark winter's night, will now in its turn befriend the mariner, and apprize him of his proximity to the land. We have received the following particulars of the building in course of progress, as well as the account of the position of the rock itself from Commander Wolfe employed in surveying the coast, to which we have annexed a sketch from the masterly pencil of Lieutenant Church, R.N.

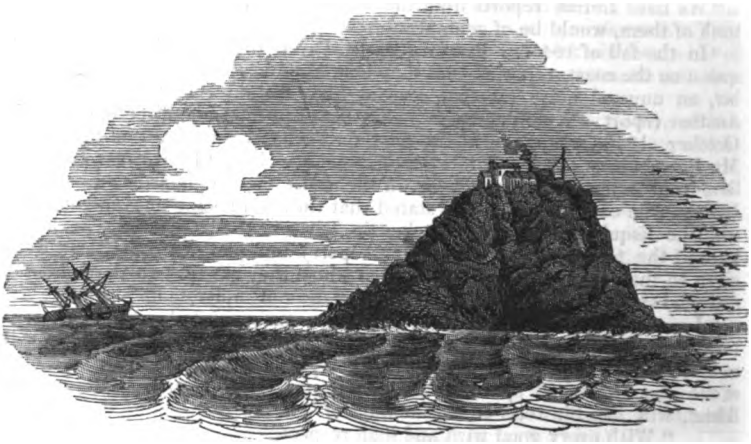
From the level of the highest part of the rock to that of spring tides it is 94 feet; to the platform cut in the rock for the base of the tower 76 feet.

Height of tower from base to centre of sash of light-room 75 feet; the light therefore will be at an elevation above high water level of 151 feet; diameter of lighthouse 19 feet.

Taking the spring tide at ten feet, the stated height of summit of the rock will correspond (within a few inches) with the Ordnance level.

The Fastnet Rock lies, S. 87° W. (mag.) five miles and a quarter, from Cape Clear Light-house. It is generally formed of a compact schist rock with strata of a softer kind intersected by small veins of quartz. It lies E.N.E &

* The year in which Franklin left England.



W.S.W. and consists of one rock about 360 feet long by 180 broad at low water, nearly perpendicular at its western extreme which rises to the height of 103 feet. To the southward of this is a rugged mass of rock about 230 feet long, 90 feet wide and 30 feet high, leaving a passage about 30 feet wide, between it and the high rock, with other small detached rocks off it. The Fastnet is very bold and steep to, at half a cable from it, except to the N.E.b.E. where at the distance of two cables there is a sunken rock with only 12 feet.

A notice to mariners has appeared, dated 2nd October, stating that in accordance with the intention expressed in the advertisement from the Trinity House, dated the 13th ult., the following alterations have been carried into effect, viz:—

The White Buoy at the east end of the Oaze Sand, has been taken away, and replaced by one coloured Black.

The White Buoy at the West Barrows, in the West Swin, has, in like manner, been replaced by one coloured Black and White in chequers; and the Chequered Black and White Buoy, at the Maplin, has also been taken away, and replaced by one coloured Black.

Notice is also given, that the Shivering Sand Buoy which was moved about two cables' lengths to the W. ½ N., as per notice, issued from the Trinity House, dated the 23rd ult., lies in 3¼ fathoms, at low water spring tides, with the following marks and compass bearings:—

West end of Cleve Wood, in line with St. Nicholas' eastern Preventive Station House	S b.E. ¾ E.
Whitstable white Mill, in line with the western coke chimney, at same place	S.W. ¾ S.
East Oaze Buoy	N.W.
Mouse Light Vessel	N.W. ¾ N.
Nob Buoy	N.E.b.E. ¾ E.
Girdler Light Vessel	S.S.E.
East Gilman Buoy	S.W. ¼ S.
Red Sand Buoy	West Northerly.

Trinity-House, September 27th, 1848.

FLOATING LIGHTS IN THE PRINCES CHANNEL.—That pursuant to the intention expressed in the advertisement from this House, dated the 22nd ult., two floating light vessels have been moored near the East Tongue and Girdler Sands, in the Princes Channel, in the following positions, viz :—

The "Tongue" light vessel is placed in 5½ fathoms, at low water spring tides, three cables' lengths to the eastward of the East Tongue Buoy, and with the following compass bearings, viz :—

North-east Spit Buoy of Margate Sand	S.E. ½ S.
Tongue Beacon	W.b.N. ½ N.
North-east Tongue Buoy	W.N.W. ½ N.
Shingles Beacon	N.W. ½ N.

The "Girdler" light vessel is moored in 3½ fathoms, at low water spring tides, one half cable's length to the southward of the Girdler Buoy, with the following marks and compass bearings, viz.:—

The eastern Preventive Station at St. Nicholas, its apparent width open to the westward of the west end of Cleve Wood	S.S.E. ½ E.
The Girdler and Shingles Beacons in line	E.S.E. Easterly
South Girdler Buoy	E.b.S. ½ S.
North Pansand Buoy	S.S.E. ½ E.
West Pansand Buoy	S.b E. ½ E.
Shivering Sand Buoy	N.N.W.

Mariners are to observe that on board these respective vessels, lights, as hereinafter described, will be first exhibited on the evening of the 1st of October next, and thenceforth continued every night from sun-set to sun-rise, viz. :—

At the East Tongue, two fixed lights, one of which, at the mast-head, will be White, the other will be shewn at a lower elevation, and coloured Red.

At the Girdler, one bright revolving light will be exhibited.

Note.—The East Tongue and Girdler Buoys remain at their stations for the present, but will be taken away, and discontinued after a short time.

September 28th, 1848.

LIGHTS ON THE COAST OF FRANCE.—Notice has been given by the French Government, that on the 15th of October next, five new lights will be established on the Coast of France; viz. :—one at Calais, and the others on the Coast of the Department of Finisterre. The positions and characters of the lights are as follows :—

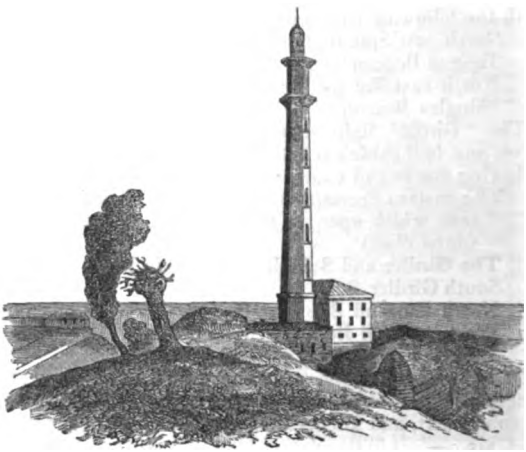
Calais Light.—An intermitting light showing a flash every four minutes; the flash being preceded and followed by short eclipses.

On the 15th of October next, the old revolving light of Calais will be discontinued; and a light will be established instead of it, varied every four minutes by a flash preceded and followed by short eclipses. The lighthouse stands in one of the angles of the fortifications of the town, about 437 yards distant from the old one, in lat. 50° 57′ 45″ N., and long. 1° 51′ 18″ E. The light will be 167 feet above the ground, 190 feet above the level of the sea at high water; and may be seen at the distance of twenty-one miles. The eclipses will not be total within the distance of about twelve miles from the light.

Note.—In order to prevent any mistake arising from the number of lights,

on this part of the coast, the following are the characters of the different lights in the vicinity of Calais :—

Ostend, a fixed light; *Dunkerque*, revolving every minute; *Gravelines*, a fixed light; *Calais*, (new,) varied by a flash every four minutes, as above; *Grinez*, revolving every half minute; *Cayeux*, (entrance of the Bay of the Somme,) varied by a flash every four minutes, as that of Calais.



With the annexed sketch which we transfer from that much admired periodical "*The Illustrated London News*," we add the following accompanying particulars relating to the new lighthouse at Calais.

This new Lighthouse was first proposed in 1844, by M. Reynaud, engineer in-chief of roads and bridges, and Secretary of the Commission of Light-houses, the design for the elevation being furnished by M. De la Bie, of Calais. The works were confided to M. Gandel, under the superintendance of the engineer-in-chief of the Port of Calais.

The site was selected on August 25th, 1845, and on September 25th, these works were commenced. The foundation consists of blocks of stone of great depth beneath the basement. This comprises two cellars for the oil, &c., besides a cistern; these cellars communicating with the vaults of the fortifications. The ascent from thence is by a stone staircase to the ground floor, which contains a vestibule and apartments: the staircases leading to the lantern are embellished, and the lantern-chamber and the vestibule are paved with marble. The interior of the tower is circular; the exterior octagonal. The upper portion of the design consists of eight pilastres supporting an entablature, surmounted with a cornice and consoles; and above this is an open balcony surrounding the base, upon which is placed the lantern, of elegant form. The cost of this beautiful lighthouse is £8,000.

Department of Finisterre.—I. *Two fixed lights at the mouth of the River Odet.*

1. A fixed light on Point du Coq, the left bank of the Odet, and on the starboard hand in entering, stands in lat. 47° 52′ 20″ N., and long. 4° 6′ 38″ W. The light is 30 feet above the ground, and 33 feet above the level of the sea; it may be seen at the distance of eleven miles.

2. A fixed light of the ordinary colour, is placed at the distance of 291 yards N. 14° W. from the former. The light being 30 feet above the ground, and 57 feet above the level of the sea, it may be seen at the distance of thirteen miles.

These two lights on with each other, lead through the principal channel at the mouth of the Odet.

II. *Two fixed lights at the Port of Concarneau.*

1. A fixed light in the Fort of La Croix, at Concarneau, is in lat. 47° 52′ 11′ N., and long. 3° 55′ 1″ W. It is 30 feet above the ground, and 46 feet above the level of the sea; it may be seen twelve miles distant.

2. A fixed light is placed between Concarneau and Benzec, 2052 yards N 28° E. from the above; it is 30 feet above the ground, and 178 feet above the level of the sea; it may be seen twenty miles distant.

These two lights, on with each other, lead into the little roadstead of Concarneau, clearing to the westward, the rocks of Lue Vras and adjacent dangers; and to the eastward, the rocks called the Cochon, Barzic, and Men-Fall.

Trinity House, September 25th, 1848.

NAVIGATION OF THE RIVER TEES.—In accordance with the intention expressed in the advertisement from this House, dated 29th ult, the following alterations in the positions of the Bran Sand light towers, and of the undermentioned buoys have been carried into effect, viz. :—

The said light towers and lights on the Bran Sand have been moved to the north-westward, and are now in line, bearing S.b.W. ½ W. distant from each other, 1734 feet.

The Red Beacon Fairway Buoy, has also been moved to the south-eastward and now lies in 4 fathoms, with the Seaton lights in line, bearing N.W. ¾ W. and the Bran Sand light towers also in line, and bearing S.b.W. ½ W.

The Red Bar Buoy, marked with the word "Bar," has been placed in 3 fathoms water, and now lies with

No. 1 Black Buoy, bearing - - -	S.W. ½ S.
Chequered Buoy on the South Gare Spit - -	South.
No. 1 White Buoy - - - -	S.b.W.

The Chequered Black and White Buoy, formerly on the west side of the Middle Patch, has been marked "South Gare," and now lies (without a beacon), in six feet water, near the extreme Spit of the South Gare Sand, with No. 1 Black Buoy, bearing W.b.N.

The Black Buoy (formerly No. 2), has been marked No. 1, and laid on the east side of the Middle Patch, in 7 feet water.

The Black Buoys on the west side of the channel, have been numbered from 1 to 8, inclusive, leaving the White Buoys on the east side of the channel without alteration.

Note—The foregoing bearings are magnetic, and the depths those of low water spring tides.

105, *Duke Street, Liverpool.*

SIR.—I know not whether the following information may be of any use, but I know Mr. McClelland to be a young man of strict veracity, and a superior navigator.

I am, &c.,

To the Editor N.M A. LIVINGSTON.

Ship William Gillies, of Irvine, May 5th, 1848.—*Nautical Time.*

"At 3h. P.M. East London shoal bore E. by compass, and West London shoal S.W.b.W. also by compass, the latter estimated at 16 miles distance. Then sailed 13 miles W.N.W., 7 miles W.b.N., 7 miles W.b.S., 20 miles, W. ½ S., 8 miles W.b.N., 15 miles S.b.E, and 8 miles S.S.E., and then saw a

low island quite sandy about eight or ten feet above water, the sun shining brightly upon it. No broken water, but the sea was very smooth at the time. Estimated distance from the ship 7 miles W. ½ N., by compass.

Latitude from meridian observation at noon reduced to 3h. P.M., 8° 38′ N., and longitude by three chronometers (two very good) checked by lunars prior, and subsequent, 111° 20′ East.

WILLIAM M'CLELLAND, *Chief officer.*

THE GREAT SEA SERPENT is at length no longer a mystery. Speculation is at an end. The extraordinary descriptions that have been given, in bygone years, of this monster of the deep, may now, fairly be considered to have had some foundation in fact, notwithstanding they may have gained something of the usual accumulation which a story "never loses by telling." The report of Captain McQuhae has, no doubt, been heard of by most of our readers; and we are yet to have a representation on paper, of the animal as it appeared to him and his officers. Most assuredly there are more strange things in the world than have yet met the eye of man; and why should not some of them be found in the mysterious depths of the ocean, as in the inaccessible bowels of the earth. We shall, for the present, preserve the reports to which we have alluded, as given by Capt. McQuhae, and another of Mr. James Henderson, from which it appears, that before our next number is printed, something more in detail of the animal seen, may be expected from New York.

The following report respecting the appearance of the extraordinary animal, seen by some of the officers and crew of her Majesty's ship *Dædalus*, has been forwarded to the Admiralty by Captain M'Quhae:—

H. M. S. Dædalus, Hamoaze, Oct. 11th, 1848.

SIR.—In reply to your letter of this day's date, requiring information as to the truth of a statement published in the *Globe* newspaper of a sea serpent of extraordinary dimensions having been seen from her Majesty's ship *Dædalus*, under my command, on her passage from the East Indies, I have the honour to acquaint you, for the information of my Lords Commissioners of the Admiralty, that at 5 o'clock P.M., on the 6th of August last in lat. 24° 44′ S., and long. 9° 22′ E., the weather dark and cloudy, wind fresh from the N.W., with a long ocean swell from the S.W, the ship on the port tack heading N.E.b.N., something very unusual was seen by Mr. Sartorius, midshipman, rapidly approaching the ship from before the beam. The circumstance was immediately reported by him to the officer of the watch, Lieut. Edgar Drummond, with whom and Mr. William Barrett, the master, I was at the time walking the quarter-deck. The ship's company were at supper. On our attention being called to the object it was discovered to be an enormous serpent, with head and shoulders kept about four feet constantly above the surface of the sea, and as nearly as we could approximate by comparing it with the length of what our maintop-sail-yard would show in the water there was at the very least 60 feet of the animal *a fleur d'eau*, no portion of which was, to our perception, used in propelling it through the water, either by vertical or horizontal undulation. It passed rapidly, but so close under our lee quarter, that had it been a man of my acquaintance, I should have easily recognised his features with the naked eye; and it did not, either in approaching the ship or after it had passed our wake, deviate in the slightest degree from its course to the south-west, which it held on at the pace of from 12 to 15 miles per hour, apparently on some determined purpose. The

diameter of the serpent was about 15 or 16 inches behind the head, which was, without any doubt, that of a snake, and never, during the 20 minutes that it continued in sight of our glasses once below the surface of the water; its colour a dark brown, with yellowish white about the throat. It had no fins, but something like the mane of a horse, or rather a bunch of seaweed, washed about its back. It was seen by the quarter-master, the boatswain's mate, and the man at the wheel, in addition to myself and officers above-mentioned. I am having a drawing of the serpent made from a sketch taken immediately after it was seen.

I have, &c.

To Admiral Sir W. H. Gage. PETER M'QUHAE, *Captain*

The master of the *Mary Ann*, of Glasgow, communicates the following to the editor of a Glasgow paper :—

Broomielaw, Berth No. 4.

SIR.—I have just reached this port, on a voyage from Malta and Lisbon, and my attention having been called to a report relative to an animal seen by the master and crew of H.M.S. *Dædulus*, I take the liberty of communicating the following circumstance : —

When clearing out of the Port of Lisbon, upon the 30th of September last, we spoke the American brig *Daphne*, of Boston, Mark Trelawny, master. She signalled for us to heave to, which we did, and standing close round her counter lay-to while the mate boarded us with the jolly-boat, and handed a packet of letters to be despatched per first steamer for Boston, on our arrival in England. The mate told me that when in lat. 4° 11′ S., long. 10° 15′ E., wind dead north, upon the 20th of September, a most extraordinary animal had been seen. From his description, it had the appearance of a huge serpent or snake, with a dragon's head. Immediately upon its being seen, one of the deck guns was brought to bear upon it, which having been charged with spike nails, and whatever other pieces of iron could be got at the moment, was discharged at the animal, then distant only about forty yards from the ship : it immediately reared its head in the air, and plunged violently with its body, showing evidently, that the charge had taken effect. The *Daphne* was to leeward at the time, but wore about on the starboard tack, and stood towards the brute, which was seen foaming and lashing the water at a fearful rate. Upon the brig nearing, however, it disappeared, and, though evidently wounded, made rapidly off, at the rate of between fifteen and sixteen knots an hour, as was judged from its appearing several times upon the surface. The *Daphne* pursued for some time, but the night coming on, the master was obliged to put about, and continue his voyage.

From the description given by the mate, the brute must have been nearly one hundred feet long, and his account of it agrees in every respect with that lately forwarded to the Admiralty by the master of the *Dædalus*.

The packet of letters to Boston, I have no doubt, contain the full particulars, which, I suppose, will be made public. There are letters from Capt. Trelawny, to a friend in Liverpool, which will, probably, contain some further particulars; and I have written to get a copy for the purpose of getting the full account.

I have the honor to be, &c.,

JAMES HENDERSON, *Master.*

It appears from the foregoing that it was seen on the

6th August in lat 24° 44′ S., long. 9° 22′ E.
20th September „ 4° 11′ " " 10° 15′ "

so, that, if both ships saw the same animal, it seems to have been making its

way to the warm latitudes, at a moderate rate, visiting friends by the way in a very neighbourly manner.

ABOLITION OF QUARANTINE.—ORDER IN COUNCIL.—A communication has now been received by the Commissioners of the Customs Department from Mr. Bathurst, one of the clerks to the Lords of the Council, stating that he has been directed by the Lords of the Council to inform them that an official communication having been received on the 17th instant by their Lordships from the General Board of Health, stating the actual existence of Asiatic cholera in Great Britain, although not in an epidemic form, and that such being the case, their Lordships are of opinion that quarantine precautions against that disease are no longer necessary; and that he (Mr. Bathurst) was further directed to state that in future it will not be necessary to report or detain vessels arriving in Great Britian with cases of cholera on board; and, further, that all vessels at present under the restraint of quarantine may be immediately released. In pursuance of this communication from Mr. Bathurst, copies of their Lordships' order have been furnished to the principal officers of the Customs Department at the several ports and places throughout the kingdom, as well as the port of London, with directions to take care that the same be duly obeyed.

LONGITUDE BY CHRONOMETER AT SUN-RISE OR SUN-SET.—*Weston's Method.*

Assuredly the more opportunities seamen have for obtaining their position at sea, the better; the less likely they are to suffer from the effects of currents, weather, and their evil consequences. There has been little novelty of this description of late, if we except Towson's Great Circle Tables, an account of which appeared in some of our former numbers; but we have now the old problem of the time of sun-rise and sun-set in a fair way of being turned to some better account than that of the expenditure of gunpowder! Captain Weston has proposed that the opportunity afforded by the glorious appearance of the setting sun, shall be made use of for obtaining ship time, and thence with a chronometer shewing Greenwich time, to get the longitude!

The thought was a good one,—why not!—all that was wanted was to know at the instant when the sun's centre was in the horizon of the observer what is the altitude of either limb, and then to make the observation. Now, as this depended merely on the height of the eye and refraction, it became a mere matter of calculation, and accordingly Capt. Weston has presented to the Admiralty his method accompanied by the necessary tables.

The seaman has only to place on his sextant the minutes of altitude of either limb depending on his latitude and the sun's declination watch for the observation, and note the time by his chronometer: the tables give him his ship time and thence his longitude. The observation is at once simple, easy, and within tolerable limits, certain of a result which may be depended on, and may be made either in morning or evening.

The tables are preparing for publication by the Admiralty, and we shall soon have the pleasure of congratulating our nautical readers on this important addition to their astronomical resources.

Capt. Weston has been rewarded by the Admiralty for his ingenuity, and we have no doubt will receive a similar acknowledgement by other public Boards and Companies interested in encouraging the progress of navigation.

NEW BOOKS.

A YACHT VOYAGE TO NORWAY, DENMARK, AND SWEDEN, *by W. A. Ross, Esq.*, 2 vols.—Colburn, 1848.

Few books wear a more winning title than that of a "Yacht Voyage." The very words imply adventure, and the roaming independent character of the

voyager appears unrestrained by the orders of superiors, or the no less imperative demands of the merchant, when in connection with the talismanic monosyllable "yacht." The Julia, belonging to Lord Rodney, conveys our author to the shores of the Cattegat; he seems to have resolved that the opportunity offered by a fishing excursion should not be lost, and accordingly we have two pleasant little volumes relating almost all that the party said and did. The following extract will be read with interest. The yacht is visiting Christiania.

"The smooth and glassy surface of the tideless Fiord, hemmed in by lofty mountains, stands forth the grand characteristic of Norway. The weather-beaten rocks, rising abruptly from the water, have beauty and boldness on their broad, blank fronts; and how infinite is the loveliness of innumerable islands clustered together, bearing vegetation of all hues and odours.

"Whether it were the air which I breathed, or whether it were caught from the solemn magnificence of the scenery, the same feeling of sublimity came over me as when I first saw the land of Norway on my arrival from England; and I do not know how to account for the impression, but during the whole time I remained in Norway, and whenever I was left alone to wander along its fiords or over its mountains, I gave way, as in England, to no extreme sensations of delight or sorrow, but a consciousness of awe weighed eternally upon my mind, and, released from the tumultuous passions of joy or dejection, a desire created as it were by the visible perception of perfect natural beauty, was ever present to embody itself with the sights of grandeur that soared and sank above and below me.

"Silently, as if without a breath of wind, the cutter crept up the gulf, the beauties of which increased the farther we advanced; the bays—the vessels glancing among the rocks, with their white sails in the sun—the cultivated patches of land—and the neat wooden farm-houses amid the desolation of the mountains, were novel and interesting objects. The great variety of the underwood, and the diversified colours of the foliage, were beautifully blended with the darker tints of the fir, which grew along the sides and on the tops of the high hills; and how well does their sombre gloom mate with the stern magnificence of the rocks.

"On the island, the birch, the hazel, the alder, and the ash cast their shadows over the water, and are reflected in their minutest lineaments, nor are their trunks and branches more sharply defined in the air above than they are imaged in the watery mirror below, the transparency of the water in no way yeilding to the clearness of the atmosphere; since, as the abruptly rising rocks tower proportionally into the air, their steep, bold sides are plunged perpendicularly into the sea, and seem to descend till the eye loses them in its green depth.

"Here and there the islands are inhabited by peasants; and flocks of sheep and goats ceased, as the yacht passed them, to browse on the low herbage which springs beneath the rocky coppice; and before the cottage doors half-clad children stood still and gaped, then called aloud to fishermen who were hanging out their nets to dry, or setting them for fish around the shores of their sea-girt homes.

"Beyond this, nowhere are seen or heard the sights or sounds of man's habitation, and hushed in painful tranquillity and profound solitude, the interior recesses of the Fiord show no signs of life. With all their storm-beaten antiquity, gaunt, and inhospitable, the skeletons of land rather than the land itself, the grey and rugged crags, alone appear between the coppice and the short scanty grass, which, ever when the wind came to breathe gently on our sails, sighed and moaned amid the general repose.

"About twenty miles from Christiania, the Fiord narrows to two miles, and holds the breadth up to the city. The town of Christiania is hid by a small island from the sight of the traveller approaching it by water; but at a great distance we could, while winding up the Fiord, catch a glimpse of the white houses, sleeping in a valley, surrounded by high mountains. At eight o'clock in the afternoon, for there is not much night, we dropped anchor off the town."

Births.

Oct. 5, at Straloch, Aberdeenshire, the lady of Capt. Nares, R.N., of a son.

Oct. 8, in London, the lady of Capt. W. B. Suckling, R.N., of Highwood, near Romsey, Hants, of a daughter.

Oct. 12, in London, the lady of William Greet, Esq., R.N., of a daughter.

Sept 14, at Jersey, the lady of Lieut. Bamber, R.N., of a son.

Sept. 26, at Walmer, Kent, the lady of Capt. C. H. Baker, R.N., of a son.

Marriages.

Oct. 12, at St. George's, Hanover Square, Capt. F. P. Blackwood, R.N., son of the late Vice-Admiral the Hon. Sir Henry Blackwood, Bart., to Jemima Sarah, daughter of the late James Cranborne Strode, Esq.

Sept. 18, at Portsea, Mr. C. R. B. Wilkinson, R.N., to Harriet, daughter of Mr. R. Matthews, R.N., Southsea.

Deaths.

Sept. 12, at Caroisal, Wigtonshire, Rear-Admiral John McKerlie

In August last, at Bombay, Capt. Sir R. Oliver, R.N., Superintendent of the Indian Navy 10 years.

Oct. 4, Southsea, Capt. J. Reynolds, R.N.

At Cheltenham, Com. G. Lowe, R.N.

Oct. 6, Com. Wharton, R.N.

July 12, at Graham Town, Retired Com. Alexander Bissett, R.N.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory, From the 21st of September to the 20th of October, 1848.

Month Day.	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade				Wind. Quarter.		Strength.		Weather.	
		9 A.M	3 P. M.	9 A.M	3 P.M.	Min	Max	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
		In Dec	In Dec										
21	Th.	29·86	29·84	50	67	42	68	E	SE	1	2	bf	bcp 4
22	F.	29·87	29·85	57	74	48	75	SE	E	1	1	bc	b
23	S.	29·71	29·69	62	64	54	68	SE	S	1	2	bc	or 2
24	Su.	29·40	29·38	53	61	53	62	E	SE	1	1	or 2	bc
25	M.	29·43	29·48	57	64	54	65	SE	E	1	2	bc	bc
26	Tu.	29·56	29·62	58	58	55	59	E	E	2	4	or 1 2	or 3 4
27	W.	29·70	29·70	56	59	53	61	NE	NE	2	2	o	bc
28	Th.	29 80	29 78	57	56	52	58	NE	NE	1	2	o	or 3 4
29	F.	29·73	29·71	55	55	53	54	N	N	2	4	gor 1 2	gor 3 4
30	S.	29·76	29·74	53	58	50	64	SW	SW	4	2	o	bc
1	Su.	29 72	29·72	54	62	52	62	SW	SW	1	1	od 1	bc
2	M.	29·71	29·71	53	61	46	62	S	S	1	1	bcp 2	bcr 4
3	Tu.	29·76	29·81	53	60	51	62	W	SW	1	3	bc	bc
4	W.	29·87	29·94	60	64	54	65	SW	SW	2	5	or 2	qo
5	Th.	30·16	30·20	63	66	54	68	S	SW	3	3	bc	bc
6	F.	30·25	30·21	64	68	55	69	S	SW	2	3	b	b
7	S.	30·18	30·12	57	68	51	69	S	S	2	2	bc	bc
8	Su.	30·07	30·07	60	66	56	68	SW	SW	4	2	bc	bc
9	M.	30·06	29·82	57	57	53	59	SW	SW	3	5	o	qor 3
10	Tu.	29·72	29·68	52	55	48	56	NW	NW	5	5	qbcp 2	qbcp 3
11	W.	29·92	29·93	49	54	44	55	N	N	2	2	bc	bc
12	Th.	29·97	29·96	48	53	43	54	N	N	3	3	o	bc
13	F.	30·03	30·03	49	54	42	55	N	N	3	2	bc	or 4
14	S.	30·06	30·04	49	49	47	50	NE	NE	4	4	or 1 2	op 3
15	Su.	29·91	29·91	48	52	47	53	NE	NE	2	3	od 2	bcp 3
16	M.	29·72	29·74	47	51	42	52	NE	NE	3	3	op 2	bc
17	Tu.	29·84	29·87	48	47	45	48	N	N	4	4	o	op 3
18	W.	29·64	29·54	35	40	33	41	N	N	4	5	ops	qopr 3
19	Th.	29·63	29·71	42	48	37	49	N	N	4	4	bc	bcp 3
20	F.	29·82	29·78	44	47	42	48	NE	NE	4	4	or 2	or 3 4

September 1848.—Mean height of Barometer = 29·990 inches; Mean Temperature = 56·0 degrees; depth of rain fallen = 2·41 inches.

Page 560 line 19 *for* "that is of" *read* "that is if".

THE

NAUTICAL MAGAZINE

AND

Naval Chronicle.

That future pilgrims of the wave may be
Secure from doubt, from every danger free.

DECEMBER 1848.

PORTO SANTO.—*By Capt. A. T. E. Vidal, R.N.*

THE island of Porto Santo is a dependency of Madeira, and its government is administered under authority from that island. In 1838 its population amounted to 1,618 persons.

It is six miles four-tenths in length from N.E. to S.W. Its mean breadth may be taken at two miles and a half; and exclusive of its detached islets it is about seventeen miles in circuit.

It stands on a much more extensive bank of soundings than has been generally supposed, and its most salient points are distinguished by small islands and islets lying off them.

The north-eastern part of the island consists of numerous rocky pointed mountains. Some of them nearly 1,700 feet in height, with bold cliffs upon their sea-board; and all its northern coast is characterized by high rocky cliffs generally inaccessible; with rocks, some above and some under water lying along their bases.

The central part, though considerably less elevated than the extremities, is high near the cliffs of the north and north-west coasts, where in some places it is 700 feet above the sea. From thence it slopes to the southward, and terminates in a beautiful white sandy beach, which forms its entire south-eastern shore.

On this central part are several sand fields covered with what appear to be fossil heath stems; a remarkable feature, which has excited the attention of naturalists who have visited the island from Madeira: various conjectures have been formed as to their origin; but it would seem most probable they are coral formations.

The south-western end is also rocky and elevated, some of the hills exceeding 900 feet in height; and one peak near it, named Anna Fereira, is distinguished by the columnar structure of its summit.

The town is situated near the centre of the bay, about 300 yards from the beach. The church and court-house are conspicuous in it; and a little to the westward of them is a small battery, and the residence of the military commandant. In this battery observations were made to determine the geographic positions of the island, and they place it in lat. 33° 03′ 30″ N., and long. 16° 20′ 14″ W.; the magnetic variation in 1843 was 24° 30′ W.

North 4° 30′ E., a mile from the church there is a pointed hill, the Pico do Castello. Upon its summit 1,447 feet above the sea are the ruins of several water tanks and long stone buildings. Cordeyro states it to have been used as a strong hold, to which the inhabitants retired on occasions of hostile invasion by the Spaniards, during their disputes with Portugal. The two peaks immediately to the eastward of Castello, called Fachio and Gaudaya, are the highest on the island; the former having an elevation of 1,660 feet.

The largest portion of the island is employed for pasture; the part devoted to agriculture extends principally along the shore of the bay, and over that tract of comparatively low land lying between the heights of the N.E. and S.W. points, though much of it is sandy, dry, and barren; and the whole island suffers grievously from a deficiency of water. It produces wine; and most varieties of grain, and vegetables in general use; also oranges and other fruits common to its latitude; but it is remarkably destitute of trees. Live stock and poultry are plentiful.

The island fishermen are few in number; yet the sea around its shores abounds with fish. One of the best fishing banks is off the south point of Ilheo de Cima; and in the early part of summer it may be seen crowded with fishing boats from Madeira.

To Madeira there is a considerable annual export of limestone from the quarries of Ilheo Baixo: it is carried in open boats, and gives employment to the boatmen of both islands.

The landing at Porto Santo is usually made upon the beach in front of the town, where some fishing boats and others of larger dimensions used for commercial purposes are hauled up; but there is no pier, nor does any attempt appear to have been made to facilitate the communication with the shore. It is high water here at full and change at 12h. 50m.; and the rise of tide is 7 feet.

Generally vessels should not anchor in the bay within the line joining the south extreme point of Ilheo Baixo, and the low extreme of Ponta do Incao, bearing S. 49° 30′ W., and N. 49° 30′ E.; but there is convenient anchorage near that line, with the church N. 48° W., and the south point of Ilheo de Cima N. 73° E., two miles distant. In this position which is one mile three-tenths from the landing-place there will be 17 fathoms water over a bottom of small gravel and broken shells. The edge of the bank is something less than half-a-mile to the southward of it, and the depth of water increases rapidly.

During the settled weather which usually accompanies the summer months, vessels may anchor nearer to the shore; but care should be taken to avoid being caught in the bay, when it is not settled, for

southerly winds of any strength throw a high sea into it. In the present condition of the island it is of little service to the navigator, since any supplies it can afford may be more conveniently and expeditiously obtained at Madeira.

Ponta do Incao, the south-east point of Porto Santo is composed of high rocky cliffs, surmounted by pointed hills. At the base of it is a small low rocky point, and several detached rocks.

The Ilheo de Cima lies off the point S. 56° E. two-tenths of a mile. The narrow channel between the point and Ilheo is studded with rocks, some above, some under water; but there are two boat passagea in it, the one close to the south side of a large rock off the point, the other close to the island.

Ilheo de Cima may be termed a table land, although it is not strictly so, there being a small elevation near its eastern cliffs, 360 feet above the sea, sufficiently marked to furnish a station in the survey.

The island has a broken coast line of rocky cliffs with a small cove at its north-east side, where, when the water is smooth a landing may be effected. From thence a sort of goat track leads to its summit, on which there is some loose stony soil. Its general direction from the N.W. to the S.E. point is S. 62° E. It is six-tenths of a mile long, one-quarter of a mile broad; and, except at the north-west point is every where steep to.

From the south-east point of Cima the bank of soundings extends off east seven-tenths of a mile, S. 87° E., 2.′46, and south 1.′2, and terminates in a narrow point. Much of it is coarse ground coral and broken shells; and it is held in great estimation as a fishing station by the boatmen of Madeira, as well as those of Porto Santo.

N. 11° E., one mile from Ponta do Incao is Ponta dos Frades; a bold point steep to, with the Pico do Conselho half-a-mile inland of it. Between these two points is the small sandy bay of Porto dos Frades, and in it the Ribeira, which discharges the waters from the adjoining hills. The land is composed of broken rocky cliffs, with a few rocks scattered along them near the shore. A large round rock, named Penedo Redondo, lies off Ponta dos Frades, bearing from it S. 48° E., distant 300 yards. This rock is a few feet above water, and everywhere steep to; having 10 fathoms alongside it. The bay formed by Ilheo de Cima, and Ponta dos Frades has generally a sandy bottom. The edge of the bank of soundings is three-quarters of a mile east of this point.

From Ponta dos Frades the east point of Ponta Branca lies N. 8° W. one mile and a quarter. The land between these points falls back about four-tenths of a mile, comprising the valley between Pico do Conselho and Pico Branco, and near the centre of the bay is a small sandy beach through which the waters of the Ribeira, which drains the valley, find their outlet.

Ponta Branca is really composed of three bluffs; the southern one has a few large stones lying off it to a distance of 200 yards; the northern bluff of the Ponta is a little more than three-tenths of a mile, N. 35° W. from its eastern bluff, and forms a fine bold promontory, the peak immediately over it being 1,390 feet above the sea.

Three rocky islets lie off Ponta Branca, the first bearing from the northern extremity of the bluff N. 64° E., three-tenths of a mile is named Rocha do Pescador. It is about 470 yards in length, by 270 in breadth, with a broken coast above of rocky cliffs. There is a peak at its north side 358 feet in height; and the whole summit of the islet is covered with trees. The second islet, named Roche de San Lourenço, bears from the peak of Pescador N. 12° E., 0'.62; it is very small, a mere cluster of rocks with a few trees upon them, 38 feet above the sea. The third and outer islet is Rocha de N.E., bearing N. 5° E., 0'.6 from San Lourenço. It is nearly the same size as Pescador, and like that islet its coasts are composed of steep rocky cliffs of very irregular outline; it is thickly wooded, and near the centre of it is a peak 330 feet high.

These islets are all steep to with navigable channels between them. They stand on a rocky bank of unequal soundings, which extends more than a mile to the N.N.W. of the outer islet. The least water found upon it was 10 fathoms. This rocky patch bears from the peak of Rocha de N.E., N. 32° W., distant 2'.3 miles, and is on the meridian of Ponta Branca.

The edge of the bank to the east of the islets runs nearly parallel with them at the distance of only half a mile; and after passing the northern one it trends to the north-westward.

N. 73° W. one mile four-tenths from the north extremity of Ponta Branca is Ponta da Cruz. It is rather a sharp salient point; and north of it one-tenth of a mile is a curious crescent-formed rock, a few feet above the sea, its convex side facing westward.

Between these points are two small bays; the first extends from Ponta Branca to the bold head of Ponta de Ninho de Guisoxe, off which latter about 250 yards lies a breaking rock. The second bay is west of it, both are full of little rocky points with large stones at their bases, none of them however, extending more than 100 yards from the cliffs. Directly inland of Ponta da Cruz, about nine-tenths of a mile to the south, is the remarkable sharp pointed peak of Juliana. It is columnar or basaltic, and rises 1,492 feet above the sea.

At Ponta da Cruz the coast trends to the south-westward. The next extreme that comes to view is Ponta da Fonte, bearing S. 60° W., and distant one mile seven-tenths. The fountain, from which it takes its name, is situated near the summit of the cliff, three-tenths of a mile to the S.W. of the point. The intermediate coast consists of high cliffs, much broken into coves, and little points as usual, studded with rocks along their base.

Ilheo da Fonte lies one mile N. 56° W. from this point. It is black, of basaltic structure, and terminates in a comparatively sharp peak 270 feet above the sea. At its base, it is about 270 yards in length, by 100 in breadth. It is steep to, with a clear channel between it and the point; the deepest water being towards the islet; but, the bottom is almost all foul ground. Vessels may pass on either side of it, at a distance of 200 yards, in 18 fathoms.

Ponta Varadias is the next point westward of Fonte, from which it bears S. 54° 30′ W., distant one mile two-tenths nearly. The southern extremity of the point lies S° 35° 30′ W., half a mile further, and both extremes are, like the intermediate coast, composed of high rocky cliffs. The hills above this double point are covered with sand; and on their summits are found those curious fields of fossils, resembling petrified stems of heath, before alluded to. S. 26° 30′ W., 2′·33 miles beyond the southern point of Varadias, is the double headed point of Furado. The point forms two spurs, the one running north, the other S.W., and they are considerably lower than the cliffs on either side of them. The coast between Furado and Ponta Varadias, preserves much the same character as that eastward of the latter point, viz. :— high broken rocky cliffs and coves, with large rocks and stones at their bases.

Ilheo de Ferro is of triangular form, and its sides are about half a mile in length. The coasts consist of rugged, and almost inaccessible rocky cliffs, above which is a scanty soil, covered with coarse grass. The most elevated land upon it lies near its north coast, and is 380 feet above the sea. A ledge of flat rock extends from the east point, towards Furado. The channel between them is 330 yards wide, and has no danger in it. On the west of the islet, there is deep water alongside the cliffs; soundings extend from them seven-tenths of a mile to the edge of the bank.

Ponta Furada is the west point of Porto Santo, and from thence Ponta Malhada, bears S. 27° E., distant five-tenths of a mile. The land above this point rises to the height of 890 feet; and the coast between the points is high, rocky, and steep to.

From Ponta Malhada, Ponta da Calheta bears S. 50° E., distant 0′·92. In this space the high cliffs are much broken into rocky coves, and as you approach the latter point, there are numerous small rocks close to the shore.

At Ponta da Calheta the cliffs terminate, and are succeeded by a low sandy beach, fronted by stones and sunken rocks, which latter extend to some distance round the point.

Ilheo Baixo lies to the southward of Ponta da Calheta, its north extremity being about 430 yards from the point. The channel between them is much narrowed by the rocks projecting from Ponta Calheta, to the S.W.; and by a small bank, running out from Baixo north point, to the eastward; so that the clear outlet lies east and west, and may be about 130 yards wide. In moderate weather it is a safe boat channel.

Ilheo Baixo is one mile and a half from north to south. Its greatest breadth near the centre is seven-tenths of a mile, and it is surrounded by high rocky cliffs, everywhere steep to, except at the north point. On the S.W. side of it are two small rocky bays, and its whole coast line is very irregular. On the west side of the island, close to the southward of the rocky head, which forms the north point, there is a cove much used during the summer months by the boatmen of Madeira, who resort to this island for the limestone, with which it abounds.

The presence of this mineral on so small an islet is remarkable; the

more especially as it is not found either on Porto Santo, the Dezertas, or Madeira; a small spot, in the valley of San Vincente, on the latter island excepted. It is quarried from veins, forming galleries, like coal mines, which, however, are entered from the sides of the cliffs.

Viewed from east or west, the island presents rather a tabled summit, having a little hummock near its northern end, 570 feet above the sea. This islet was formally declared national property, on the 7th of November, 1836.

The edge of the bank of soundings sweeps round the south point of Baixo, six-tenths of a mile from it to the S.E. At due south, about seven-tenths of a mile, and at S.W. nine-tenths, and the depth increases rapidly outside 40 fathoms. The lead indicates rocky bottom, generally, in the vicinity of Baixo, with occasional casts of fine white sand.

From Ponta da Calheta, Ponta do Incao bears N. 63° 20′ E., distant 4·9 miles. The coast line between them is formed by a beautiful white sandy beach, which falls back into a bay, about eight-tenths of a mile in depth, from the strait line through the extreme points. A few rocks lie along the beach, or very close it, from Ponta Calheta to nine-tenths of a mile beyond it. They terminate a short distance to the eastward of Anna Fereira Peak, the remarkable summit of which is 910 feet above the sea.

On the east side of the bay, there are also rocks scattered along the coast from Ponta do Incao, to the distance of one mile four-tenths westward, and in the meridian of Pico Mazarico, they extend off shore two-tenths of a mile. Between these is an uninterrupted line of white sandy beach.

The edge of soundings after sweeping round Baixo, so narrows the bank, that, when the Peak of Anna Fereira bears N.W., it approaches within three-tenths of a mile of the beach. Thence it runs eastward, and with the town bearing north, its edge will be found one mile four-tenths from the shore. It continues this easterly direction to the meridian of the north end of Ilheo de Cima, and then turns south-easterly to the extremity of the narrow fishing bank, extending from the S.E. end of that island. Fine white sand is the general character of the soundings over the bay; but casts of coral, shells and gravel occur.

From the N.W. coast of Porto Santo, the bank of soundings extends off eight miles; and from Ilheo de Fonte, its northern extreme, lies about N. 25° W. 6¾ miles. Its general depth is from 25 to 35 fathoms fine white sand, with frequent casts of rock, coral, shells, and gravel.

Near the north-eastern margin of this branch of the bank, is the Falcon Rock, a mere knowl, on which there are 4½ fathoms at low water. It stands on a rocky patch, three-tenths of a mile long, and two-tenths broad, on which are 11, 15, and 17 fathoms; and, the sea, is said, to break heavily upon it in stormy weather; but, this we did not witness. When upon this rock, the highest land of Rocha de N.E. (the outer islet off Ponta Branca), bears S. 60° E., 6′·23 miles; of Ilheo de Fonte S. 13° 10′ E., 4′·6; and of Ilheo de Ferro S. 5° 30′ W. 8′·4.

Vessels coming from the N.E., with a fair wind, may pass it, keeping

the Ilheo de Fonte in line with the high land, at the S.W. end of Porto Santo.

On the east side of it the edge of soundings is half a mile distant. On the N.E., only three-tenths of a mile. N. 37° W., nearly nine-tenths of a mile from the Falcon Rock, is another rocky patch of comparatively shoal water, which has been named after the vessel by which it was explored, the "Styx Bank". The least water found upon it was 11 fathoms, with casts of 17, and 20 fathoms. Like the Falcon Rock, it is situated near the eastern margin of soundings, there being 100 fathoms about three-tenths of a mile to the east of it, in which direction the bank deepens suddenly from 28 fathoms to 100. To the north of it the soundings extend one mile, and deepen rapidly from 45 fathoms; and to the west of it they run off two miles and a quarter.

The edge of soundings then runs to the southward in a waving line, towards Ilheo de Ferro. The whole bank is composed of sand, much interspersed with rock, coral, broken shells, and gravel. The sand is generally white and fine; but, some of it is speckled with red, and coarse sand occasionally occurs.

Statistical Sketch of Uitenhage Division.—*Cape of Good Hope.*

Uitenhage is indebted for its name to the Dutch Commissary-General De Mist, it being the name of his paternal home and barony in Holland.* On the restoration of this colony, agreeably to the stipulations of the treaty of Amiens, in 1801, this gentleman was appointed to make inquiry into its general state, and to report to the Batavian Republic the best manner of improving its resources, and thus promoting the common interest. To enable him to do this, he made a journey through the entire length of the settlement;—the incidents attending which are so agreeably related by Dr. Lichtenstein, whose work must ever be considered, by those able to appreciate its merits, as one of the best accounts of the country, and most faithful delineations of the character of its inhabitants, that has ever been published.

When first established, Uitenhage comprised a great part of the country which now forms the divisions of Albany, George, and Somerset. Its southern boundary is the eastern coast; on the north it has the divisions of Graaff-Reinet and Somerset; on the west George; and on the east Albany. At present its entire area is computed at 8,960 square miles, with a population of 11,000 souls. It has two bays on its coast, viz. Algoa and St. Frances. Its principal rivers are the Zwartkops, Zondags, Kromme, and Gamtoos, which are of essential service in supplying the

* Some few years ago, Commissary-General De Mist, forwarded to Government an authentic copy of the letters patent of the King of Holland, authorising him to resume his title, of which he was deprived by Buonaparte. This interesting document is now filed among the records of the division, with a very handsome letter from Government, in transmitting it to the local authorities.

means of irrigation to the extensive tract of country through which they flow. None of them are navigable except the first named, which has been entered by small craft, and is free of obstruction for several miles up, with considerable depth; the entrance is, however, obstructed by a bar of sand, upon which, at spring tides, there is about twelve feet of water. The anchorage outside the mouth is equally good with that of Port Elizabeth.

There are about 400 houses in the division, exclusive of the towns of Uitenhage and Port Elizabeth, each of which contains about 400 buildings.

The site of Uitenhage, a neat and flourishing town, and the capital of the division, is on the declivity of a hill, on the left bank of the Zwartkops River, from the mouth of which it is distant about fifteen miles, and from eighteen to twenty miles from Port Elizabeth, (the principal harbour of the east coast of the colony). The streets are spacious, and intersect each other at right angles; the gardens are numerous, extensive, and well planted with fruit trees, tropical, European, and indigenous: and the town, when viewed with the surrounding hills, presents a beautiful prospect.

Uitenhage was formerly the head-quarters of the frontiers, and has been thought by some to have high claims for selection as the seat of government for the Eastern Province. Under this impression it was named as the place of residence of the late Commissioner-General. It has also been pointed out to the Home Authorities on one or two occasions as the most convenient spot for the seat of the supreme government.

The great post-road between Cape Town and Graham's Town passes through Uitenhage. There is a handsome Dutch Reformed Church, capable of containing 1,200 persons, and it is the residence also of a clergyman of the English Episcopal Church, who has been recently appointed. The Wesleyan and Independent denominations have also Chapels in this town, in which Divine Service is regularly held by those denominations.

The town can also boast of an excellent free school, containing 184 scholars; and also one for the instruction of the coloured classes, in which a goodly nnmber of pupils are taught the English language.

The Zwartkops, which glides past the foot of the town, is a pure and constant stream; but the water used for irrigating the gardens has its source in the eastern extremity of the Winterhoek mountains, distant from the town about six miles; the fountain having this unparallelled quality, that in the driest seasons it never diminishes. About 500 yards from its source, it forms a rivulet, the breadth of which is about four feet, and fifteen inches deep.

The London Missionary Society has two of its principal institutions in this division, viz. Bethelsdorp and Hankey, at each of which there are missionaries and catechists.

The Moravians have two institutions in this division, one named Enon, on the White water river, and the other named Clarkson, established in the Tsietsikamma, for the reception and instruction of Fingoes.

Uitenhage is supposed to be rich in minerals, though hitherto they have not been made available. Lead and copper have been found, but as yet neither has been turned to any profitable account. The vein of lead is said to be very rich, and that 1 cwt. of ore contains from 60 to 80lbs. of pure lead, with a small quantity of alloyed silver.

In November 1845, a commencement was made with working the old veins of lead, and 10 cwt. were sent home to be assayed, the result of which is, that one ton of ore gave 11 cwt. 3 qrs. 5 lbs. of lead, and 26 oz. 5 dwts of fine silver, being nearly the same as given by Major Van Dehu, some fifty years ago. The veins have been followed to the depth of twelve feet, where the ore is twelve inches thick, and much more pure than near the surface, and will probably yield 70 or 75 per cent. The silver is said to be more than double the average of the English ore, which only gives 11 oz. to the ton.

Since then a series of veins of lead, and lead and copper combined, in a highly metaliferous formation, have been discovered, where the indications are even better than at the original mine, from which it is distant about half a mile, and separated by a river; the veins in this place crop out on the side of a steep hill, and dip in an opposite direction to the other veins, forming what geologists call a fault, (quite common in metaliferous formations). Where the strata has been raised in the form of an immense basin, there is every probability of the veins extending for miles nearly east and west, as the metaliferous limestone in which the ore is found can be traced to a considerable distance.

Of the copper ore a little has been analyzed at Cape Town, which gave upwards of 30 per cent. of copper, and a little arsenic, but the quantity was small, and cannot therefore be considered or taken for a just estimate.

In the village of Bethelsdorp coal has been found, but the stratum, as far as yet discovered, is inconsiderable.

The celebrated salt-pans, which supply the greater part of that necessary article used in the colony, are situated each about two hours ride from Uitenhage; one of which, belonging to the institution of Bethelsdorp, is six, and the other, belonging to Government, ten miles from Port Elizabeth.

About seven miles east of the town are two mineral springs on the property of the Messrs. Rens, one of which is warm; they are held in great repute for their medicinal properties. In the same vicinity, at a distance of about ten miles from the sea, are large beds of sea shells, and fossil shell-fish. They are collected in great quantities by persons in the neighbourhood, and when properly calcined, make excellent lime.

The local advantages which the division possesses are, a good supply of water, and capabilities for the rearing of black cattle, and for the *growth of wool*. It varies much in soil, but produces fine crops of wheat, barley, rye, and oats. These lands are rarely irrigated, their contiguity to the sea affording sufficient moisture. About ten miles from the shore, the soil turns into a clayish mould, which is well calculated for all descriptions of horticultural productions. The extent of a farm varies from three to

six thousand acres; the greater portion being well calculated for rearing crops and grazing cattle.

Oliphant's Hoek, which forms the south-eastern limits of the division, is one of the most beautiful and fertile portions of South Africa. It abounds with fine timber, while for the production of grain, and grazing of large cattle, it is not surpassed by any other tract of country within the colony. A church has been built here by the inhabitants, in which the Dutch minister of Uitenhage occasionally officiates.

Some parts of this division, as in other portions of the colony, are much broken by lofty sterile mountains, the most remarkable of which is the Cock's Comb, the peaks of which were climbed by Lieut. Sherwill, in 1840; and, as the account given by him is the only one extant of that particular locality, we subjoin it, as addressed by the explorer to the writer of this sketch, for the information of the reader.

Ascent to the summit of the Cock's Comb Mountain.

"The remarkable mountain, called the 'Cock's Comb,' is the grand land mark of mariners making the south coast of Africa, when returning from India, or the east.

"The Cock's Comb is generally the first land made on nearing the coast; and from the circumstance of its having been the first land seen by me after long voyages on the broad ocean, it has become, in a measure, dear to me; and whilst pacing the deck, I have often wished I could go and climb its craggy sides. My desire has been fulfilled, for I have climbed as far as mortal foot can, or ever will find footing.

"Having, for many days, at Port Elizabeth, endeavoured in vain to obtain some information concerning the mountain, whether the ascent was practicable; how far it was from Port Elizabeth; had any one ever attempted it, &c.; but, alas! some had never heard of the mountain, others knew nearly as little as never having heard of it; at last, I met with an English wagon-driver, who had been to the base frequently; he gave the following information:—

"That, it was eighty miles from this place; that there was a farm at the base; but, as to ascending the mountain, that was impossible.

"However, being determined to try it, the next thing to get was a '*compagnon de voyage*,' which was no very easy affair; every one at this busy place being engaged in more serious occupations than that of 'climbing rocks, picking up crickets, beetles, and heaths,' as I was politely told in answer to my question of 'will you come?' At last, Mr. Buchan agreed to accompany me. This point being settled, we made preparations for starting, by hiring a comfortable wagon, lined with nice warm furs, a good tent, and a span of twelve bullocks; not forgetting to line several capacious hampers with the good things of this world.

"We started on the 29th of July, accompanied by two of our friends, who went with us as far as the Great Salt Lake, *en route* to Uitenhage, through which picturesque town we had necessarily to pass. Having wished us *bon voyage et heureux succès*, they returned, and we started to prosecute our voyage; first killing a night adder, which nearly had

hold of me by the foot. Nipping off his pretty spotted skin, I transferred it to my portfolio, from whence it will eventually be transferred to my cabinet of curiosities.

"As the wagon proceeds, I will inform some of your readers, who may, perhaps, be numbered amongst those who have never heard of the mountain, whereabouts it is situated, &c.

"Craggy Mountain, or the Cock's Comb, or the Grenadier's Cap, or the Four Sisters, as it is variously termed, is situated in the range of sandstone mountains, called the Winter Hoek, commencing at Uitenhage; from thence, running in a westerly direction through the division of Uitenhage, until lost in the Kouga range of hills, and the Groote Zwartberg mountains in the province of George, a distance of 120 miles. Through this range run the Gamtoos and Kouga Rivers; the latter a tributary stream of the former. The mountain is 80 miles from Port Elizabeth, and 60 from Uitenhage.

"We inspanned early the next morning, and proceeded from Uitenhage, through one of the most uninteresting countries ever beheld; an undulating surface, covered with nothing but bush, composed of spekboom, euphorbia, aloes of many kinds, and other succulent trees and plants. Not an open space the size of a room could we see, and only now and then passed spots a little clearer than the rest, where wagons generally outspan.

"On the second day, we came upon the spoor of a herd of wild elephants, which had not passed many days before us; for recent traces were plentiful for some miles along the road and valley, in which we were. The flood-gates of heaven having been open all night, were now, to our great satisfaction, closed; the clouds and mist blew away, and brought to view the range of the Winter Hoek mountains, with the Cock's Comb towering proudly pre-eminent above the neighbouring peaks of his brethren and companions of ages untold.

"In the evening, out-spanned near the dry channel of a mountain torrent, which finds its way down from the Winter Hoek. From this spot, looking up the ravine towards the mountains, a view of great beauty presents itself. During the night, a commotion took place amongst the cattle, from the unceremonious visit of a lion, which, however, behaved handsomely, by walking quietly away, after various displays of burning brands, &c., held up to him, *in terrorem*, by the driver and leader of the wagon. On the morning of the fourth day, we arrived at the farm of Field-cornet Van Staden, at the base of the Winter Hoek, and shall long remember the delight with which I hailed the sight of good thick ice on the Vleys, which were completely frozen over,—this being the first ice I had seen for many years.

"On driving up to the farm we were met by the old man himself. After the usual shake of hands and other salutations, we commenced catechising the boer concerning the ascent. 'Come in and sit down,' was his reply. We went in, where we discovered the good Vrouw at breakfast, surrounded by many a token of love, in the shape of fine blooming children, miniature boers, and future field-cornets. A fine girl,

their daughter, was sweeping out the room, scores of dogs, running to and fro, fowls perching on the door, the ceiling graced with triple rows, up to the very roof, with the heads of the Indian corn: a gun hanging here, an *armoire* standing there, and a 'chauffe-pie' under the table, all helped forcibly to remind me of a Norman peasant's house. Having expended all the Dutch I could muster in asking questions regarding the road up, &c., I managed to glean from the not over-bright Field-cornet, that there was only one road, and that a terrible round-about one; for although the mountain appears so near to his house, and a tempting kloof invites you to proceed direct by that way, he assured me if I did I should be stopped half-way by a steep cliff, inaccessible to the footstep of man. Necessity, therefore, obliged us to take the longer road, and away we started, after having first made a light breakfast, and procured a guide.

"We commenced by walking directly away from our point of destination, and after a fatiguing pull of half an hour up hill, and over loose stones, we stopped for want of breath. Obtaining that necessary article, especially required when breasting a hill, we proceeded to drag ourselves up hill after hill, range after range of loose stones, deep grass, and heath. At last we were fairly brought to a stand-still, by a nearly perpendicular kloof of some hundred feet in depth, along whose brow we had to travel, making a circuitous route; when near the end we had to descend a part of it, to mount the opposite side. Both my friend and myself experienced many falls in this part of the ascent. I was truly alarmed at one time that Mr. B. had severely hurt himself, for, falling heavily down upon a quantity of loose stones, one of which received his left elbow, another his back, he made an exclamation to the effect that he was dying, and groaned most piteously. Here was a pretty state of affairs!—a dying man in a place where a man in health could scarcely keep his footing, without grasping the grass or heath above him; some miles to retrace ere any assistance could be procured. What was to be done? I stooped down to ask him whether he was very much hurt, but groans, piteous groans, were the only reply to my anxious enquiry. Suddenly, forgetting pains and troubles, he exclaimed, 'There go a couple of bucks!' Sportsman-like, he thought of nothing else whilst game was in view. And so it was; two steen-boks were now seen scampering down the kloof with a rapidity and daring quite astounding, carrying with them loose stones, until they were lost in the depth of the kloof.

"The pain of the fall having now subsided, we again started, but such an insecure pathway I never trod before. The least false step threw you down, perhaps to roll some distance. The stones being entirely covered by the long and luxuriant grass which clothes these hills, rendered our progress painful in the extreme, as not knowing where to place our feet. Sometimes they would pitch between two sharp stones, and so your ancles would suffer by having the skin torn off; at another time, a loose stone would receive your foot, to reject it in a peremptory manner, by twisting your ancle at an angle, anything but pleasant.

"Suddenly emerging from this dangerous kloof, we came in sight of the sea, which we hailed with three cheers. On our right was the bare blue peak of the Cock's Comb, towering above us; and as we had seen it during our two hours' ascent, and apparently close upon us, we had hoped, on emerging from the kloof, to find ourselves near the end of our journey. Judge of our astonishment, upon gaining the spot where we now stood, to see stretched for miles before us, an undulating and stony ridge of hills, over which we must go ere we could reach the base of any of the four peaks. This piece of undulating land is the surface of the Winter Hoek mountains, and which we had never calculated upon ever being able to travel over. The deep and inaccessible kloof on our right was the cause of our making this circuit of many miles.

"We had till now been nearly scorched to death by the sun, but now a refreshing breeze sprung up, much to our delight and comfort, it quite cheered us on our way, and we proceeded with renewed vigour, after drinking, and bathing our throbbing temples in the pure water found in some miniature reservoirs, excavated in the solid rocks, by the provident hand of Nature. After a weary drag for a few miles, up-hill the whole way, we at last arrived at a narrow neck of level land, flanked by a kloof on either side, both, from their precipitous descent, approaching to precipices. On this ridge my friend sunk exhausted, and would proceed no further; so, leaving him and the guide, I started to ascend the esatern flank, which is the third in height of the four peaks. In half an hour I got as high as it is possible to go, and that with great difficulty, climbing from rock to rock, with a yawning precipice on either side of me; but when I got to that height, I saw a sight that can never be effaced from the tablets of my memory.

"Grasping hold, firmly hold, of the rocks for support, I turned round to admire the view, but how can I ever describe the gorgeous scene! High above me, nearly 400 feet, frowned the mighty peak, where man has never placed his foot; not a sound was heard, the silencc was awful and painful, and only occasionally broken by the scream of an eagle which hovered above me. To the south, at the distance of sixty miles, the sea lay stretched in one unbroken line, from Plettenberg's Bay to Algoa Bay, a distance of three degrees, or 180 miles; opposite to me Cape St. Francis was seen, running far out to sea, Cape Receife, with its tremendous breakers, appeared like a sparkling bar of silver. The extensive T'sitsekamma forest, with its sombre-tinted foliage, lay along the coast near Plettenberg's Bay, till lost to view in the distance; the forest resembling low brushwood, from the distance from which it is viewed. Immediately behind the forest rose the peaks of the lofty Oteniquas mountains, in the adjoining division of George; the view to the westward was closed in by a faint outline of the Groote Zware Bergen, or Black Mountains, and the Kougo Hills, also in the division of George. To the north-west it is closed in by continued ranges of low hills, running north-west and south-east. To the north the view is bounded by the range of Sneeuwbergen, or Snow Mountains, distance 120 miles, which were clothed in their pure and sparkling mantle of

winter snow. At the base of these stupendous mountains is situated the pretty town of Graaff-Reinet, the road to which place wound along the valleys like a golden thread. To the north-east the view is bounded by the range of Zuure Berg, to the east by the sea, and sand-banks of Port Elizabeth. The country all round as far as seen, presents one continued series of range after range of hills and mountains, thrown together in apparent confusion and wildness. Not a river or stream presents itself in this immense extent of country; but this does not deteriorate from this glorious scene. I have seen grand and beautiful scenery in Europe, Asia, and Africa, but I have never seen any thing so grand, or approaching to the view obtained from the Cock's-Comb. Whilst clinging to the rocks for support, my heart beating so violently that every pulsation was distinctly heard, whether from excitement or from the rarified state of the air at this height (about 4000 feet) I know not, cut off from all mankind, my thoughts wandered far away to distant lands; and many a dear face rose to my fancy as I inwardly wished some one of them were here to enjoy the scene with me.

"My former wish to ascend the mountain, was now, in a measure fulfilled; but still I was not satisfied, for there towered the perpendicular massy head above me. I gazed in despair and sorrow, and wished I had wings, or other means, to surmount my difficulty. How much higher my thoughts would have wandered I cannot say, but at that moment the sharp ring of a gun reached my ear, as its echo pealed from crag to crag. This recalled me to myself,—catching up my wandering thoughts, I began to contemplate the descent, as it was fast verging to that time of day

"When shadows lengthen, and tints more mellow grow."

"Before commencing my descent I drew forth my handkerchief, and waved it on a stick, to shew my companion how far I had ascended. He saw the signal, and answered it by another discharge of his gun, the smoke of which I saw, and from that discovered where he was, for I had lost all trace of him during my ascent. He looked 'a pigmy small,' indeed, on the neck of land where I had left him. In waving my handkerchief, it became detached from the stick, and dropped down a great depth. Not wishing to lose it, as it contained a rare specimen of an insect caught that morning on the mountain, I regained it, but at the expense of several falls and many bruises. Taking a last look of the view, I descended. On arriving at my friend's post, he told me the gun had been fired as a recall, the guide having expressed some uneasiness at my protracted absence; as a return to the farm by night would be utterly impossible; and to sleep on the mountain would not have been pleasant, especially after the ice we had seen in the morning. This made us step out manfully, and after many falls and bruises, we at last got down to the farm, with our shoes and clothes torn to pieces, feet sore, limbs bruised and fatigued; but, our hearts were cheered by seeing two capacious bowls of hot coffee awaiting our arrival. The provident youth who had prepared so seasonable a refreshment, quite won my heart.

"After washing the dust off, and being too tired to eat, we turned in for the night, flattering ourselves that a good night's rest awaited us. Vain hope! sleep and rest were never farther from us; being outspanned near the sheep-kraal, from whence, during the night, issued the bleatings of perhaps a thousand sheep and goats. Some not content with serenading us from the kraal, leapt the thorns to bleat under the wagon; the attraction there consisting of a heap of pumpkins. This would have been tolerable, had nothing but sounds issued from the kraal; but, horror seized us in the night when we found the whole wagon alive with fleas! Such a night of discomfort I never passed; and happy was I when we inspanned in the morning, and the word 'Trek!' issued from the sable lips of Adoccooddeen, our driver. We returned by the same uninteresting road, breakfasting on the third morning at Streak's Hotel, at Uitenhage.

"We reached Port Elizbeth on the evening of the 5th of August, having been absent eight days."

GULF OF CALIFORNIA; *Mazatlan and Molage Bays.—Extract from the remarks of H.M.S. Spy, Lieut.-Com. S. O. Woolridge.*

OUR passage from Callao to Mazatlan, of a few hours less than twenty-six days, is considered exceedingly good; indeed, one of the best ever made. As we drew in shore, I found the current affected by the wind. With northerly winds, current set to southward, and *vicé versâ*. We remained at Mazatlan ten days, during which time the weather was upon the whole, fine. At night we had occasionally strong squalls, with rain.

July 17th, 1847, weighed for Guaymas. All the charts of the gulf are miserably incorrect, and not to be trusted; but, I see no difficulty in navigating it by the lead. The water appeared to shoal very gradually from 17 to 6 fathoms, when I always tacked. I used to stand into 10 fathoms at night, and 6 by day. As far as I can judge, Capt. Hamilton's (*Frolic,*) positions of the coast are very fairly correct; and, there is no doubt we are indebted to him for a capital assistance in navigating the gulfs, in the absence of all Government charts. The shoal laid down in black in his chart, off Ignacio Point, I passed over; but, I placed the island further to the eastward (in lat. 25° 22′ N., long. 109° 18′ 36″ W.) than Capt. Hamilton's red Ignacio Isle.

I arrived at Guaymas on the 21st, in four days from Mazatlan. During this passage we experienced strong currents running to the N.W., from a mile to a mile and a half an hour. They were much influenced by the wind, which, from the 19th to the 21st, was south-easterly and southerly. Current also runs with more force on the eastern shore, which side we kept.

Cape Naro can be easily distinguished by the Tetas or Paps, which

resemble the teats of a goat; they are to the northward. The Island of St. Pedro Melasco, is just visible from the deck, to the N.W. The land on the Yagui shore is high and peaked; keeping this broad on your starboard bow, steer to the northward of a deep bay, where the land breaks off, and you will soon perceive the Island of Pajaros, which is at the entrance, or facing Guaymas. The water is deep all along the Island of Pajaros; that is to say 4 fathoms, so close, as to throw a biscuit on shore.

A large ship will have to anchor soon after passing Pajaros; that is, abreast the Morro, in 5 fathoms. A small ship, and those of *Carysfort's* class, can anchor inside the Isles of Ardilla and Almegro, in 4, and 3½ fathoms, just inside them; and in 3 fathoms, as far in as the point off the town. You may go close to either of the Isles Ardillo or Almegro, in 3, and 3½ fathoms.

Fresh beef and vegetables are to be obtained here, but the price depends greatly on the season of the year. In August, when the *Spy* was there, it was a bad time of the year, being the hottest season; the thermometer averaging 98° in the shade; (Farht.) when the country is very dry, and there is no herbage for cattle, which makes it difficult to obtain, and higher in price. *Spy* paid eight dollars a quintal for it, and the same for vegetables; but in October I am told it is much lower. There is also very good flour to be obtained here, between July and March, that is, all the end and beginning of the year; and with little difficulty (chiefly depending on time) very good biscuit can be made. In August this article is also scarce, and dear in comparison, because the new batch of flour is just coming in, and the difficulty of transportation from the interior is very great, owing to no herbage for the mules. I contracted for 640 quintals of biscuit for H.M. ships *Constance* and *Spy*, at ten dollars the quintal, to be delivered at the contractor's house, and bags found by purchaser. Flour at this time was sixteen dollars the carga, or 300 lbs. But I am told in September and October it will fall to nine dollars the carga, when biscuit will be proportionably cheaper. Water is very difficult to be got; it is to be obtained by sending about four miles for it, or it can be purchased; but owing to its having to be brought in on mules, or in carts, the price is very high. I wanted twelve tons, which I found could not be obtained for less than thirty dollars, which would be nearly ten shillings a ton; I therefore weighed August 10th, and proceeded to *Molage Bay*. Captain Hamilton speaks of this place, but gives no information for making it.

Conception Point is difficult to make out, when you have about a dozen of the same kind within a few miles of each other. However, the best marks I can give, are some table land, which is very remarkable, and is rather to the right of Molage village. Keep this about two points on your starboard bow, and you may stand in until you discover some sandy islets, which are off a point called Punta Ynes. When you are east and west with them, you will be distant from them about three miles. After passing these islets, then steer S. and S.S.W., until you make out the Pyramid Rock, spoken of by Captain Hamilton. This rock is

called Sombrerito, or Little Hat. I think it bad to call it Pyramid Rock, as there is a point which in standing in, may be easily mistaken for it, resembling also a Pyramid; but the rock is a Pyramid fixed on a round pedestal like a fort. Another good way of making out this place is, when the wind is fair, to keep Tortuga Island about 20 distant, bearing about north-west, and steer in south-east till you make out the Sandy islets, and proceed as above. There is a passage between the islets and the main land for small vessels, but though very inviting, should not be attempted. I tried it, but getting into 2½ fathoms, I put about as quick as possible. My anchorage marks in Molage Bay, were as follows, in 5 fathoms.—Point Conception, N. 84° E.; Tortuga Isle, N. 4° W.; Lobos Isle, N. 2° E.; Sombrerito, S. 67° W., (Pyramid Rock of Capt. Hamilton); Equipalito, S. 22° W., (Rock on south side of entrance to the river); Punta San Ynes, N. 10° W.

This is very close in, but I wished to facilitate the watering: about half a mile further to the northward, in 8 fathoms, is a very good berth. In going into the bay after making out the Sombrerito, if you wish to go close in, take care not to bring the Sombrerito at all on your starboard bow; that is, do not open the mouth of the river, as by sounding I discovered a rock with only one fathom on it; it is on a sandbank with 3 fathoms all round it, about three-quarters of a mile from the shore; but the rock itself has only 1 fathom. It lies with the entrance of the river open, directly between the Sombrerito, and Equipalito rocks, distant from half to one mile off shore. I am surprised Captain Hamilton has not mentioned it, for I must have gone very close to it in rounding my vessel to. The report of the facility of watering is very delusive and uncertain.

In the first place I cannot think it possible to water out of the river, as it is salt for at least 2 or 2½ miles, and a great portion of the time, boats could not possibly get up so far. I was there fortunately, when the moon was nearly full, and the water was only low between eleven at night and four in the morning, so that I was enabled to water about eighteen hours, out of twenty-four, and though I had but one small boat, (23-feet cutter,) I managed to get twelve tons in two days. She had to go a mile and a half up the river to the house of Joseph Padras, and the casks were rolled about 100 yards to a small stream in his garden; with a force pump it might be obtained without running the casks. The water is delicious to drink at the stream, but it is so very low, and our water after being a day or two on board, became so black and smelt so strong of decayed vegetable matter, that though it improved by keeping, it served chiefly for cooking and washing.

In going up the river, in boats, keep close to the Sombrerito, and keep the starboard shore on board till you are a mile, or one and a quarter up the river, when you will encounter a sandbank in the centre of the river, and must keep over on the port shore to clear it. Abreast this sandbank is the Rancho of Jose Padra. At the time I visited this place, in August, owing to the dryness of the season, and the want of fodder, there was no beef or vegetables to be procured. The bay is open to the north-

east winds, and there is no shelter from the sea, which rolls in heavily; but with all other winds I think any man-of-war could get out, if she did not leave it too late, till the sea was too heavy, as there is plenty of room for beating.

The passage from Guaymas to Molage Bay can be easily done in twenty hours. I left Molage again on the 14th, and arrived at Guaymas on the 16th, being thirty-six hours. On the 26th of August I sailed from Guaymas for Mazatlan, where I arrived on the 3rd of September, in eight days. This, at this season of the year is considered very fair, as south-easterly winds and calms prevail. I kept over by advice on the western shore, and passed inside of Catalon Island; but I think the more you can keep in mid-channel the better. We experienced little or no currents, but the wind was very light and the weather fine all the way.

On the 30th and 31st of August, we had an easterly current about 14′ per diem. We anchored off Mazatlan, about 4′ off Christon, on the following bearings, 23 fathoms water;—Christon Island, N.N.E. ½ E.; Rock, N.E. ½ E.; Venado, N.N.W.; Town, N.b.E. ½ E. This is a very good berth for a large ship, like the *Constance*, but on the 8th I went about 1′½ further in, with the following bearings, in 22 fathoms water, Christon, N.N.E. ½ E.; Town, N.b.E. ½ E.; Rock, N.E. ½ E. This is a very good berth for a small vessel, and quite far enough off for safety, and more convenient when you have occasionally to communicate with the shore, with only one boat fit for the purpose. Here I lay till the 23rd of September: during the whole time we experienced light winds, and generally fine weather. The nights were always, and invariably, attended with heavy thunder, and very vivid lightning, and generally heavy rain with an occassional squall.

On the morning of the 19th we experienced a very heavy squall, which lasted for about two or three hours, and the water regularly boiling, which for the time made me imagine that it was the commencement of a very heavy Cordenazo; but in four hours it had passed off, and was quite fine. As far as I could judge the weather was not worse than you would meet with any where at certain seasons, but the rolling your boats into the water every now and then is the natural consequence of being anchored three or four miles off the land, in the open sea, where the current at times keeps the ship swung across the wind.

On the 23rd the barometer being very low all day, the moon being near the full, and the sun near the Equinox, it was deemed advisable to weigh, but we experienced nothing more than very terrific lightning and thunder, with heavy rain.

On the 26th I weighed for Guaymas again. During this passage of seven days we had very light winds, and chiefly from the north-west.

On the 2nd October, we experienced a very heavy long rolling swell from the south-east, which lasted two days. It was subsequently accounted for by being informed that on that day at Mazatlan and San Blas, it blew a very heavy gale of wind; but in the gulf we had no wind but only the swell.

We arrived on the 4th of October, and sailed on the 6th for Mazatlan, where we arrived on the 13th, in seven days. During most of this passage the winds were very light and variable, and I kept about the mid-channel. The last three days though the wind was from south-east and south-west, the current run to the southward from half to a mile, an hour. I anchored outside Christon about two miles at first, but requiring about twenty-eight tons of water, and seeing two merchant ships inside, I weighed on the 16th and ran in also.

Anchorage marks, Town, N.b.W ¾ W.; Christon, N.W.b.W. ¼ W.; Outer Rock, S. ¼ E. At this season it is better not to anchor nearer Christon, in case of blowing you have room to drag.

On the 22nd as the moon was nearly full, I weighed and kept off and on till the 26th, when I anchored again inside and remained there till the 2nd of November, during which time the weather was fine, and cool, and the usual indication of the bad season being over, viz:—the absence of thunder and lightning at night.

On the 2nd sailed for San Blas, winds light and variable from W.N.W., current setting to the northward and eastward; anchored on the 5th, and sailed the same evening for Mazatlan, winds moderate and light from N.N.W., to N.W. a little current to the south-east.

On the morning of the 8th, we ran into Mazatlan with wind from E.N.E., anchorage marks, Town, N.b.W. ¾ W.; Christon Peak, N.W.b.W. ½ W.; Rock, S.b.E. ¼ E.; Extreme Bluff, W.b.N. ¼ N. During both passages the weather was very fine. We lay here till the 16th, during which time the weather was fine, with strong sea breezes daily from north-west and the nights calm, and the air perceptibly cooler.

On the 10th American frigates *Independence*, and *Congress*, and corvette *Cyan*, arrived, and on the 11th took possession of Mazatlan, and hoisted the American flag.

On the 16th weighed for San Blas, winds light from the north-westward, found current setting strong to the southward.

On the 18th anchored in San Blas. During our stay till the 28th, the weather was fine, but the mosquitos and sand flies as numerous and more vicious than ever.

On the 28th sailed for Valparaiso, crossed the line on the 15th of December, in the night, in seventeen days, in 105° 25′ west, passed in sight of, to windward of Easter Island, on the morning of 29th, in 31½ days.

On the 2nd December at 5h. 30m. P.M., we observed an island bearing W.N.W., which though (as laid down) would have been 60′ distant, we could only believe to be Passion Rock. As we passed less than 30′ to the westward of it in July last, and did not see it; and now passed 60′ to the eastward of it, it is possible it may be laid down 30′ too far to the westward.

Lat. and long. I have given from bearings, and supposed distance is 17° 11′ N., and long. 106° 21′ W., and on till it appeared from aloft high, and peaked in several places.

The Island of Bornabi—*Pacific Ocean.*

(Continued from page 582.)

The Island of Bornabi is mountainous in the centre, and more or less hilly from the mountains to the shore throughout. The whole island is thickly wooded, and produces many varieties of good timber, fit for house, ship-building, and other purposes. The shores are fronted with mangrove trees, growing in the salt water, which form an impenetrable barrier to boats landing, except in the rivers, and other small canals or channels, formed amongst them by nature. Many of these are so narrow as scarcely to admit of oars being used; they answer every purpose, however, as all the houses situated near the shore, have generally one of these channels leading to them.

The soil is composed of a rich red and black loam, and would, if properly cultivated, produce every variety of tropical fruits and esculent roots; together with coffee, arrow-root, and sugar-cane. The trees do not branch out until near the top; the trunks of many of them are covered with climbing plants and vines, and the lower part of the trunks enveloped with ferns, of which there are many varieties; these give the ground a matted or woven appearance. The woods throughout the island are very thick, and often composed of large and fine trees; among them are tree ferns, banyan, pandanus, and several species of palms. The sassafras tree is also found here.

Many beautiful sweet scented white and yellow flowers are to be found. These are much esteemed by the natives, and are strung into wreaths, which both sexes wear round their hair at feasts, and on other occasions. These wreaths are exceedingly handsome.

The bread-fruit tree is very abundant, and grows here to a large size. The cocoa-nut and wild orange are also found in great numbers. A small species of cane or bamboo is very common, and is used for making floors and side wicker work for the houses. Wild ginger and arrow-root also abounds. The cultivated plants and trees are, bread-fruit, of which they have many varieties; cocoa-nut, ti-root, tarro, bananas, tacca, from which arrow-root is made; sugar-cane, which is used only for chewing; yams, sweet potatoes, pumpkins, tobacco, in small quantities; and kava, (*piper mythisticum*). The latter is cultivated to a large extent throughout the island, and daily used at their feasts.

They pay very little attention to the cultivation of arrow-root; yet, what I have seen made from the root, appeared to be of a very superior quality.

Yams are plentiful all over the island, but whalers get their supplies chiefly from the north side, where they are cultivated to a much greater extent than at any other place; they are, however, of rather a small size, and of an indifferent quality, through not being properly cultivated. The cultivated ground does not extend far from the coasts, near which all the villages are situated.

There are no inhabitants inland, and few of the natives have ever visited the centre of the island. There are no traces of any native

quadruped, except rats. The flying fox, or vampire bat, is very plentiful, and very destructive to the bread-fruit. Wild pigeons abound all over the island. They appear to be in best condition, and most plentiful, from December till April.

A vessel recruiting here, may obtain a daily supply of them, for all hands, by giving a couple of native boys fowling-pieces, with ammunition. These youths are excellent shots, and, in half a day, will procure a sufficiency for a whole ship's crew. No fear need be entertained of their stealing the fowling-pieces; as I have never heard an instance of it during my many visits to this island. A fig of tobacco each, will sufficiently remunerate them for their labour; and numbers will be found daily volunteering their services. Poultry is plentiful all over the island. The usual price of one dozen fowls is twenty-four figs negro-head tobacco, or two fathoms of cheap calico. Yams can be purchased from the natives for ten figs of tobacco per hundred; bread-fruit, ten figs per hundred; cocoa-nuts, the same; bananas, two figs per bunch; and all other productions of the island, at an equally low rate. Fish are taken on the reefs in great abundance and variety. Mullets are very numerous, and are frequently seen leaping from the water in immense shoals. The small fish are chiefly caught in hand-nets, and the others in various other modes.

These islands furnish abundant supplies for the refreshment of whalers; but, as yet, there are few articles which can be made available in commerce. The islands produce about 500lbs. of tortoise-shell annually; the whole of which is purchased from the natives, at a very low rate, by the Europeans living on the island, and sold by them to whale ships, at an advance of 500 per cent.! They take their payment chiefly in spirits, tobacco, muskets, and gunpowder. The introduction of these articles, and their abuse by the vagabonds on shore, have tended much to demoralize the natives.

This is the only article of merchandize which can be, at present, procured (except biche de mer), beyond the immediate wants of the visitors. Ginger, arrow-root, sassafras, coffee, sugar, and many species of excellent timber, might, however, be easily added to the list of exports.

Whalers procure annually about fifty tons of yams, and abundance of bananas, bread-fruit, and poultry. Pigs are only to be obtained from the Europeans. The natives reared them formerly, but, through being too lazy to fence in their plantations, they ultimately killed them all, and substituted dogs as an article of diet instead.

The description of goods most sought after by the natives, as returns for what these islands furnish, are red serge or camlets, of which they are passionately fond, muskets, gunpowder, lead, flints, cartouch boxes, cutlasses, broad axes, tomahawks, fish-hooks, butchers' knives, adzes, chisels, plane irons, hand saws, gouges, gimblets, bullet moulds, calico, drill, gaudy cotton handkerchiefs, negro-head and Cavendish tobacco, tobacco-pipes, files, serge and cotton shirts, trousers, beads of all sorts, Jews'-harps, straw hats, blankets, small boxes or chests, with locks and hinges, iron cooking pots, fowling-pieces and small shot, needles and thread, &c.

Near Matalanien harbour, are some interesting ruins, which are, however, involved in obscurity; the oldest inhabitants being ignorant of their origin, and have no tradition bearing any reference to their history. That a fortified town once stood upon this spot, and not built by savages, cannot be doubted; the style of the ruins giving strong proofs of civilization. Some of the stones measure eight to ten feet in length, are squared on six sides, and have, evidently, been brought thither from some civilized country, there being no stones on the island similar to them. Streets are formed in several places, and the whole town appears to have been a succession of fortified houses. Several artificial caves were also discovered within the fortifications.

This town was, doubtless, at one time, the stronghold of pirates, and as the natives can give no account of it, it seems probable that it was built by Spanish buccaneers, some two or three centuries ago. This supposition is confirmed by the fact, that about three or four years ago, a small brass cannon was found on one of the mountains, and taken away by H.M.S. *Larne*. Several clear places are also to be seen a little inland, at different parts of the island; some of which are many acres in extent, clear of timber, and perfectly level. Upon one of these plains, called K-par, near Roan Kiddi harbour, (and which I have frequently visited,) is a large mound, about twenty feet wide, eight feet high, and a quarter of a mile in length. This must, evidently, have been thrown up for defence: or, as a burial place for the dead, after some great battle.

Similiar ruins are to be found at Strong Island, of which the natives can give no account.

Vocabulary of the Bornabi Language.

Edge'tum. What name.
Togata met. What is that called.
Koto. To come.
Tonga ta. To come.
Kyto. Come here.
Hug'owy. You go away.
Go'la. To go.
Gogo'la nan chap. Go on shore.
Bro'to. Come back.
Tutu. To bathe.
E'a. Where.
Ta. What.
Gota'wy. Go up.
Gotiwy. Go down.
Monti. Sit down.
Huta. Rise up.
Wen'ti. Lay down.
Me'rila. To sleep.
Maam. Fish.
Meni'ka. Biche de mer.
Kajinibut. Tortoise-shell.
Mahi. Bread fruit.
Peyn. Cocoa-nuts.
Oot. Bananas.
Meji'wate'. Bad.
Mamon'. Good.
Kachalel'. Handsome.
Mary'ry. Long.
Muttamut. Short.
Ma-dig'idig. Small.
Ma-lout. Large.
Ma-toto. Plenty.
Kam'chia. All, or every one.
Aramas'. Men.
U'lyn. A man.
But a but. White.
Tontol. Black.
Joby'ti. A chief.
Lap'pilap. Great.
Jyrrimaun'. A boy.
Jyrripeyn.' A girl.
Li. A woman.
Bout. A wife.
Piel. Fresh water.
Nanjyt'. Salt water.
Koa'ba. A trunk or box.
Mung'ah. Food.
Nam'minam. To eat.
Tuur. A native belt.
Likou'. Calico.

Likou'ti. A woman's dress.
Wyta'ta. Red.
Kall. A man's dress.
E-Jug. A water jug—calabash.
War. A canoe.
Nan-iim. A house.
Oach. Thatch for a house.
Pyn. Payment, or price.
Ta ban pyn. What is the price.
Jhob. A ship.
Wa'ta. To bring.
Kowa. You.
Ny. Me. [my canoe.
Kowa gola wata ny war. You go fetch
Num. Your.
Katchyn. A little.
Kita. Give me.
Kowa gola wata katchyn piel. } You go bring a little fresh water.
Kiang'. To give.
Kowa kiang. You give.
Wawy. Take it.
Tui, or tuka. Timber.
Jou mon. Sick.
Mejila'ar. Dead.
Kumme'lah. To kill.
Loach. A sleeping mat.
E-ting. To write, or tattoo.
Men'ta. What do you mean.
Pu'kita. What for.
Ari. Enough; that'll do.
Huti mas. Stop a little: wait.
Chywy, nr kywy. Pull away.
Ka jini eye. Fire.
Katerpin. The sun.
Jownabung. The moon.
Uchn. The stars.
Paba. Father.
Nono. Mother.
Ri-eye. Brother.
Ri-eye-to. Sister.
Jher'ryk. A mat sail.
Kou. A mast.
Sha'al. A rope.
Sacky. A stone.
Etch. Which, or who.
Mat. A reef.
Cha'ap. Land.
Kiam. A baskat.
Me'lell. It is true, no lie.
Cho. No.
Yey. Yes.
Chola'ar. Is there no more.
Allatcher'. There is no more.
Ka'put. A knife.
Bui bui. A fool.
Rach a rach. A saw.
Chila. A chisel.
Chila banga banga. An axe.
Ko'jyk. A musket.
Ko'jyk lap'pilap. A cannon
Mal'yk. A domestic fowl
Muri. A pigeon.
Wea. A hawk's bill turtle.
Ra'an. Morning.
Bung. Night.
Nibung. This night.
Ra'aua wyt. To-day.
Lockup'. To-morrow.
Eye'o. Yesterday.
Ke'lan eye'o. A long time ago.
Loky'a. To speak.
Ka'ap. Yams.
Jack-o. Kava, or grog.
Jack'o in wy. Distilled spirits.
Tabak'kyr. Tobacco.
Khra wara. Hot.
Honi. A departed spirit.
Bit a bit. Quick.
Ny eye'riraniki. I know.
Ny ty'raniki. I don't know.
Tuka pomou. Sandal-wood.
Katchyn chou. Sugar cane.
Ma'jeck. Afraid.
Kajin'iong. Turmeric.
Ulyn wy. A white man.
Nanamar'eki. A king.
Nannikan. A prime minister
Jobyti lappilap. A high chief.
Aramas a mal. Labourer, or slave.
Kap'pen. Captain.
Wia'ta. To make, or build.
Goley'a. Where are you going.
Ma-lolo. Scarce, not plenty.
Lyp'pirap. To steal
Kalang'. To look.
Kowa kalang. You look.
Pug. A pig.
Pig. Sand.
Wan tuka. Beads.
Katchyn mata. Fish hooks.
Pey. To fight with the fists.
Ta me coto in wea. What do you want
Etch kowa. Who are you?
Aleck. Reeds, or small bamboo.
E-jug. A bottle.
Powda. Gunpowder.
Lead. Lead.
Paina. Coral.
En ting. A book.
Er'ring. Old cocoa-nuts.
Katchyn koteu. A bow.
Katchyn koteu. An arrow.
Pypo. Pipe.
Koteu. Spear.
Sho'rup. Hat.
Kajang'. Musical instrument.
A-tinieye. Smoke.
Katou'. Rain.
Ikah'. I don't like.
Ny bukka bukka. I like.
Bukka bukka. To like.

Kajiniang. The wind.
Tog'ata. What do you mean.
Puyajng. Let go.
Koletti. Hold on.
Lakumpot. Liar; to lie.
Py. Pearl Oyster.
Menika wytata } Red biche de mer.
Lekapasin'a. }
Pen a pen. Speckled biche de mer.
Matap. Smooth black do.
Meyn. First quality do.
Long'en. Inferior biche de mer.
Ounapel'la. Wild ginger.
Kappen ban kara kara Capt. is angry.
War ma lout. A large canoe.
Wer ma dig i dig. A small canoe.
Iron pot. Iron pot.
Katou ban koto. The rain is coming.
Katerpin ban kara kara. The sun is hot.
Piil kara kara. Boiling water. This name is usually given to hot tea.

Numerals.

A'at. One.
A'ri. Two.
Echul. Three.
A'bang. Four.
Elum. Five.
Eo'an. Six.
E'ech. Seven.
E'wal. Eight.
Atun. Nine.
Katingoul', or E Jack. Ten.
Ri e Jack. Twenty.
Chul e Jack. Thirty.
Pa e Jack. Forty.
Lum e Jack. Fifty.
Oau e Jack. Sixty.
E'ech e Jack. Seventy.
E'wal e Jack. Eighty.
Atun e Jack. Ninety.
A buki. One hundred.
Ri a buki. Two hundred.
Chul a buki. Three hundred.
Pa a buki. Four hundred.
Lum a buki. Five hundred.
O'an a buki. Six hundred.
E'ech a buki. Seven hundred.
E'wal a buki. Eight hundred.
Atun a buki. Nine hundred.
Ket. One thousand.
Ri a ket. Two thousand.
Chul a ket. Three thousand.
Pa a ket. Four thousand.
Lum a ket. Five thousand.
O'an a ket. Six thousand.
E'ech a ket. Seven thousand.
E'wal a ket. Eight thousand.
Atun a ket. Nine thousand.
Nun. Ten thousand.
Ri a ket, lum a buki, elum. 2,505.
Lum a ket, atun e Jack. 5,090.
Pa a ket, pa a buki pa e Jack. 4,440.
Chul a ket, chul a buki e Jack. 3,310.
Atun a ket, e'ech a buki, pa e Jack. 9,740
Oan a ket oan a buki. oan e Jack. 6,660.
E'ech a ket e'wal a buki atun. 7,809.
Nun ri a buki, ri e Jack. 10,220.
Nun pa a buki, chul e Jack. 10,430.
Nun atun a buki, atun e Jack. 10,990.

Throughout this vocabulary a *is to be sounded as in* hat; e *as in* ever; i *as in* equity; *and* u *as in* supple.

The complexion of these natives is of a light copper colour. The average height of the men is about 5 feet 8 inches, and the majority of them would be called small. The women are much smaller in proportion than the men, with delicate features, and slight figures. Many of the chiefs' sons are exceedingly well formed; they are also of a much lighter colour than the generality of the natives, owing to their not being so much exposed to the sun; and would be considered fine looking men, in any part of the world. Their features are, in general, well formed. The nose is slightly aquiline, but a little broad at the base; the mouth rather large, with full lips, and beautiful white teeth. The lobes of the ears are perforated, in both sexes, but are seldom distended to any size.

Both sexes (especially the females), wear handsome ornaments, composed of small beads, &c., attached to the ears. They have also handsome necklaces made of the same materials. Both men and women have beautiful long strait hair, very black, and which they take no little pains

in dressing, with a variety of perfumes, mixed with cocoa-nut oil. They also anoint their bodies (especially the females), with turmeric, in order to give them a whiter appearance, and which, it undoubtedly does. They consider that this adds much to their beauty.

The chiefs and their families ornament their heads with beautiful wreaths of sweet scented flowers, at feasts, and on other occasions. The men wear neither whiskers nor beard; they extract the hairs as soon as they make their appearance, by means of tweezers, made either of a small piece of tortoise-shell, bent double; or a pair of small cockle-shells. The generality of the women are handsome; but, as they marry at an early age, they soon loose all claim to beauty. The complexion of the young girls is much lighter than that of the men, and similar to a South American brunette. This is owing to the use of turmeric, before alluded to; and to their wearing an upper article of dress, formed by a cotton handkerchief, as a shelter from the sun, which covers their breasts and shoulders, and which has a slit in the centre, to allow a passage for the head. Both sexes are tattooed.

Many of these natives, especially the lower classes, and fishermen, have their skins disfigured in a singular manner, by a sort of scurfy disease, similar to the ring-worm, or rather to a person whose skin was peeling off from the effects of the sun. They do not appear to experience any inconvenience from this complaint, and, for which I cannot account, unless it be attributable to raw fish, which they eat in large quantities.

This complaint prevails, more or less, over all the islands near the equator; and I have also met with it at the Pallou Islands. I had a Bornabi boy at sea with me for four months, whose skin was completely covered with this disease, but who lost all traces of it after living a short time on salt provisions.

With regard to the general character of this people, the most favourable feature is the affection which both sexes bear towards their offspring, and the respect which is paid to age; two qualities in which most of the other islanders I have visited, are sadly deficient. They are also good humoured, desirous of pleasing, and exceedingly hospitable. As a shade upon this picture, it must be admitted that, they are indolent, covetous, and deceitful, and but little confidence can be placed in their professions. I must not forget, however, that I am writing of savages, and so much that is praiseworthy appeared in their conduct, and such capabilities of improvement by civilization, as must rank them far above all other savages with whom I have had intercourse.

During the whole period of my stay at this island, and subsequent visits, I never experienced an instance of theft on their part, unless when instigated so to do, by the white reprobates, who are domesticated with them. In short, unless when prompted by these vagabonds, I have found them strictly honest in their dealings, paying me punctually for any goods I may have advanced them. Owing, however, to the influence which the Europeans have obtained over the natives, by speaking their language fluently; by teaching them to distil spirits from the cocoa-nut,

toddy; and assimilating themselves, as far as possible, to their habits, the character of the latter has become greatly deteriorated. They have already become adepts in lying; and will soon (unless these fellows be removed from the island), become habituated to every species of vice and immorality.

The Island of Bornabi is divided into five tribes, independent of each other, and each having a sovereign of its own. These tribes are named as follows:—

Roan Kiddi, or Wonah; Matalanien; Joquoits; Nut; and Awack. The two first being far more powerful, and of much greater extent than the others.

Each king has his prime minister, whose power nearly equals that of the sovereign. His title is "Nannikan." Next in rank to the king are the nobles, whose titles are as follows:—

Falk; Wajy; Noach; Nanaby; Shou Shabert; Gro en wane; and many others; being chiefs of inferior rank, who are not of noble birth; but who have been made chiefs, and obtained land by acts of bravery, or the favour of the nobles. On the demise of the sovereign, the noble who holds the rank of "Falk," succeeds to the throne, and the other chiefs rise a step. The prime minister holds office either for life, or during the king's pleasure; and, although, possessed of much power, is inferior in rank to the nobles. The government is carried on in the most simple form; the king contenting himself with receiving the tribute due to him, and rarely interfering in the administration of affairs, unless in matters of serious importance. Each chief has power over his own dependents, except in cases of importance, when the decision is made, and the punishment ordered in council.

There is in every village a large council-house, with a raised platform in the centre, for the accommodation of the chiefs, when discussing the affairs of the tribe. These meetings are always attended with feasting, and kava drinking, at the expense of the chief in whose village the meeting is held. Along each side of the house, each family of rank has a sleeping berth, formed by wicker-work bulkheads; similar to the state-rooms of a vessel's poop. The space from the platform to the end of the house, is occupied by the slaves or servants, who are busily employed during these meetings, in preparing kava and food for the visitors.

When a meeting is deemed necessary, messengers are sent to the different chiefs, to request their attendance. This, in cases of emergency is done by blowing conchs. The chiefs having assembled, the object of the meeting is laid before them by the king, or head chief, and every one is at liberty to give his opinion. These discussions are, at times, very animated, especially when they have indulged freely in kava; and on several of these occasions, I have witnessed violent quarrels between different speakers, which were only prevented from terminating in blows by the interference of the other chiefs. The opinion of the majority upon the subject under consideration, having been ascertained, the discussion is terminated.

On the death of a chief, the king has power to give his land to who-

ever he pleases. He generally, however, bestows it upon his sons; or failing them, to the chief next in rank to the deceased.

The power possessed by each king over his dependents (though rarely taken advantage of), is, in every respect, unlimited; the lives and property of his subjects being completely at his disposal. To shed blood within the precincts of the palace, is certain death; and the most abject homage is paid to him by all classes, not even the nobles being allowed to stand upright in his presence.

As soon as the bread-fruit season sets in, the nobles send the first fruits as a present to the king; and, whenever a chief has a new turtle or fishing net made, the produce of his fishery must be sent to the king for a certain number of days, before he can appropriate any of the fish to his own use. Another mark of respect shown to the king, as well as by all classes of inferior rank to their superiors, is, that the former on meeting the latter, in their canoes, invariably sit down, until they have passed, and present the side of the canoe, opposite the out-rigger, towards them when passing, in case they should wish to board them.

With regard to the population of Bornabi, although I have visited all parts of the island, I have had no correct means of ascertaining the number; but from personal observation, I reckon it to be about eight thousand souls. In 1846, there were upwards of sixty Europeans residing on the island, chiefly all bad characters; being composed of runaway convicts and sailors.

Their houses are decidedly better constructed than any I have hitherto met with at the islands. They all form an oblong square, and are built as follows:—

A foundation of stone work is raised to the height of from three to six feet above the ground, and upon which the frame of the house rests. In the centre of the foundation, a space of about four feet square, and two in depth, is left for a fire place; and the remainder of the floor is covered with wicker-work, which gives it a neat and clean appearance. The sides are about four feet high, and are also covered in with wicker-work, having several open spaces for windows, and for which they have shutters also of wicker-work. The whole frame of the house is made of squared timber, and the uprights are all morticed into the wall plates. The rafters are formed of small straight rickers, about two feet apart, which reach from the ridge-pole to the wall plates on each side, and are seized to both with small senit. The thatch is made of pandanus leaves, sewed to a reed, and forms a long and narrow mat, about six feet in length, and one foot in breadth.

In thatching, they commence at the eaves, placing the mats lengthways, keeping each mat about an inch above the other, and seizing them to the rafters as they proceed. When they have reached the ridge, they again commence at the eaves with another length of mats, overlapping the ends where the two lengths join, and keeping each mat about an inch above the other as before mentioned, and so on until the thatching is completed.

A house so constructed, will last for many years. This style of building is peculiarly adapted to the climate; the interstices between the canes forming the sides, admit a free current of air, and render these houses both cool and refreshing; and, although, devoid of ornament, have a neat and even elegant appearance. They are exceedingly clean and comfortable dwellings, even for an European to live in.

The canoes of this island are hollowed out of a large tree, and are very neatly made. The out-rigger is attached to the canoe by many projecting pieces of light wood, neatly squared and painted. They have a platform in the centre for the chiefs to sit on. These canoes are painted red, look exceedingly handsome, and are furnished with a mast and triangular sail. The largest of them will not carry more than ten men.

Their manufactures consist of loaches or sleeping mats, belts, dresses, neck and head ornaments, baskets, and canoe sails; also blankets or bed covers, and small coir rope or senit. The loaches are made chiefly at Joquoits, Nut, and Awack, and are manufactured of pandanus leaves, sewed together. These are about six feet in length, and of various breadths; the end of the mat rolled up forms a pillow. These mats are spread upon the floor of the houses to make a bed, several being placed one above another to make it soft. Their blanket or bed cover is made of tappa, which is often thrumbed with some soft thread, similar to wool. Belts are wove on hand looms, and are made of fibres of the banana tree, dyed red and yellow; they form many variegated figures, are about six feet in length, and five or six inches in breadth, and are exceedingly pretty.

The men's kall or dress is made of the young leaves of the cocoa-nut, bleached, and slit into narrow strips, and fastened at one end with a string; it is about two feet in length, and reaches from the hip to the knee. A man when well dressed, has about six of these tied round him. This dress is light and elegant, and yields to any motion of the body. The belts also form a part of the men's dress; they are worn similar to the maro of the other islanders, the upper edge of the belt reaches above the navel.

The women's dress consists of the likou, being a fathom of calico wrapped round the loins, tucked in at one side, and reaching to the knee. They always dye the white calico with tumeric, which gives it a yellow appearance. Their upper dress is generally composed of a handkerchief as before described. The natives are very fond of ornamenting themselves, especially the females. They manufacture beautiful headbands, of various coloured beads; also necklaces of the same description, intermixed with small round beads, made of shell, and cocoa-nut wood, about the size of a small shirt button or mould. This and their ear ornaments are decorated with threads of cloth, made up into tassels.

The food of the natives consists of bread-fruit, yams, wild tarro, cocoanuts, bananas, sugar-cane, dogs, pigeons, turtle, fish, biche de mer, and many species of shell-fish. Of the bread-fruit tree, they have various kinds, distinguished by fruits of different sizes, the largest of which is

the sweetest, and most agreeable to the taste. Nature seems to have been very bountiful in her supply of this fruit, for the different varieties follow each other throughout the year.

They have a peculiar method of preserving the bread-fruit, of which the following description may give some idea :—

When the fruit is ripe, it is prepared by paring off the outer rind, and cutting it up into small pieces; holes are then dug in the ground to the depth of three feet; these are thickly lined with banana leaves, in order to prevent the water from penetrating into the holes. The holes are then filled, to within a few inches of the top, with the sliced bread-fruit, thatched over with the same description of leaves, and covered with stones to press it down. This renders the holes both air and water-tight; after a while, fermentation takes place, and it subsides into a mass, similar to the consistency of new cheese.

Their chief reason for preserving the bread-fruit in this manner is, to provide against famine, as they have a tradition that a violent hurricane took place at the island about a century ago, which blew the trees down, and caused a famine. It is said that it will keep in these holes for several years; and, although, it emits a sour and offensive odour when taken out of the holes, yet, the natives consider it an agreeable and nutritious article of diet, equally palatable as when in its fresh state. This is principally used at their feasts, and is consumed in large quantities. When taken out of the pits, it is well kneaded, wrapped up in banana leaves, and baked in ovens of hot stones. When cooked it has a sour taste. The leaves of the bread-fruit tree are used to serve their victuals on, and as fans to keep off the flies.

Bottomley's group, and St. Augustine's Isles of the charts, do not exist; Pakeen and the Ants being the only groups near the west side of Bornabi, which exist.

Nuteck or Raven Islands are of coral formation, low, covered with cocoa-nut trees, and connected by coral reefs, forming a large lagoon inside.

The group is of a triangular form, and the south-west island is inhabited by four Englishmen, and about twenty Bornabi natives, male and female, who reside there as servants to the white men. These are the only inhabitants on this group. I have visited it three different times, and make the south-west island in lat. 5° 40′ N., long. 157° 11′ E., by good chronometers. This position is nearly correct.

The Sailor's Home.

(Continued from page 598.)

In our number for last month, we presented the reader with a brief notice of the Sailor's Home, in the metropolis. We now resume the subject with the view to shew something about the working of the institution

and its gradual progress in becoming the favourite resort of paid-off seamen. Let us first, however, cast an eye round the Home; a sketch of which we gave in our last.

Entering from Well Street, we find nearly the whole of the ground floor occupied by a spacious hall, (55 feet by 46,) lofty and well ventilated, with a stone pavement. Here the inmates pass much of their time, enjoying a seaman's walk in social converse with their shipmates; the subject being occasionally interrupted by the fumes of the weed, an accompaniment only permitted in the hall. Ascending to the first floor, we find the centre apartment forming the dining-room, which is of nearly the same dimensions as the hall. This room not only serves as the *restorateur general* in the culinary line, but also supplies food for the mental appetite when required. The seaman passes much of his spare time at the side tables, over which shelves of books of a religious, useful, and entertaining kind are found. These side tables and the walls of the room are also ornamented with models and drawings of ships, providing at once a source of amusement and anecdote, recalling many an eventful scene.

At the northern and southern end of this apartment are the dormitories, respectively 58 feet by 26, and 49 feet by 26, in which are the sleeping cabins, each being about 8 feet by 5. There are other rooms on the floor above this; also a court yard, about 84 feet by 33, and offices.

Many doubts were entertained of the eventual success of the Sailor's Home; old habits were to be broken, and strong prejudices to be overcome. The seaman, instead of being allured into scenes of iniquity, was to be enticed to a moral home. It was shortly evident, however, that such a dwelling would be very soon appreciated by sailors; for in May, 1835, the month in which the Home opened, the crew of an American ship, then in the St. Katherine Docks, were the first to avail themselves of its advantages. These were followed in a few days by the crews of two or three large East India ships; and, although, considerable difficulty was experienced in getting sailors to come to the "Home," in consequence of reports being circulated amongst them injurious to the institution, and the abuse its agents were assailed with, by the lodging-house keepers of Limehouse, and persons employed by them.

Notwithstanding the most strenuous opposition, five hundred and twenty seamen passed through the "Home" in the first year of its establishment. Eighty-four had been lodged in it, at one and the same time; but, it is stated that at this period many came, and continued for a time in such a state (from drinking to excess), that they were not in a condition to be reasoned with, and all that could be done was to take care of them. Very few could be prevailed upon to attend church on Sundays, and a less number still to join the morning and evening prayers at the "Home."

From May, 1836, to May, 1837, notwithstanding the continuance of the strongest opposition on the part of those who, for a long course of years, had exercised a despotic rule over the paid-off sailors of the port

of London, the men were not prevented from coming to the institution, although false and injurious reports were as industriously circulated about it as ever; so, that, in the second year of its existence, the aggregate number of its inmates doubled that of the year before; and when the house has been, at times, so full that, the officers have been obliged to refuse applications for admission, many have preferred to hang up in a hammock, when every bed-place in the "Home" has been occupied, rather than seek a lodging elsewhere.

It was originally designed by the promoters of the Sailor's Home that, a chaplain should be attached to it; and, at this period, they obtained the assistance of the Church Pastoral Aid Society, in the appointment of a clergyman, the Rev. C. P. Miles, with a salary of £100 per annum, on condition "that he labours also generally amongst the sailors in the neighbourhood of the Docks in London." The religious duties of the establishment had been hitherto conducted by Mr. Jones, the minister of the Floating Church, and the managers of the "Home;" but, thenceforward these duties devolved on the chaplain.

About this time also, Lieut. Rogers became the travelling secretary of the Sailor's Home, and, of the places he visited, Derby, York, Edinbro', and Newcastle, were especially liberal in contributing to its funds. It is further stated in the annual report of the year 1837, that, it is to the active exertions, powerful influence, and unwearied zeal of the late Capt. Basil Hall, and Lieut. Grove, R.N., in the great cause of the moral improvement of English sailors, that the institution is indebted for material assistance.

Several other gentlemen are named as affording their ready aid to the "Home;" and the Earl of Harrowby as kindly consenting to become the President; and several Naval Officers the Vice-Presidents of an auxiliary formed at the west end of London, to help the funds of the establishment.

The report of 1837, closes with the following paragraph, in the truth of which we readily join:—

"Let but England, whether by national institutions, or by establishments, supported by voluntary contribution, shew to the sea-going sailor that his well being, both as it regards time and eternity, is a matter of national interest; let him have a 'Home' to come to in every port provided for him, (for he has no home like men in other employments,) a place of refuge from the temptations that beset him, and the evils that surround him in every sea port; instruct him in the things that belong to his everlasting peace, and you will do more to bind him to the interests of his native land, and more to retain him in the service of his own country, than all the praise you can bestow for his past services, or the bounties you can offer for those he yet may have to perform, ever could, or ever will accomplish!"

The Great Sea Serpent.

We said in our last number that the Great Sea Serpent was "no longer a mystery." He has again revealed himself to the wondering eyes of seamen in the year 1848, although his existence was no secret long before the present era. But the tales of by-gone days must we fear be yet received with incredulity, and if it has been considered that the Sea Serpent was as imaginary as that the turtle was deprived of its shell while living that the beauty of it might be untarnished; still doubts have not altered the case. "Facts are stubborn things," and "there is more Horatio in this world than is dreamt of in thy philosophy." We have therefore studiously preserved the recent accounts that have appeared of this animal, and above all the sketch of it as given in the *Illustrated London News* by Captain M'Quhae, more especially since it has been so highly commended by that officer as an excellent representation of what he really saw. We shall first turn to a former account of the animal as we find it in the *Naval Chronicle* for the year 1810.

The following subject being altogether uncommon, and the existence of the creature described having been considered as problematical by most, and even derided by many, we are induced to insert such accounts of it, as may dissipate all further doubt. We are happy to find that it has been inquired into by scientific men, whose names authenticate the report:—

"At a late meeting of the Wernerian Natural History Society, Mr. P. Neill read an account of a great sea snake, lately cast ashore in Orkney. This curious animal it appears, was stranded in Rothsolm Bay, in the island of Stronsa. Malcolm Laing, Esq., M.P., being in Orkney at the time, communicated the circumstance to his brother, Gilbert Laing, Esq., advocate, at Edinburgh, on whose property the animal had been cast. Through this authentic channel, Mr. Neill received his information. The body measured fifty-five feet in length, and the circumference of the thickest part might be equal to the girth of an Orkney pony. The head was not larger than that of a seal, and was furnished with two blow holes. From the back a number of filaments (resembling in texture the fishing tackle known by the name of silk worm gut,) hung down like a mane. On each side of the body were three large fins, shaped liks paws, and jointed. The body was unluckily knocked to pieces by a tempest; but the fragments have been collected by Mr. Laing, and are to be transmitted to the museum at Edinburgh. Mr. Neill concluded with remarking, that no doubt could be entertained that this was the kind of animal described by Ramus, Egede, and Pontoppidan, but which scientific and systematic naturalists had hitherto rejected as spurious and ideal."

"We confidently hope, that the particulars of this event will appear at full, in the Transactions of the Wernerian Society, when published. In the mean time, we add another letter that has appeared in print,

which, though written in a style and manner hardly proper to a naturalist, yet contains some additional points of information.

"The following account is communicated by an intelligent naturalist resident at Edinburgh, to a gentleman at Norwich:—

"The Serpens Marinus Magnus, of Pontoppidan, has hitherto been considered as a fabulous monster, and denied a 'local habitation and a name' by all scientific and systematic naturalists, who have affected to pity the credulity of the good Bishop of Bergen. One of these monsters, however, (indignant, may I not say, at the scepticism of the disciples of the Linnæn school?) has effectually to prove its existence, been heroic enough to wreck himself on the Orkney Islands. He came ashore at Rothsolm, or Rougom Bay, in Stronsa, near to Shearers. It was 55 feet long; but the tail seemed to have been broken by dashing among the rocks: so it was calculated to have been 60 feet in the whole. Where thickest, it might equal the girth of an Orkney horse, which you know, is a starved English pony. The head was not larger than a seal's and had two spiracles or blow holes. From the back hung down numerous filaments, eighteen inches long (the mane described by Pontoppidan). These filaments bear the most perfect resemblance to the silkworm gut, or India sea-grass used in trouting. The monster had three pair of fins, or rather paws; the first pair 5½ feet long, with a joint at the distance of 4 feet from the body. Alas! a tempest beat the carcass to pieces before men and ropes could be collected; and only a fragment (about five feet) of the back bone, and a whole paw are preserved. M. Laing, Esq., M.P. has got these, and is to send them to our University Museum.

"These accounts are completely in conformity to what had been already communicated by writers on natural history, and they happily vindicate the veracity of such writers, who, because they have related instances of rare occurrence, have been treated as incapable of just discernment, if not as immoral; for such is the nature of the accusation of attempting to impose on their readers fiction instead of truth.

"What has been published on this subject, is supported by the following testimony:—

"Egede (a very reputable author) says, that 'on the 6th day of July 1734, a large and frightful sea-monster raised itself so high out of the water, that its head reached above the main-top-mast of the ship; that it had a long sharp snout, broad paws, and spouted water like a whale; that the body seemed to be covered with scales; the skin was uneven and wrinkled, and the lower part was formed like a snake. The body of this monster is said to be as thick as a hogshead; his skin is variegated like a tortoise-shell; and his excrement, which floats on the surface of the water, is corrosive, and blisters the hands of the seamen if they handle it.

"In 1756, one of them was shot by a master of a ship; its head resembling that of the horse; the mouth was large and black, as were the eyes; a white mane hanging from its neck, it floated on the surface of the water, and held its head at least two feet out of the sea; between the head and neck were seven or eight folds, which were very thick;

and the length of this snake was more than a hundred yards, some say fathoms. They have a remarkable aversion to the smell of castor; for which reason, ship, boat, and bark-masters provide themselves with quantities of that drug, to prevent being overset, the serpent's olfactory nerves being remarkably exquisite. The particulars related of this animal would be incredible, were they not attested upon oath.

"Every particular here mentioned may be corroborated by the sea-serpent stranded in Rothsolm Bay: the blow holes, out of which it certainly could have 'spouted water like a whale;' and the 'long sharp snout' and the 'broad paws'; which prove to be jointed; and this is as remarkable a particular as any that is mentioned. As naturalists we are doubtful as to the propriety of classing this creature among serpents: although we know that the collecting link between the lizard and the serpent tribes, has projecting members, which some call feet. The Seps, and the Chalcide, which are found in Italy, are clear instances of this conformation: these are sometimes two or three feet in length, and have four short feet.

"The Slang Hagedis, or serpent, described by Vosmaer (Amsterdam, 1774,) from a living specimen in the Prince of Orange's cabinet at the Hague; with the worm Hagedis from the Cape of Good Hope (in the same plate), may also be referred to. The first has four projecting long scales rather than feet; the second has four feet, but apparently of feeble powers. Of biped reptiles, Count de la Cepede gives two specimens, of very small dimensions, found in South America. The whole of the lizard tribe have four feet, but this mighty inhabitant of the waters, has, it appears, six feet, or fins; but rather feet, if the term be correct, 'shaped like paws, and jointed;' the joint 'being four feet distant from the body.' This singularity seems to imply the power of crawling along the bottom of the sea, climbing up the rocks, and holding strongly by such protuberant masses as it has occasion to pass. We shall be glad to find that some delineation of it from the real subject has been preserved.

"The Lacerta Syren, of Linnæus, found by Dr. Garden in Carolina, should not be forgotten on this occasion.

"This sea-serpent does not seem to be a creature prepared for carnage and devastation: and whether it may possess venom of any kind, probably was not examined by those who discovered it. We rather think it to be slow, languid, and quiet: like the whale, which it resembles in its power of ejecting water through its blow holes.

"It remains that we hint at the inquiry whether this specimen, of the length of 60 feet, had attained the full size of its species. We rather incline to think it was but a small one: seeing that every other particular of those who formerly described this creature has been justified, we see no reason for impeaching their correctness, in the estimation they made of its dimensions. We observe, too, that a body the thickness of a hogshead is but in proportion for one hundred yards in length, to a body the thickness of a pony for one of sixty feet.

"We may also add, that in the regions of which it is a native, possibly it meets with but few enemies capable of shortening its life: and we have every reason for believing Pliny, who describes whales of 120 feet and upwards in length, as being formerly extant in the North Seas, although we now find the same description of fish seldom attain the length of 60 feet. The cause is the interested necessity of man, which does not allow them to attain their full growth, but destroys them before their time. The skeleton of a whale was some time ago found on the western coast of North America, that was 105 feet in length. This contributes to vindicate Pliny: and even the correctness of his account of the prodigious serpent slain by Regulus is strongly vouched for by such discoveries.

"We say nothing on the support this yields to the accounts of other immense inhabitants of the waters: the inference cannot escape the reader. Accident may throw a Kraken on our coast. As to the spots on the body of this serpent, we know that the skin of each species of serpent is distinguished by a peculiar pattern; some of which are extremely handsome."

We conclude the foregoing extract with a transfer of the sketch adapted to our own pages of Egede's representation of what *he* saw. And we shall add one more extract from the *Naval Chronicle* of 1818, in which we find preserved the following, which appears to be the latest American account of the animal seen in former days.

"Captain Woodward, met in the beginning of May, this year, with an enormous serpent which seems to be different from that seen last year near Cape Anne.—The following is the declaration of Captain Woodward, and it seems to us to be worthy of the attention of naturalists :—

"I, the undersigned Joseph Woodward, captain of the Adamant schooner, of Hingham, being on my route from Penobscot to Hingham, steering W.N.W., and being about ten leagues from the coast, perceived last Saturday, at 2h. P.M., something on the surface of the water, which seemed to me to be of the size of a large boat. Supposing that it might be part of the wreck of a ship, I approached it; but when I was within

a few fathoms of it, it appeared to my great surprise, and that of my whole crew, that it was a monstrous serpent. When I approached nearer, it coiled itself up, instantly uncoiled itself again, and withdrew with extreme rapidity. On my approaching again, it coiled itself up a second time, and placed itself at the distance of sixty feet at most from the bow of the ship.

"I had one of my guns loaded with a cannon ball, and musket bullets; I fired it at the head of the monster; my crew and myself distinctly heard the ball and the bullets strike against his body, from which they rebounded as if they had struck against a rock. The serpent shook his head and his tail in an extraordinary manner, and advanced towards the ship with open jaws: I had caused the cannon to be re-loaded, and pointed it at his throat; but he had come so near, that all the crew were seized with terror, and we thought only of getting out of his way. He almost touched the vessel, and had I not tacked as I did, he would certainly have come on board. He dived; but in a moment we saw him appear again, with his head on one side of the vessel, and his tail on the other, as if he was going to lift us up and to upset us. However, we did not feel any shock. He remained five hours near us, only going backward and forward.

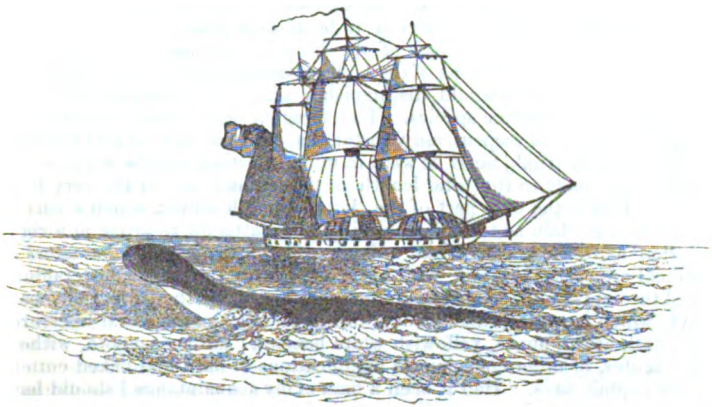
"The fears with which he first inspired us having subsided, we were able to examine him attentively. I estimate that his length is at least twice that of my schooner; that is to say, 130 feet: his head is full twelve or fourteen; the diameter of his body, below the neck, is not less than six feet; the size of the head is in proportion to that of his body.—He is of a blackish colour; his ear-holes (ouies) are about twelve feet from the extremity of his head. In short, the whole has a terrible look.

"When he coils himself up, he places his tail in such a manner, that it aids him in darting forward with great force; he moves in all directions with the greatest facility, and astonishing rapidity.

(Signed) "JOSEPH WOODWARD."

"This declaration is attested by Peter Holmes and John Mayne, who made affidavits of the truth of it before a Justice of the Peace.

It would occupy more of our space than we can now admit, to preserve all the accounts that have been given of sea serpents. Still we consider it proper to retain the accredited sketches of them. We, therefore, make room for that seen by Capt. M'Quhae, which we transfer here from its place in the *Illustrated News*, referring the reader to our last number for the description which he gave of it. The trite remarks which have been made on the subject by the celebrated naturalist, Professor Owen, and which we subjoin, do not, in our opinion, impugn the account of Capt M'Quhae, nor can we see how the very long neck and body "a fleur d'eau" agrees with that of a seal. The animal he saw might have fins similar to that described from Orkney, (three on each side,) and with respect to its size, that is a point of no great importance, and one on which any one may be easily deceived. We shall, therefore, leave the subject as it is, and trust that our seamen will never be backward in describing what they do see, and if they can obtain a specimen of it all the better.



"The sketch* will suggest the reply to your query "whether the monster seen from the *Dædalus* be anything but a Saurian"? If it be the true answer it destroys the romance of the incident, and will be anything but acceptable to those who prefer the excitement of the imagination to the satisfaction of the judgment. I am far from insensible to the pleasures of the discovery of a new and rare animal, but before I can enjoy them certain conditions, *e.g.* reasonable proof or evidence of its existence, must be fulfilled. I am also far from undervaluing the information which Captain M'Quhae has given us of what he saw. When fairly analysed it lies in a small compass; but my knowledge of the animal kingdom compels me to draw other conclusions from the phenomena than those which the gallant captain seems to have jumped at. He evidently saw a large animal moving rapidly through the water, very different from anything he had before witnessed—neither a whale, a grampus, a great shark, an alligator, nor any other of the larger surface swimming creatures which are fallen in with in ordinary voyages. He writes, "On our attention being called to the object it was discovered to be an enormous serpent" (read animal), "with the head and shoulders kept about 4 feet constantly above the surface of the sea. The diameter of the serpent (animal) was about 15 or 16 inches behind the head; its colour a dark brown, with yellowish white about the throat." No fins were seen (the captain says there were none; but from his own account he did not see enough of the animal to prove his negative). "Something like the mane of a horse, or rather a bunch of sea-weed washed about its back." So much of the body as was seen was "not used in propelling the animal through the water, either by vertical or horizontal undulation." A calculation of its length was made under a strong preconception of the nature of the beast. The head *e.g.* is stated to be "without any doubt that of a snake;" and yet a snake would be the last species to which a naturalist conversant with the forms and characters of the heads of animals would refer such a head as that of which Captain M'Quhae has transmitted a drawing to the Admiralty, and which he certifies to have been accurately copied in the *Illustrated London News* for October, 28, 1848, p. 265.

* This was a reduced copy of the drawing of the head of the animal seen by Captain M'Quhae, attached to the submerged body of a large seal, showing the long eddy produced by the action of the terminal flippers.

"Your Lordship will observe that no sooner was the captain's attention called to the object than "it was discovered to be an enormous serpent," and yet the closest inspection of as much of the body as was visible *a fleur d' eau*, failed to detect any undulations of the body, although such actions constitute the very character which would distinguish a serpent or serpentiform swimmer from any other marine species. The foregone conclusion, therefore, of the beast's being a sea serpent, notwithstanding its capacious vaulted cranium and stiff inflexible trunk, must be kept in mind in estimatiag the value of the approximation made to the total length of the animal, as "at the very least 60 feet." This is the only part of the description, however, which seems to me to be so uncertain as to be inadmissible in an attempt to arrive at a right conclusion as to the nature of the animal. The more certain characters of the animal are these:—Head, with a convex, moderately capacious cranium, short obtuse muzzle, gape of the mouth not extending further than to beneath the eye, which is rather small, round, filling closely the palpebral aperture; colour, dark brown above, yellowish white beneath; surface smooth, without scales, scutes, or other conspicuous modifications of hard and naked cuticle. And the captain says, "Had it been a man of my acquaintance I should have easily recognised his features with my naked eye." Nostrils not mentioned, but indicated in the drawing by a crescentic mark at the end of the nose or muzzle. All these are the characters of the head of a warm-blooded mammal; none of them those of a cold-blooded reptile or fish. Body long, dark brown, not undulating, without dorsal or other apparent fins; "but something like the mane of a horse, or rather a bunch of sea-weed washed about its back." The character of the integuments would be a most important one for the zoologist in the determination of the class to which the above defined creature belonged.

"If any opinion can be deduced as to the integuments from the above indication, it is that the species had hair which, if it was too short and close to be distinguished on the head, was visible where it usually is the longest, on the middle line of the shoulders or advanced part of the back, where it was not stiff and upright like the rays of a fin, but "washed about." Guided by the above interpretation of the 'mane of a horse, or a bunch of sea-weed,' the animal was not a cetaceous mammal; but rather a great seal. But what seal of large size, or indeed of any size, would be encountered in latitude 24° 44′ S., and longitude 9° 22′ E.,—viz: about 300 miles from the western shore of the southern end of Africa? The most likely species to be there met with are the largest of the seal tribe, *e.g.* Anson's sea lion, or that known to the southern whalers by the name of the 'Sea Elephant,' the *phoca proboscidia*, which attains the length of from 20 to 30 feet. These great seals abound in certain of the islands of the southern and antarctic seas, from which an individual is occasionally floated off upon an iceberg.

"The sea lion exhibited in London last spring, which was a young individual of the *phoca proboscidia*, was actually captured in that predicament, having been carried by the currents that set northward towards the Cape, where its temporary resting place was rapidly melting away. When a large individual of the *phoca proboscidia* or *phoca leonina* is thus borne off to a distance from its native shore, it is compelled to return for rest to its floating abode after it has made its daily excursion in quest of the fishes or squids that constitute its food. It is thus brought by the iceberg into the latitudes of the Cape, and perhaps further north, before the berg has melted away. Then the poor seal is compelled to swim as long as strength endures; and in such a predicament I imagine the creature was that Mr. Sartorious saw approaching the *Dædalus* from before the beam, scanning, probably, its capa-

bilities as a resting place, as it paddled its long stiff body past the ship. In so doing, it would raise a head of the form and colour described and delineated by Captain M'Quhae, supported on a neck also of the diameter given; the thick neck passing into an inflexible trunk, the longer and coarser hair on the upper part of which would give rise to the idea, especially if the species were the *phoca leonina* explained by the similes above cited. The organs of locomotion would be out of sight. The pectoral fins being set on very low down, as in my sketch, the chief impelling force would be the action of the deeper immersed terminal fins and tail, which would create a long eddy, readily mistakeable by one looking at the strange phenomenon with a sea serpent in his mind's eye for an indefinite prolongation of the body.

"It is very probable that not one on board the *Dædalus* ever before beheld a gigantic seal freely swimming in the open ocean. Entering unexpectedly upon that vast and commonly blank desert of waters it would be a strange and exciting spectacle, and might be well interpreted as a marvel; but the creative powers of the human mind appear to be really very limited, and on all the occasions where the true source of the 'great unknown' has been detected—whether it has proved to be a file of sportive porpoises, or a pair of gigantic sharks,—old Pontoppidan's sea serpent with the mane has uniformly suggested itself as the representative of the portent, until the mystery has been unravelled.

"The vertebræ of the sea serpent described and delineated in the *Wernerian Transactions*, vol. 1, and sworn to by the fishermen who saw it off the Isle of Stronsa (one of the Orkneys), in 1808, two of which vertebræ are in the Museum of the College of Surgeons, are certainly those of a great shark, of the genus *selache*, and are not distinguishable from those of the species called 'basking shark,' of which individuals from 30 to 35 feet in length have been from time to time captured or stranded on our coasts.

"I have no unmeet confidence in the exactitude of my interpretation of the phenomena witnessed by the captain and others of the *Dædalus*. I am too sensible of the inadequacy of the characters which the opportunity of a rapidly passing animal, 'in a long ocean swell,' enabled them to note, for the determination of its species or genus. Giving due credence to the most probably accurate elements of their description, they do little more than guide the zoologist to the class, which, in the present instance, is not that of the serpent or the saurian.

"But I am usually asked, after each endeavour to explain Captain M'Quhae's sea serpent, 'Why there should not be a great sea serpent?'—often, too, in a tone which seems to imply, 'Do you think, then, that there are not more marvels in the deep than are dreamt of in your philosophy?' And freely conceding that point, I have felt bound to give a reason for scepticism as well as faith. If a gigantic sea serpent actually exists, the species must of course have been perpetuated through successive generations, from its first creation and introduction in the seas of this planet. Conceive, then, the number of individuals that must have lived and died and have left their remains to attest the actuality of the species during the enormous lapse of time from its beginning to the 6th of August last! Now, a serpent, being an air-breathing animal with long vesicular and receptacular lungs, dives with an effort, and commonly floats when dead; and so would the sea serpent, until decomposition or accident had opened the tough integument and let out the imprisoned gases. Then it would sink, and, if in deep water, be seen no more until the sea rendered up its dead, after the lapse of the œons requisite for the yielding of its place to dry land—a change which has actually revealed to the present generation the old saurian monsters that

were entombed at the bottom of the ocean of the secondary geological periods of our earth's history. During life the exigencies of the respiration of the great sea serpent would always compel him frequently to the surface; and when dead and swollen—

"Prone on the flood, extended long and large,
He would
"Lay floating many a rood; in bulk as huge
As whom the fables name of monstrous size
Litanian or earth-born that warred on Jove."

"Such a spectacle, demonstrative of the species if it existed, has not hitherto met the gaze of any of the countless voyagers who have traversed the seas in so many directions. Considering, too, the tides and currents of the ocean, it seems still more reasonable to suppose that the dead sea serpent would be occasionally cast on shore. However, I do not ask for the entire carcase! The structure of the back bone of the serpent tribe is so peculiar that, a single vertebræ would suffice to determine the existence of the hypothetical Ophidian; and, this will not be deemed an unreasonable request, when it is remembered that the vertebræ are more numerous in serpents than in any other animals. Such large, blanched, and scattered bones on any sea shore would be likely to attract even common curiosity; yet, there is no vertebræ of a serpent larger than the ordinary pythons and boas in any museum in Europe.

"Few sea coasts have been more sedulously searched, or by more accute naturalists (witness the labours of Sars and Loven), than those of Norway. Krakens and sea serpents ought to have been living and dying thereabouts from long before Pontoppidan's time, to our day, if all tales were true; yet, have they never vouchsafed a single fragment of their skeleton to any Scandinavian collector; whilst the other great denizens of those seas have been by no means so chary. No museums, in fact, are so rich in the skeletons, skulls, bones, and teeth of the numerous kinds of whales, cachalots, grampuses, walruses, sea unicorns, seals, &c., as those of Denmark, Norway, and Sweden; but, of any large marine nondescript or indeterminable monster they cannot shew a trace.

"I have inquired repeatedly whether the natural history collections of Boston, Philadelphia, or other cities of the United States, might possess any unusually large ophidan vertebræ, or any of such peculiar form as to indicate some large and unknown marine animal; but, they have received no such specimens.

"The frequency with which the sea serpent has been supposed to have appeared near the shores and harbours of the United States has led to its being specified as the "American Sea Serpent;" yet, out of the two hundred vertebræ of every individual that should have lived and died in the Atlantic since the creation of the species, not one has yet been picked up on the shores of America. The diminutive snake, less than a yard in length, "killed upon the sea shore," apparently beaten to death, "by some labouring people of Cape Ann," United States, (see the 8vo. Pamphlet, 1817, Boston, page 38,) and figured in the *Illustrated London News*, October 28th, 1848, from the original American memoir, by no means satisfies the conditions of the problem. Neither do the *paccopharynx* of Mitchell, nor the *ophiognathus* of Harwood, the one 4½ feet, the other 6 feet, long; both are surpassed by some of the congers of our own coasts; and, like other murænoid fishes, and the known small sea snakes *(hydrophis)*, swim by undulatory movements of the body.

"The fossil vertebræ and skull which were exhibited by Mr. Kock, in New

York and Boston, as those of the great sea serpent, and which are now in Berlin, belonged to different individuals of a species which I had previously proved to be an extinct whale, a determination which has subsequently been confirmed by Professors Müller and Agassiz. Mr. Dixon, of Worthing, has discovered many fossil vertebræ in the Eocene tertiary clay at Bracklesham, which belong to a large species of an extinct genus of serpent *(palæaphiz)*, founded on similar vertebræ from the same formation in the Isle of Sheppey. The largest of these ancient British snakes was 20 feet in length; but, there is no evidence that they were marine.

"The Sea Saurians of the secondary periods of geology have been placed in the tertiary and actual seas by marine Mammals. No remains of Cetacea have been found in Lias or Oolite, and no remains of Plesiosaur, or Icthyosaur, or any other secondary reptile, have been found in Eocene or latter tertiary deposits, or recent, on the actual sea shores, and that the old air-breathing saurians floated when they died has been shown in the *Geological Transactions*, (vol. v., second series, p. 512). The inference that may reasonably be drawn from no recent carcase or fragment of such having ever been discovered, is strengthened by the corresponding absence of any trace of their remains in the tertiary beds.

"Now, on weighing the question, whether creatures meriting the name of 'great sea serpent' do exist, or whether any of the gigantic marine saurians of the secondary deposits may have continued to live up to the present time, it seems to me less probable that no part of the carcase of such reptiles should have ever been discovered in a recent or unfossilized state, than that men should have been deceived by a cursory view of a partly submerged and rapidly moving animal, which might only be strange to themselves. In other words, I regard the negative evidence from the utter absence of any of the recent remains of great sea serpents, krakens, or Enaliosauria, as stronger against their actual existence than the positive statements which have hitherto weighed with the public mind in favour of their existence. A larger body of evidence from eye witnesses might be got together in proof of ghosts than of the sea serpent."

Capt. McQuhae has made the following remarks on the foregoing:—

"Professor Owen correctly states, that I 'evidently saw a large creature moving rapidly through the water, very different from anything I had before witnessed, neither a whale, a grampus, a great shark, an alligator, nor any other of the larger surface-swimming creatures fallen in with in ordinary voyages.' I now assert, neither was it a common seal, nor a sea elephant; its great length and its totally different physiognomy precluding the possibility of its being a 'Phoca' of any species. The head was flat, and not a 'capacious vaulted cranium'; nor had it 'a stiff inflexible trunk,' a conclusion to which Professor Owen has jumped, most certainly not justified by the simple statement, that no 'portion of the sixty feet seen by us was used in propelling it through the water, either by vertical or horizontal undulation.'

"It is also asumed that the 'calculation of its length was made under a strong preconception of the nature of the beast;' another conclusion quite the contrary to the fact. It was not until after the great length was developed by its nearest approach to the ship, and until after that most important point had been duly considered and debated, as well as such could be in the brief space of time allowed for so doing, that it was pronounced to be a serpent by all who saw it, and who are too well accustomed to judge of lengths and breadths of objects in the sea to mistake a real substance and an actual living body coolly and dispassionately contemplated, at so short a distance too, for

the 'eddy caused by the action of the deeper immersed fins and tail of a rapidly moving gigantic seal raising its head above the surface of the water,' as Professor Owen imagines, in quest of its lost iceberg.

"The creative powers of the human mind may be very limited. On this occasion they were not called into requisition, my purpose and desire being throughout, to furnish eminent naturalists, such as the learned Professor, with accurate facts, and not with exaggerated representations, nor with what could by any possibility proceed from optical illusion; and I beg to assure him that old Pontoppidan having clothed his sea serpent with a mane, could not have suggested the idea of ornamenting the creature seen from the *Dædalus*, with a similar appendage, for the simple reason that I had never seen his account, or even heard of his sea serpent, until my arrival in London. Some other solution must therefore be found for the very remarkable coincidence between us in that particular, in order to unravel the mystery.

"Finally, I deny the existence of excitement, or the possibility of optical illusion. I adhere to the statements, as to form, colour, and dimensions, contained in my official report to the Admiralty, and I leave them as data whereupon the learned and scientific may exercise the 'pleasures of imagination,' until some more fortunate opportunity shall occur of making a closer acquaintance with the 'great unknown,' in the present instance most assuredly no ghost."

A Day or Two on the Coast of Labrador.—*By Capt. H. W. Bayfield, R.N.*

We proceeded from the east point of Anticosti across towards Kegashka Bay, having an unsteady breeze from S.W., and saw Natashquan point on the coast of Labrador, bearing N.b.W. at 7 P.M. Great quantites of snow or packed ice was seen along the beaches; the same, although in less quantity also on the shores of Anticosti. As everything indicated a quiet night I wished to anchor with the stream to avoid being carried away by the currents, and to be in readiness to send a boat inshore in the morning. The great depth of water obliged us to stand closer in than we otherwise should, for we had no bottom with 50 fathoms of line: suddenly we struck soundings in 29 fathoms sand. The vessel was instantly rounded to, and the sails clewed up. The lead had been hove again for the purpose of ascertaining more particularly the nature of the bottom, for no one thought the depth of water could have changed as we had not moved twice the vessel's length. I was just about to give the order to let go the anchor when the quarter-master reported—"We are in shoal water, sir, only 6 fathoms." We anchored, an officer was sent to sound around the vessel, but we could not find less than 4½ fathoms. There was a depth of 9 fathoms between us and the shore, distant about 1½ mile. Three cables' length in the opposite direction there was no bottom at 30 fathoms. This is a bank of sand extending off the south-west extreme of Natashquan point, about a mile further than we were aware of last year.

On the following morning the 22nd of June we had light breezes S.E. with rain and fog all day; we weighed last night at 11 P.M., after we

had done sounding; were carried far to the westward by the current out of the river Natashquan, which discharges a great body of water at this early season of the year. It makes the surface of the sea fresh for several miles around.

Unaware of the strength of this current we were completely out of our reckoning, so that when we made the land through the rain we did not know for some time what place it was in which we saw several schooners lying. We however soon obtained a pilot in the person of the master of the Nova Scotian schooner *Shelburne* of 85 tons, (Phillips) who took us through between the rocks and anchored us among them, in Little Natashquan, a harbour for small craft in which there is from to 2 to 4 fathoms at low water over sand and clay bottom. Here we found six American schooners belonging to a very enterprising individual, (Mr. Billings,) of Eastport, in the State of Maine.

They fish in boats off the entrance of the river Natashquan, about five miles from the harbour. These boats are like light whale boats, each having one peculiar sail, something like a shoulder of mutton sail in shape, but having a very short gaff, and a boom like a schooner's mainsail; it also runs up and down the long slender mast with hoops. There is a small block at the mast head which slips on and off with a strap like that used for the end of a sprit; through this a single rope as haulyards leads to the stern, another single rope is attached to the boom as a sheet,—there is no other rigging. The lightness and simplicity of this rig is well suited to the employment.

They catch immense quantities of cod fish here in the early part of the season, but after the month of June the bait (capelins) leave this place, and I suppose the cod fish follow their food. The fishermen follow the fish, and proceed more to the north-eastward; their next fishing place being in small harbours near Bradore Bay.

Among the rocks a mile to the eastward of the anchorage of the Americans, were half a dozen small schooners, or shallops, as they are called, in the Gulf, these were British. There appeared great jealousy of the Americans, who are said to occupy the best fishing stations, from their superior numbers, although the British fishermen say they have no right to fish nearer than within three miles of the coast. It certainly is not pleasing to see foreigners of any kind thus swarming upon our coast to the injury of our own fishermen, but it is certain they have right from treaty to fish off our coasts under certain limitations.

Two of these American schooners were of about 100 tons, the others from 30 to 70 tons.

There was a seventh American schooner lying here, of 106 tons, the *Ripley* of Eastport, employed in a very different pursuit. She carried the celebrated Mr. Audubon, the naturalist, accompanied by several young men, lovers of science; two of them, I believe, medical students of Boston. These besides assisting Mr. Audubon in shooting and preserving specimens of birds, attend to botany, zoology, and mineralogy; in short they collect everything. But the chief object of the expedition is to enable Mr. Audubon to study the habits of the water fowl, with

which the coast of Labrador abounds, and to make drawings of them for his magnificent and splendid work upon the birds of America, which is in progress of publication.

Soon after we anchored I was informed of the presence of Mr. Audubon by his sending a polite note on board with his card. I received him on board the *Gulnare*, and we were struck with his gentlemanly manners, and the extent of his information; the first impression that he was a very superior person has not been changed since. I returned his visit on the following day, and he kindly shewed us his drawings; we found him in the act of painting a gannet. The birds are all painted large as life, and never did I see anything more beautiful or true to nature. Not only the difficult iridescent colours of the necks of many of these birds; but even the expression of the eye is preserved.

I look upon our meeting with a party* on this wild coast, devoted to

* This accidental meeting between Captain Bayfield and the celebrated American naturalist was thus alluded to in a New York paper.

"The Editors of the *New York Gazette* have been favoured with the following extract of a letter from Mr. Audubon, dated

"*Great Macatine Harbour, Coast of Labrador, or Bay de Portage, July* 23, 1833;—*Ther.* 50.

"Our voyage from Eastport was as favourable a one as we could possibly have wished, for in eleven days we landed on this coast, exclusive of our visit to the Magdaline Islands, in the Gulf of St. Lawrence, which we did previously. Our first landing was (on this coast) at Mount Jolly, where we found seven American cod fishermen, and two from Nova Scotia. A few days afterwards, the British schooner *Gulnare* came and anchored near us. We found Captain Bayfield, R.N., and Dr. W. Kelley and others on board, not only polite, but truly kind to us. I will not now attempt to say a word about the country we are in; it is unlike anything that I have ever seen before. We are, thank God, so far, all well, and have been so since we left the United States. Our vessel proves a fine sailer and a staunch one; our captain first rate, active, industrious, and pleasing in his manners; our young gentlemen are all pleased and delighted together, and thus far I am pleased with the charge I have taken upon me of them.

"The information I have gained connected with, and relative to my work I believe unprecedented, although I have found only two new species, a Furigille and a Pasus, and completed but seventeen drawings. I feel quite satisfied. We have, however, been deceived as to the quantity of birds said to be here. Birds are more rare than even on the St John's River of Florida, with the exception of a few species, of which there are thousands to be seen on the outer Sea Isles. We have scarcely passed a day without constant fire. We have snow in all our rambles on the north side of rocks and hills, mosquoitos and cariboo flies in thousands, a growth of vegetation that would astonish any English gardener, and yet not a cube of soil apparently. Granite rocks and mosses of many species. I have made a drawing of a pair of willow grouses, with a covey of young. I will hereafter give you some faint idea of the exterior or superficial aspect of this country. I have a cargo of yams for my worthy friend John Beekman. I have also eggs. We are bound to Bradore, as soon as the wind will permit, about 100 miles north-east of us; but we are told there are immense fields of ice in that region. If nothing unforeseen occurs, we shall be on our passage homeward by the 1st or 10th of September. My son and the young gentlemen are now out scrambling over the mountains. Our collection of plants will be agreeable to you and others. The beds of mosses soft as velvet, as rich as colouring can be—we often sink into it up to our knees;—but more of these things at a future time. I send this by the *Angelica* to Quebec, from whence I hope it will find its way to you."

pursuits in some measure analogous to our own as an extremely interesting circumstance. Mr. Audubon informed me that he is about to proceed in the same direction as ourselves, stopping at the small harbours where birds abound, so that I trust we shall meet often. He shewed me a letter from H.R.H. the Duke of Sussex, as President of the Royal Society, recommending him to the kindness and attention of Her Majesty's officers, and I offered him any assistance in my power. He said that he should avail himself of it in case of need, as he feared he might meet with some opposition or annoyance from the "Eggers;" a set of people whom we now first heard spoken of thus collectively as a body.

We had heard that small vessels came to the coast for eggs, but had no idea of the extent of the "egging business," as our informant termed it. It was reported to us that in some seasons full twenty small schooners or shallops, from 20 to 30 tons load with eggs from this coast. Halifax is the great market for them, where they at times fetch a much higher price than hen's eggs. They are also taken to Boston and other places. They are stowed in the hold in bulk, and keep for many weeks without any preparation.

These men, the eggers, combine together and form a strong company. They suffer no one to interfere with their business, driving away the fishermen, or any one else that attempts to collect eggs near where they happen to be. Might makes right with them, if our information be true. They have arms, and are said by the fishermen not to be scrupulous in the use of them. As soon as they have filled one vessel with eggs, they send her to market, others follow in succession, so that the market is always supplied, but never overstocked; one vessel of 25 tons is said to have cleared £200 by this "egging business" in a favourable season.

Little Natashquan is a small anchorage or harbour among the rocks just large enough for the *Gulnare*. There are thousands of rocks and small granite islets along this coast, and many anchorages like this among them which no chart could show the way into. With a clear sky and smooth sea, when the bottom can be seen in three fathoms, with a handy and quick working vessel, and a bright look out, you may find your way into such places, the existence of which is always shown by crosses, or piles of stones or drift wood upon the islets; these are placed as guides by the fishermen.

We suffered a very vexatious detention at Little Natashquan, the S. and S.E. wind blowing continually, with fog and rain. It cleared partially occasionally, which enabled one of my assistants to make a plan of the harbour, and I obtained the necessary observations for our chronometer, &c. The *Ripley*, Mr. Audubon's schooner, was also detained. On the 28th June a sudden squall from the N.W. dispelled the fog. The *Ripley* weighed and stood out at 2 P.M., and we unmoored and followed her in about five minutes. The wind had backed to the southward of west as we were weighing, and was still hauling round to the southward by degrees.

The *Ripley* was very nearly ashore on the east point of the harbour from this cause, barely weathering it by her own breadth, and being too

near to attempt to tack in so light a breeze and so heavy a swell. We watched her with much anxiety; had she struck she must have been lost. We had, however, hardly time to rejoice at her escape before we approached the point also, and, at first, I thought we should weather it easily; the wind, however, headed us suddenly, and more than it had done the *Ripley*, and obliged us to tack when within twenty yards of the point. There was but little room for a vessel of 150 tons to beat, for the rocks on the west side of the channel were not more than four times the length of the vessel from us. We, therefore, let her fall well off before we hauled the head-yards, and ran back the same way we came. The western channel appeared the widest, and I determined to attempt beating out through it, although only 90 fathoms wide, rather than suffer any further detention. We, therefore, hauled round the inner end of the reef, in the centre of the entrance, and which forms the two channels into the harbour, close as we dared, and with a leadman in each chains. This last precaution was merely matter of form in the event of accident, for I felt assured that it was perfectly useless, the granite rocks rising in steep mounds from deep water, so that there is no warning by the lead. We considered that we had found all the hidden rocks in the channel, and we certainly had done our best to effect it; we, therefore, went on confidently and prosperously. The *Gulnare* sailing and working in her usual style, had in three boards nearly cleared the narrow channel, although she had scarcely time to get way on one tack before we were obliged to put her on the other. We were making our second board to the westward, in the narrowest part of the channel, the next to the eastward would have taken us out clear; the order was given "ready about," the helm was put down, and the *Gulnare* was ranging ahead in stays, when she suddenly struck abaft, gave a slight heel, and began to swing round to leeward, being afloat forward.

Perceiving that as soon as she fell off sufficiently to fill the sails, that she would drag over the rock upon which she barely touched abaft, I ordered the after sails to be instantly taken in, the head-yards thrown flat aback, so as to box her off, and head sheets to windward, keeping the foresail set to assist in paying her off more rapidly, for there was a rocky islet, not our own length, ahead of us, on which she would have run stem on as soon as she floated, had not the preparatory arrangements just related been performed. As it was, a man might have leaped from our flying-jib boom end upon the rocks as she fell off before the wind, checked in her headway by grazing upon the rock with her heel. In the swing round she floated, and having had enough of it for one trial, I ran back and moored again at 5 P.M., in our old berth. We were not aground above a minute or two, there was no sea fortunately, for it was broken off by reefs to windward, and it was dead low water. No injury was done, even to the rates of the chronometers, for the Doctor instantly ran down to them and took them in his hand till we were afloat. A boat was sent to examine this rock, it was found to have deep water between it and the shore, although so close to it, and we had 4 fathoms in one chain and 3 in the other when she

struck. The rock, thus practically discovered, was duly entered in the chart, and we learnt that the *Gulnare* could beat through a channel less than a cable's length wide, but that it was not expedient to make her do so in such places as Little Natashquan.

On the following day, the 29th June, we at last got clear of Little Natashquan; the wind had been in during the morning, but veered to W.b.S., at 9 A.M. This wind would allow of our standing out between the reefs close hauled, but I knew by the experience of yesterday that it would head us at the most critical time, by hauling in round the point of the islands, or that it was more from the southward outside, the difference being caused by the shape of the land and islands. In order that we should not keep more away than necessary to avoid the central reef, I despatched the gig to lie on the lee side of it, and as we found in weighing yesterday that the ground was so good as to allow us to heave close up to the anchor, I took advantage of that circumstance to set every sail, fore and aft, previously to weighing. Imagine us, therefore, hove short with every sail, gaff top-sail, royal, &c. set, and so disposed as instantly to cast the vessel to the southward; about one-third of a cable's length under our stern is a rocky point—we have, therefore, no room for accidents. The order is given to heave away, the anchor is torn from the ground, the head-yards swung, and the *Gulnare* springs at once from her anchorage under every sail that will draw—she passes close to the boat, and has now passed to the S.E. end of the reef, the point to be cleared is a cable's length broad on her lee bow, and to all appearance she will weather it with ease. But now no longer sheltered by the reef she begins to feel the S.W. swell on her weather bow, and what is worse, the wind heads her at the same time; she must be tacked at once whilst there is room, and I was about to give the order before it should be too late, when the wind again favoured us a point, and induced me to proceed. The die was cast—round she must go, or ashore on the point of craggy rocks now not 10 fathoms under her lee, there is neither room to stay nor to anchor—again the wind heads us, and yet we dare not lift a sail; the point is now abreast of our gangway, and not fifteen yards distant. The wind is light and baffling, and the swell occasionally shakes it out of our sails; never did she appear to go so slowly before. The officers look steadily, but with compressed lips, at the surf running up the end of the point which we are slowly passing; by a compound motion of headway and drift, the vessels head being turned from the danger as much as the wind will allow. The leadsman cries "a quarter less three," we expect her to strike every instant, and hold our breaths to meet the shock. The point is only ten yards off, but it is abaft the beam, keep her rap full, and in another minute she is safe, having slowly shot past the point which immediately afterwards is right astern from the heave of the sea and lightness of the wind.

It took us several tacks more before we got into deep water and clear of the numerous reefs. During these boards the soundings were not suited to weak nerves, and rather startling to firm ones, from 10 to $2\frac{1}{4}$ fathoms occurring frequently; in short, the small harbours among the

rocky islets and reefs of this dangerous coast are only fit for small fishing or egging schooners, of from fifteen to fifty tons, and even they must keep a bright look out, and mind what they are about.

The last day of June was passed at Kegashka, where we anchored for observations, and to dispatch a surveying boat, to add to the detail of last year's survey, as far as the Southmaker's ledge; and to examine a harbour near it, named Wapitagun by the fishermen, in readiness to take the *Gulnare* in on her arrival.

The 1st July was the second very fine day we have experienced this season, a day which reminded us of other climates. After sounding along the coast, and seeing that there was no shoal water outside the reefs, omitted last year, we hauled round the Cormorant rocks, passing between them and the Southmaker's ledge late in the afternoon.

The surveying boat had just arrived, and consequently had not had time to examine the place, and we should have had some difficulty and ran some risk in getting into the harbour, if Mr. Emery, the master of the *Ripley*, American schooner, employed by Mr. Audubon, had not kindly come off to us and piloted the *Gulnare* in. We were, in consequence, safely moored in Wapitagun, near the *Ripley*, by 7 P.M.

Wapitagun is a harbour secure from all winds, sufficiently large and deep for vessels of any size when once they are in, but the entrances both to the W. and E. are extremely narrow between islands, and it is necessary to turn short round at right angles when coming in by the western entrance, which is the one generally used, because the westerly winds are the only clear winds, and it is only in clear weather that a vessel can venture near such a place. Great promptness and attention in the management of the sails of a vessel are necessary in entering such narrow and intricate channels.

There is no difficulty in making this harbour, for the Southmaker's ledge lies directly opposite to it, and about three and a-half miles off shore. It is a solitary rock, which just covers at high-water in calm weather, but which is usually covered with foaming breakers. When there is a heavy swell from the southward they fly up every now and then to a great height, like the spouting of a whale. Lake Island is immediately to the westward of the harbour, and may be known by its precipices of red granite, 100 feet high, and which are stained white in patches by the cormorants that breed upon them. These red cliffs are higher than any others near. Extending from the west end of Lake Island towards the Southmaker's ledge, lie a chain of bare rocks, which I have named the Cormorant rocks; there is a wide channel between them and the Southmaker's ledge.

The islands which form the harbour are so close together as to appear like one large island when seen from sea. On a point about two miles eastward from the western, and half a mile from the eastern entrance is a very remarkable rock, which looks like a gun or mortar; a singular coincidence, for the seamen and fishermen think the name of the harbour derived from this rock, whereas it is more probably an Indian name.

It is some days since we left the *Gulnare* to carry on the survey in

the boats, it being altogether impossible to do anything with the vessel till we have first acquired some knowledge of the labyrinth of islets, rocks, and reefs which hide the main land; and of the numerous sunken rocks, many of which have 50 fathoms of water close to them. I cannot more readily give you an idea of the harrassing nature of this service and climate than by describing a three weeks' excursion from the vessel in the *most favourable* month of the year, July.

A NOTE ON THE NAVIGATION OF THE BAY OF FUNDY.—*By Com. W. Peel, H.M.S. Daring.*

THE prevailing winds in this Bay during the months of July, August, and September, are from the South-east and S.S.W., which roll in before them a dense wall of fog that penetrates everywhere, and which is only occasionally lifted by a change of wind from the northward.

The navigation, therefore, during this period, particularly in the month of August, requires great firmness and caution, but is far from being so dangerous as represented. Unfortunately, from the short summer of the climate and long severity of winter the whole activity of trade is compressed into this brief period.

The northern shore of the Bay of Fundy is clear and bold to, in its whole extent, with several beautiful harbours, and a safe deep passage between it and Grand Manan Island, whilst the Wolf Islands, or the very remarkable rock called the "White Horse," are a guide against being carried by the tide into the channels that open the Pagana Quoddy Waters. A ship, therefore, may with proper precautions, navigate along this shore in perfect safety. It is the passage between Grand Manan Island and the Nova Scotian shore that is really dangerous, but here no ship should attempt to pass without the prospect of clear weather. She may anchor in Brier Island Passage, if coming from the northward, or in St. Mary's Bay, if from the south, until an opportunity occurs. To pass through the passage formed by Brier Island would at once clear everything; but the tide runs through with great rapidity, and breaks across in a heavy ripple. A rock also exists in the channel, the position of which is not generally known. The "*Daring*" attempted once to beat through, but the pilot had mistaken the time of tide, and when half way, losing his nerve, he gave up charge. I have no doubt, however, but that it would be of great service to the commerce of St. John, New Brunswick, to have attention drawn to this passage, as the means of clearing the dangers outside; for there is this other advantage in standing close in to the Nova Scotia shore, which is the reverse on the other side of the bay, that the fog seldom comes close home. For this reason, and also on account of the Bank of Soundings, in coming from the eastward into the Bay of Fundy, I would prefer coming up by the Nova Scotia shore, to standing across for the other side, as recommended in the General Directions.

The tides in the Bay of Fundy, though extremely rapid, are very re-

gular, and the wind, during these months, seldom blows with violence, or without dispersing the fog in the immediate vicinity of land. The water, also, in the bay, above Grand Manan is smooth, though rendered dangerous to boats in many places from the rippling of the tides.

I will not attempt to describe the several harbours that the *Daring* visited. A pilot is necessary for a first acquaintance; but nowhere better than in the Bay of Fundy, from the vivid recollection of the land, that is impressed on the mind by anxious attention, can one so quickly learn to dispense with his services.

I would recommend a ship stationed in the Bay of Fundy to make Digby, in the basin of Annapolis, her chief resort. The ship's company can here have liberty without being exposed to the great bribes for desertion offered at St. John; fresh provisions are cheap and excellent, and water can easily be obtained by the ship's boats without having to purchase it as at the former place. The basin of Annapolis also is more free from fog than any other place, and the entrance is wide enough for a ship to work through.

Under the protection of the British Navigation Laws, the Bay of Fundy has been converted into a great ship-building yard, certainly to the detriment of the real interests of New Brunswick, whose attention is called away in consequence from agriculture, making her dependent on the States for food, and, I should think, to the detriment of the English ship-builder at home, who is exposed to a partial and unfair competition.

SIAM. *Bangkok, September 1st.*—The king has completely recovered from his late fears of British invasion, but another mishap has befallen his majesty which threatens real mischief, a disease has broken out among the royal elephants, and about thirteen were carried off in about twenty days. It is not the bare fact of these animals dying which has caused his majesty so much uneasiness as the reflection that one or more of his ancesters were carried off shortly after the epidemic amongst the elephants ceased. This presage of death has cast the utmost gloom over the court; his majesty has assumed an air of melancholy, refuses to eat, avoids company, and is in hourly consultation with the priests. It is worthy of notice, as showing the eagerness of the Siamese to benefit by European improvements, to observe that a small steamer has lately been built at Bangkok, under the direction of Khun Phra Nai War, son of his excellency the Phra Klang; the engine (one-horse power) was made entirely by natives under the direction of the royal ship-builder, Prince Momfanoi, from an engraving and description in an English work on the steam-engine. On an experimental trip, the small steam-boat, 30 feet in length, proceeded up and down the river at the rate of three miles an hour. In consequence of a defect in the boiler-plates, the Siamese intend getting out boilers from England, and to construct engines on a larger scale. In their love of novelties and improvements the Siamese contrast strangely with their immediate neighbours the Chinese.

THE ANEROID BAROMETER.

FEW inventions have come before the world with greater pretensions to general favour than the Aneroid Barometer. The measure of atmospheric

pressure which is achieved by the cumbrous and unwieldy barometer, will now be effected by means of a small portable instrument, as secure in its construction, from derangement, as it is easy of management, and more sensitive in its indications than its ponderous rival. To the traveller the Aneroid will be an invaluable substitute for the mercurial barometer, affording him at once a simple and sufficient means of measuring the elevations and depressions of his road; while to the seaman, in whose hands it will hereafter supercede the use of the barometer, it will become an invaluable friend; for the closeness of its indications, and the compactness of its form are qualities which, to him, will render it of essential importance. We have delayed giving any account of this new instrument until its practical working powers had been tested, and the inventor had determined on a decided arrangement of its mechanism. Experiment has proved that the power of the Aneroid, in the quickness and accuracy of its indications has surpassed even the expectations of the inventor. While for domestic purposes, it may gradually supercede the ordinary barometer, it is the mariner who will be especially interested in its success. He knows well the difficulty of reading off the height of the mercurial column, when his ship is in violent motion at sea. It may be too active indeed, but it may be also too sluggish to indicate a sudden change in the atmosphere. The Aneroid has no such defects. It will be found by experience, that its indications are instantaneous, and that long before the mercurial column has altered its convex, or its concave surface, the Aneroid has done its work. On ascending or descending an inclined plane, the hand of the Aneroid will be seen like the minute hand of a watch, gradually moving, and the indications, which it gives, will shew the height above the sea level, within very narrow limits. In such operations, no such preliminary detail as is required for using the barometer, is necessary for the Aneroid, and even in the present unimproved state of the instrument, approximations will be arrived at, of perhaps more value than those given by the barometer. Such a power of indicating rapid changes as is possessed by the Aneroid, in addition to its other qualities, will always render it a treasure to the seaman.

No. 1.

We will now proceed to give a few words of description of this instrument, with the assistance of Mr. Dent, who has been enabled by the inventor, M. Vidi, of Paris, to explain its construction.

Figure No. 1, represents the Aneroid, one-third of the full size. The action of it is thus explained.

No. 2.

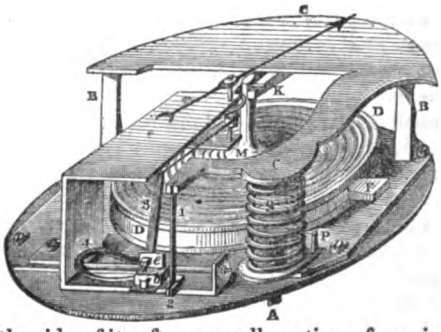


Figure No. 2, represents the instrument with the dial plate removed, to shew the action of atmospheric pressure on the partial vacuum box D D. The upper and lower surfaces of this box are made of thin diaphragms of metal. A vacuum having been obtained in this box D D, by means of an air pump applied to the pipe F, in the side of it, after a small portion of gas is introduced, it is hermetically sealed.

The box is now to be placed in a condition to shew the varying pressure of the atmosphere; this is effected by raising its upper surface, until the lever C C can be placed on its fulcrum B B, the centre of the lower surface of it having been previously fixed to the plate. The fulcrum B B, in conjunction with the spiral spring S, then sustains the actual pressure of the atmosphere, exerted on the surface of the box, and acting on the lever by means of the connecting piece M, in the centre of that surface. It is evident now that the lever sustains the atmospheric pressure, one end resting on the invariable fulcrum, while the other rests on a powerful spring, which yields its action to the varying power of the atmosphere exerted on the surface of the box.

We must pause here a moment, to admire the great ingenuity displayed by the inventor in this principal feature of the Aneroid. We have here the novel fact before us of the same pressure which sustains the vertical mercurial column, acting now on a lever of the second order, to which, by the nature of its mechanical arrangement, a freedom of motion is left to shew even the smallest variation in that ever varying quantity, the pressure of the atmosphere, and this too, contained in a box about three inches wide! The inventor may well exult in this remarkable production of his ingenuity, and look on it with all the satisfaction which a seven years study of the subject entitles him.

The name which he has given to the instrument has excited much speculation as to its origin. It is made up we believe of bad French and the Greek word signifying fluid; *a ne*, it has not, or, it is without, (Rodeos) Ροδεως fluid; or the Greek *a*, signifying, without, followed by the French negative, *ne*, forming the word Aneroid; thus, marking the characteristic feature of the instrument as mainly distinguishing it from the barometer.

But to proceed with our description.

The surface of the box is now depressed or raised by the varying force of the atmospheric pressure, and this alternate action is communicated to the dial plate in the following manner:—In the centre of the upper surface of the vacuum box, the upright piece of brass M is

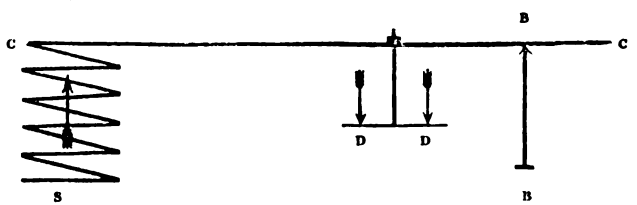
fixed, in the extremity of which the pin K, is inserted, resting on the short arm of the iron lever C C; the lever C C, resting again on the knife-edge pieces B B as a fulcrum, the other extreme resting on the spiral spring S. No. 1, is a rod connecting the lever C C with the levers 2 and 3. The bow piece No. 4, connects the two levers No. 2 and 3, so as to admit of the scale of the Aneroid, being adjusted to the scale of a mercurial barometer, in such a manner that the two scales may correspond. It is evident from the screws having square heads, as seen at *b* and *e*, that, if either *b* or *e* be screwed or unscrewed, the arm 2 or 3 can be made to move the hand over a space equal to that shewn on the mercurial barometer.

The end of lever C C is connected by the piece No. 1, (Fig. 2), with the arm No. 2, which is fixed to an arbor having pivots. To this arbor is fixed another arm, No. 3, and this arm No. 3, is connected by a small chain, acting round the vertical axis, which carries the hand, and to which vertical axis is attached a flat spiral spring, which being always in a state of tension keeps the hand in its proper position. From the above description it is evident that when the atmospheric pressure is lessened on the vacuum box D D, the spring S raises the lever C C, and turns the hand of the Aneroid to the left, and when the atmospheric pressure increases, the spring S is pressed downwards by the lever C C, which turns the hand to the right.

It is evident, on considering the metallic construction of the vacuum box as well as the levers that variable temperatures would seriously disturb the action of the instrument. The inventor has most ingeniously compensated for these effects of heat and cold, by introducing into the vacuum box, after the exhaustion by the air pump, a certain quantity of a kind of gas (not atmospheric air,) the necessary quantity being determined by actual experiment. The gas contained in the box, changing its bulk on a change of temperature, compensates for the effect on the metals of which the Aneroid is made.

To regulate the hand of the Aneroid with the standard mercurial barometer there is a screw, A, (figure 2), at the back of the outer box, which when screwed or unscrewed, raises or depresses the spring S, which turns the hand so as to agree with the standard mercurial barometer; the pin P, prevents the spring S, turning round when the screw A is moved.

To illustrate the action of the varying effects of the atmospheric pressure on the vacuum box D D, the following diagram is introduced, being a skeleton representation of the lever C C, the spring S, and the fulcrum B B.



The force of the spiral spring s, being in constant action, pressing the lever c c upwards against the weight of the atmosphere, acting on the surface of the box d d, as this pressure increases, an increase of power is exerted on the spring pressing it down, and as this pressure decreases, the action of the spring presses the lever upwards, lifting the surface of the box against the atmospheric pressure; so that there is a perpetual balance of power and weight acting on the lever c c, as it rests on its fulcrum b b.

To register the Aneroid barometer by the nut o, (figure 1), in the centre of the dial, the brass hand w may be placed immediately over the Aneroid, if any deviation in the atmospheric pressure takes place it is indicated by the two hands similar to the ordinary wheel barometer.

The portability of the Aneriod is shown by (figure 1), which is one third the full size. It acts in any position, whether vertical, horizontal, or oblique, the atmospheric pressure being equally indicated by the hand.

We may observe, in conclusion, that the mean value of a tenth in the barometer scale, between 28 and 31 inches, is about 91 feet.

The Navigation Laws.

Evidence taken before the Committee of the House of Lords on the operation of the Navigation Laws.

Admiral Sir Thomas Byam Martin, G.C.B., is called in, and examined [June 29, 1848] as follows:—

8338. You are Vice Admiral of England.—I am an Admiral of the Red Squadron of her Majesty's Fleet, and the Vice Admiral of the United Kingdom.

8339. How many years have you been in the navy.—It is more than sixty-two years since I left the college to go to sea.

8340. Among other important offices that you have held, you were several years Comptroller of the Navy.—Yes, I was sixteen years Comptroller of the Navy, which of course gave me an opportunity of obtaining a good deal of information on dockyard matters, and also respecting the private shipwright operations of the kingdom.

8341. You have had great opportunities of considering the state of the Navy; will you have the goodness to state whether you have given much attention to the working of the Navigation Laws in connexion with the Royal Navy.—Since I have had notice that I was to be called before this committee I have referred to some extensive memoranda. and have put in writing my observations with reference to the Navigation Laws as bearing upon the Navy, being the only points upon which I can venture to speak.

The Navigation Laws, as I have always understood, were designed for protection and encouragement to British shipping and British seamen; and I have been accustomed to think that they have had that effect.

The Navigation Laws also give encouragement to another very important class in this country, one upon which its safety as an independant state, in my opinion, very much depends—I mean the British shipwrights; and if any

change shall take place calculated to diminish that class of artificer, the consequences may be most disastrous should it be the misfortune of this country to be again involved in war.

The Navigation Laws give encouragement to the British shipowner by exclusive advantages in the colonial and coasting trade, and these the shipowner regards as a compensation for the obligation he is under to build his ships in some part of the Queen's dominions and to employ a certain number of apprentices. He considers it in a degree his due for "value received," if I may say so, by the public, on account of his incurring expenses for the support of the Navy; and if manufacturers or others do really feel that the Navigation Laws in any degree cramp their commercial enterprise, they also ought to be content to yield a something to uphold a service to which they all owe their protection and safety. But it would be difficult perhaps to show that inconvenience is experienced by any class from the Navigation Laws.

The Navigation Laws give protection to British seamen, by securing to them employment in a calling for which they qualify themselves by a long and severe apprenticeship.

I understand that four main objects are held out to the shipowner to give him hope of a satisfactory competition with the cheap carriers of other countries:—

First, that by the abrogation of the Navigation Laws he will be left at liberty to build his ships in cheap foreign countries.

Secondly, that he is to be allowed to take foreign seamen without limitation as to numbers. This was said to be the intention; but I am told that her Majesty's government have, with an excellent feeling for the interests of the seamen and the welfare of the Navy, given up that part of their plan; but as this country is infested with a set of people who are ever at work to mislead public opinion upon matters of great national interest, I will beg permission to say a few words by and by on that point, lest the subject should again be agitated and pressed upon the attention of parliament.

I ought to have remarked that there are other classes also dependent in a great degree upon the Navigation Laws. I mean the anchor-smiths, ropemakers, sailmakers, &c, all of whose trades will prosper or decline just in proportion to the quantity of shipbuilding you have in this country.

The third advantage held out to the shipowner is, that he is no longer to be compelled to take apprentices.

And fourthly, as a further temptation to the shipowner to be reconciled to the change, his men are no longer to be liable to impressment.

These are the only four points upon which I can speak, for I know very little of the mercantile part of the question.

Neither of these points can be conceded without damage to the public service.

If the abrogation of the Navigation laws leaves the shipowner at liberty to build his ships in foreign countries, and he avails himself of such licence, it must inevitably diminish the shipwright class in this kingdom; and I will endeavour to show how much the safety of England depended on shipwright exertions during the late and former wars, and how much more than ever its safety must depend on upholding that class of artificer as regards future wars.

Thirty-three years of peace have left us but few people who are conversant with the details of naval operations during the late war, and especially dockyard and shipwright operations, being those which give the first impulse to war equipment.

During the late war we had, most part of the time, 800 pennants flying, and even so many as 900 ships were in commission for a considerable time. It may therefore well be imagined what exertions were necessary by the shipwrights to keep up the repairs of such a fleet, and to build new ships to supply the decay and the casualties constantly going on. But, numerous as our fleet was, it is likely to be on a much larger scale hereafter; for, in addition to our usual fleets, there must of necessity be an immense number of steamers, in a great measure as an addition and not as a substitute for the sailing ships. With such facts as to the number of ships in past times, and such unmistakeable signs of what may be the demand for naval exertion hereafter, it is of vast importance that we should guard against any risk of diminishing the shipwright class.

But for the extraordinary efforts of the shipwright in the last war, we never could have gone through it with the success which marked the operations of our Navy in all quarters of the globe. There were captured during the war 156 sail of the line, 382 large frigates, 662 corvettes, and in all 2506 vessels of war; and it may well be supposed that such sweeping destruction must have made us pretty certain of maintaining a superiority of numbers throughout the long protracted struggle: but the year 1814, the last year of the war, found us at the utmost stretch of exertion to keep up fleets adequate to the protection of our colonies and commerce, and to keep pace with the quickly renovated and increasing fleet of the French. We were at this period running a race with France in building, and although the exertion of the King's shipwrights was encouraged by allowing them to earn unlimited wages according to the prices in the scheme of task or job work.

The number of shipwrights in the King's yards throughout the war may be taken at an average of 3,714, and 875 apprentices, making a total of 4,589 working shipwrights, besides 550 in the colonial yards. Notwithstanding this great muster of shipwright strength, and the efforts extracted from them, the Admiralty was obliged to seek every possible assistance from the private shipbuilders; and I will endeavour to show the policy and the importance of giving every protection to that class, by stating what they have done for the country when we had enemies to deal with in every quarter.

The first ship of the line built by contract was in 1755, when Messrs. Wells built the Elizabeth, of 74 guns; and since that time the private shipbuilders have contributed greatly to the public wants. They have built and repaired (chiefly in the last war) 93 sail of line-of battle ships, and 466 frigates and smaller vessels, making a total of 559 vessels of war. Now, if the Navigation Laws had been abolished prior to the time of which I am speaking, and shipowners had been in the habit of building abroad, what might have been the fate of this country from insufficient shipwright strength? These facts surely warrant the deep anxiety which I and others feel upon matters so seriously threatening the welfare of the Navy and the safety of the kingdom. I have myself a special dread of a return of those times when, in the language of Mr. Pepys "the ship's decays outgrew their cures;" and that must be our fate if we part with our shipwright strength. In the late war Buonaparte had nearly the whole sea front of the continent at his command, and he took full advantage of it to increase his fleet; he had as building ports, Venice, Genoa, Toulon, Rochefort, L'Orient, Cherbourg, Antwerp, and in effect all the ports of Holland. I had an opportunity to witness the great capability of Antwerp as a building port, having been sent there under the orders of Lord Castlereagh, to carry into execution the fifteenth article of the treaty of peace relating to the division of the Dutch and French ships and naval property; and I was astonished to find at that *one* port 13 sail of

the line on the slips, and some frigates; 19 sail of the line and 10 frigates having been previously launched there. The impression upon my mind at the time was, that if the war had gone on we should have been pushed to keep pace with the French in the building of ships.

What has happened may happen again; it therefore behoves this country to touch with great caution a law which, for a long series of years, has proved so eminently calculated to uphold our naval strength. The Dutch were once powerful at sea, often gallantly contending with us, and sometimes successfully; but, after the treaty of Utrecht, in 1713, they became careless about their navy, and they have ever since been insignificant on the ocean. I call this circumstance to remembrance, because it seems to admonish us not to be careless about our Navigation Laws, lest we also should become insignificant at sea. The importance of the shipwright class deserves to be long, very long, and seriously considered, before any step be taken that can by possibility hazard a diminution of shipwright work in this kingdom.

8342. You have hitherto referred exclusively to that provision of the Navigation Laws which requires that ships should be built in England?—Yes, the moment you give the power to build abroad in cheaper countries, supposing the British shipowner to take advantage of it, you diminish the shipwright work in this country; and in proportion as you do so, you inflict a consequent injury upon the Navy and the naval power of this country.

8343. The committee understand your opinion to be founded upon the assumption that in foreign countries ships can be built cheaper than in this country, and that consequently, if there were a permission given to go to foreign countries for ships, the British merchant would rely mainly upon the foreign shipwright, artizan, and shipbuilder for the construction of vessels, which would diminish the number of shipwrights in this country, and that, by diminishing the number of shipwrights in this country, in time of war we should be deprived of a very important national reserve.—That is my opinion. I take for granted that the shipowners in this country would be compelled to go to those cheap countries, if they were permitted to take those cheap ships, in their own defence. They would have no other chance in so unequal a competition. Again I say, the importance of the shipwright class deserves to be very long and seriously considered, for if it be impaired the country may be brought into a very perilous situation hereafter.

8344. You have expressed, in the clearest and most distinct manner, the disadvantages which would accrue to British shipping, if British shipbuilding were destroyed or seriously impaired in England; that goes upon the assumption that the repeal of the Navigation Laws would affect shipbuilding in this country; has your attention been very much called, either by your professional duties, or by private study, to the question, how far the repeal of the Navigation Laws would affect shipbuilding in this country?—I cannot pretend to say to what degree it would affect it. Of course it depends upon the shipbuilder, and upon what inducement he has to go abroad to build his ship instead of building here; but if he is brought into so desperate a competition with all the cheap building and cheap navigating countries, he must do everything he possibly can to reduce his expenses.

8345. Have you any experience of the comparative cheapness of foreign and of British-built vessels?—No, I have not,

8346, During the time when there was a great demand for shipwrights in this country, do you remember any instance of their combining with a view to raise wages, either against the government or against private shipbuilders?—Yes; I remember in the dockyards that there was a very strong feeling of insubordination on the part of the shipwrights, which proceeded to a very

great extent; but such was the urgency of the service that the Admiralty were obliged to give way to the demands the men made, and expresses were sent in every direction, saying, "You must give the shipwrights what they have asked."

8347. When there was an attempt to exact exorbitant wages on the part of the shipwrights of the dockyards, have you ever found that private yards afforded you assistance, and tended to counteract that feeling?—I do not think I have any recollection on that particular point.

8348. When there was any difficulty in obtaining shipwrights to do the work that there was to be done in the King's yards, had you recourse to private yards?—Yes; we had recourse to every quarter that we could go to. And, as I have already stated, 559 vessels were built and repaired by the merchants; and but for the private merchant yards, this country could not have carried on the war.

8349. But still that assistance must have been insufficient, inasmuch as you stated that orders were sent to submit to the terms which the shipwrights in the royal yards demanded?—Yes, On several occasions they were unreasonable and extortionate in their demands. But the shipwrights were, both in the King's and Merchants' Yards, urged to put forward the greatest exertion they could use; and they obtained unlimited earnings, according to the scheme of task and job work, which, I have before said, regulated the prices for every kind of work; and the men were allowed to work over the usual hours, and to get very high wages; I have known the men working by torchlight, in order to get on with the work, which was very pressing.

8350. You have spoken of cheap shipbuilding countries; have you any means of comparing the quality and durability of ships built in those countries with the ships built in this country?—No, I have not, I only call them cheap-building countries because I believe that to be the fact from what I have heard.

8351. Then, in fact, the ships built in those countries may not be in the long run cheaper than the ships built in this country?—I should think they would be cheaper; that is the impression on my mind; and as they can get the materials on the spot they must be cheaper; and there would be the freight and duties to this country to be added in the case of the ship being built here.

8352. In those countries do they not import from this country a considerable portion of the materials used in shipbuilding?—I am not aware of it.

8353. Copper?—Copper they do import.

8354. Iron?—Yes.

8355. Cordage?—No, we get cordage from them. I am not aware of any cordage going out there.

8356. Hemp?—Hemp they get from other countries, not from this.

8357. Are you aware that many foreigners build vessels, especially steam-vessels, in this country?

I am aware that steam-vessels are frequently built here, but not others. A steamer is a new kind of vessel, and the English are the best builders of such vessels; and those who wish to obtain good steam-vessels naturally come to this country for them; but I do not know that for other vessels they have come here.

8358. You were asked as to the durability of foreign vessels as compared with the English; have you ever had an opportunity of comparing the durability of foreign and British ships of war?

The durability is very uncertain. The Toulon ships are ships that last very long, because they are built with Italian oak, which may be said to be almost imperishable. There was a sixty-four gun ship that I remember some

years ago; she was seventy years old, and was as sound as a nut; there was not a defect in her; she was built in Toulon of Italian timber.

8359. Have you any reason to believe that she was built at less cost than a similar vessel in this country?—I have not the least idea.

8360. Are not many of the Spanish ships of war very durable?

Yes; they are generally built of hard woods that are very durable. Much was said in the war about building by contract as being very expensive, because of the ships going to decay so rapidly. This fact is to be attributed chiefly to the circumstances of the time, which required so many ships; and they went to decay so rapidly because they were built in such a great hurry: and green material was frequently unavoidably introduced, and that hastened their decay. Certainly the ships so built were not durable.

8361. Do you think that the Danish ships of war are as durable as the English?—I am unable to offer a comparison. I have been at Carlscrona, and have seen the Swedish ships there built under cover, which is a very wise measure we have lately got into, though the Swedes and Venetians have adopted it many years.

8362. Foreign countries would be able to build ships as durable as the ships of this country?—I do not know. The Russian ships are built of fir; they have not any oak I believe, and they perish very rapidly.

8363. The ships that you previously referred to were built either of oak or Spanish mahogany?—Yes, and they are very durable; but all the Russian ships decay very rapidly indeed.

8364. Are the Swedish ships built of oak?—They are built of fir frequently, but they are more durable than the others; the Russian ships are very magnificent to look at, but they decay very fast; the Swedish ships are more durable than the Russian; the Archangel ships built for Russia go very rapidly to decay.

8365. You have spoken of the insubordinate conduct and the extortionate demands of shipwrights during the war; may not that have proceeded partly from the knowledge of the fact that they had the monopoly in their hands, that foreign shipwrights could not be employed, and that therefore ships could not be built in this country except by English shipwrights?

Yes; no doubt they felt their importance during the war, and they took the opportunity, as other people would have done, of raising their demands. But as far as combination for wages goes, if the Navigation Laws were done away with, it would transfer the combination from the men to the masters. The master would say to the men, "If you do not accede to the terms that I choose to offer you, I will go to a foreign country and build my ships there." Therefore, I say, that it would transfer the combination from the men to the master, it would put the men entirely in the power of the master.

Loss of the Brig "Sarah" and the Schooner "Castlereagh."

We have to announce the total wreck of the brig *Sarah* and schooner *Castlereagh* of this port, at the island of Lefoo, on the 13th February last, but we are happy to say without loss of life, the captains, officers, and seamen, thirty-five in number, having arrived in Sydney yesterday morning by the *Eleanor*. The *Sarah*, Capt. Seagrove left Sydney on the 1st December, and the *Castlereagh*, Capt. Silver, on the 19th, both on a Sandal-wood voyage, the former proceeded to New Caledonia, and the latter to Lefoo. Captain Silver having arranged with the natives there to cut wood, proceeded to Erromanga, and anchored in Dillon Bay on the 15th January, for the purpose of watering and collecting wood, but after remaining there ten days without obtaining much of the latter, sailed again for Lefoo, and arrived

there on the 30th January. The natives being friendly, they immediately commenced trading, and on the 5th February the *Sarah* arrived from New Caledonia, for a like purpose, having then aboard about seven tons of wood. Both vessels were successful in their trading, and on the 11th February had each obtained about 20 tons of wood, when the hurricane commenced in which they were both wrecked. The following particulars are given by Captain Seagrove:—

"February 11th, at noon, increasing breezes, from the eastward, let go the best bower anchor. At 5 P.M., the boats came alongside, when we down all awnings, hoisted the boats up, and cleared the decks. 8 P M., strong breezes and dull rainy weather. 12th—Commences with strong gales and squally weather, sent down top-gallant yards; the gale increasing during the fore-noon, with a heavy sea rising, sent the top-sail yards down on deck, and veered on to to 110 fathoms of the starboard chain, and 75 of port cable; at noon it blew a a hurricane with a rising sea, which caused the ship to pitch heavily, sending the sprays fore and aft the deck. About 4 P.M. snapped the starboard cable, and drove within a quarter of a mile of the beach, the foremast was then immediately cut away, to let the ship ride easy, and, if possible, to save her. About 6 P.M. found her strike very heavily abaft, the tide then ebbing; she however, rode this way until 2 o'clock the following morning, when, in a violent squall, she dragged the best bower anchor, and went broadside on to the beach, where she soon bilged, and half filled with water. The rudder also unshipped, tearing the trunk away, and smashing the after cabins, leaving a free passage for the sea, and destroying everything on board. Our only hopes now rested on the *Castlereagh*, but at daylight, they were blighted, for she had driven close in to the breakers, and had apparently unshipped her rudder, the sea breaking clean over her. Captain Silver then cut away both masts, to save her if possible, but to no purpose, for it was then blowing a complete hurricane, and about ten o'clock in the forenoon she went broadside on to the beach. Many of the crew now went on shore, expecting the ship would go to pieces, the natives assisting and swimming them through the surf. The natives were very anxious for myself and officers to leave the ship, kindly offering their assistance, with the good intention of saving us, for the sea was breaking right over her, and they shortly left themselves, expecting the ship to go to pieces, but we had resolved to remain on board as long as she kept together. Towards night the gale moderated, and on the 14th had altogether abated. I then consulted with Captain Silver, and came to the determination of getting both crews on board the *Sarah* having much more room on the deck, and a greater protection from the natives than the schooner. It was then resolved to get the schooner off, if possible, under the direction of Capt. Silver, with the assistance of both crews, but unfortunately we did not succeed in our endeavours. The natives behaved with the greatest kindness, bringing us a great quantity of cocoa-nuts and sugar-canes, although a great number of their trees had been destroyed and their sugar-canes torn up by this hurricane, such a severe one not having been felt for many years. After living on the deck of the *Sarah* for fourteen days, with no hopes of getting the schooner off, our damaged bread we had saved getting short, and having but a small quantity of fresh water, we turned our attention to preparing to make a passage in the two boats we had saved. At this time, however, my chief-officer (Mr. White,) with five men out of the two crews, in the most praiseworthy manner, volunteered their services to proceed in an open whale boat, being the most expeditious, to stretch across to New Caledonia, run down along the east side of it, and if not successful in falling in with a ship, to proceed across to Moreton Bay, being a distance of one thousand miles. After

seeing to the preparations and provisions of the boat myself, she was despatched with three hearty cheers on the morning of the 28th February, having every confidence in the officer and crew, with an addition of a native volunteer. Fortunately, however, on the afternoon of the following day, they fell in with the barque *Eleanor*, Capt. Woodin, and the *Spy*, Capt. White of Hobart Town, then lying in a small harbour on the east side of New Caledonia. They were received on board with the greatest kindness, and upon hearing of the disaster, Capt. Woodin immediately gave directions for the two vessels to prepare for sea to come to our assistance, leaving a place where there was every chance of getting sandal-wood, in which trade they were engaged. On the 4th March, at 6 A.M., the joyful news of 'Sail ho!' was announced, and shortly after the two vessels hove in sight. The anxiety shown by Captains Woodin and White for our safety I shall ever remember with a feeling of gratitude, but upon firing our swivel guns their fears were dispelled, for they then knew we were safe. The greatest expedition was used for our reception on board the *Eleanor* to convey us to Sydney, and on the 11th of March we set sail from the island of Lefoo, where we had been on shore one month, living in perfect amity with the natives, though completely at their mercy. This I attribute to the kindness shown them, but at the same time we let them see we were always on our guard.

Capt. Silver's report being similar to that of Capt. Seagrove's, it would be unnecessary for us to give more than the following, which is an extract from the log-book, relating merely to the circumstance of her loss :—

"February 10th.—Fresh breezes from the south-east; 11th, at noon, wind increasing, let go the best bower anchor, and veered out to 80 fathoms of the starboard chain, and 40 on the port cable. At 4 P.M., lowered fore-top-gallant yard, and housed main-top-mast.

"February 12th.—Strong gale from S.E., with heavy sea rising; lowered fore-top sail yard, and housed fore-top-mast, gave the ship all the starboard chain, and 60 fathoms of port cable. At 4 P.M., upset the windlass, and while securing it, observed the brig *Sarah* to be driving, and soon afterwards she went on shore. It then blew a heavy gale from E.S.E., with a heavy sea. At 6 P.M., observed our port chain slack, having carried away the anchor, the vessel then pitching bows under. Midnight, heavy gusts of wind, attended, with much rain; sounded, and found we had shoaled our water to 7 fathoms, having drove a considerable distance.

"February 13th.—At 4 A.M., saw the brig *Sarah* drive broadside on the beach the sea breaking completely over her; and the natives having a large fire on the beach, it presented an awful appearance. The schooner still continued driving, and finding we had only four fathoms water, expected every moment to strike aft, knowing that there were several small rocks close to us. 4h. 30m. A.M., struck aft, and unshipped the rudder. At daylight, it blew a complete hurricane, and the lower masts were then cut away, in order, if possible, to save the vessel, that being the only means left. At 8 A.M., however, she had drove into 2½ fathoms water, starting on the rocks; and, at 10 A.M., she went broadside on the beach. Every exertion was made, after the gale abated, to get her off, but without success."

Captain Silver joins with Capt. Seagrove and his chief officer, in expression of gratitude to Captains Woodin and White, of the *Eleanor* and *Spy*, and also speaks in the highest terms of the conduct of Mr. White, chief officer of the *Sarah*, and the men who so manfully volunteered to proceed in the whale-boat to New Caledonia, as before stated; and were the means of bringing the above-named vessels to their assistance. The *Sarah* was the property of Capt Larkins, of Hong-kong, where she is fully insured. The

Castlereagh was the property of Capt. Fotheringham, and is insured in Sydney for £800. The chronometer and other things of value were saved, and the wrecks were sold by the captains for the benefit of the underwriters. The *Sarah* for £120, and the *Castlereagh* for £50; Captain Woodin, of the *Eleanor*, being the purchaser.—*Sydney Herald, March 30th.*

The "Eleanor."

This vessel, belonging to Messrs. Nathan and Moses, of Hobart Town, has been cruizing among the islands for sandal-wood, since the middle of November last, and has now on board about eighty tons. On the 13th of February, she encountered the same hurricane on the west coast of New Caledonia, as that experienced by the *Sarah* and *Castlereagh* at Lefoo. She was lying about twenty-five miles W.N.W. of Port St. Vincent, with two anchors out, from which, however, she drove, and went on shore, losing her best bower anchor, and about 45 fathoms of chain. Fortunately, she floated off about ten hours after, with but little damage

The brig *Spy*, rode the gale out on the east side of New Caledonia, with lower yards and top-masts down, and sustained only the loss of two whale-boats. The cutter *Georgiana*, tender to the *Eleanor* and *Spy*, drove on shore in Port St. Vincent, during the gale, and turned bottom up; three of the crew belonging to Hobart Town, were drowned.

The barque *Isabella Anna*, of this port, put into one of the harbours on the west side of New Caledonia, on the 21st of February, having encountered the hurricane off the south end of the island. She was much strained, and Capt. Woodin states, that but for the fine model and build of the vessel, which give her ease and buoyancy, it would have been impossible to have kept her free during the gale. After stopping in some measure her leaks, it was Capt. Bradley's intention to proceed to Erromanga for wood; she had but little then on board. From the statements of the natives of New Caledonia and Lefoo, such a terrific hurricane had not occured for the last eighteen years. During the height of it the barometer on board the *Eleanor* fell 28·40. The circumstance of the *Spy* riding out the gale without damage, may be accounted for by her having a good barometer, which gave the captain ample warning of its coming on, and thereby enabled him to be prepared for it.

Capt. Woodin has favoured us with copious notes made by him during his cruize among the islands, from which we make the following abstract, as being new:—

"December 21st.—Set sail from the east side of New Caledonia, resolving to find, if possible, a passage between Botany Isle, and the south end of Caledonia, thereby saving a tedious passage round the reef, which extends south of Caledonia. Fortunately I succeeded, and passed through a good channel, with deep water, and but few dangers in the way On proceeding round, I found the south part of new Caledonia to be an island, about ten miles in extent, with a deep water channel from shore to shore, and room enough to work a frigate through. I named it Woodin's Channel, as I believe I was the first person who had navigated a ship round the south end of New Caledonia, inside of the reefs.

"In the channel above mentioned, there are several deep bays, with abundance of fresh water running down the sides of the mountains, close to the beach. Ships could anchor in any of the bays, with 15 fathoms or less, as circumstances may require. I examined the whole of the coast from

Botany Isle to the extent of the channel, in search of sandal-wood, but found none. Being informed by the natives on the east coast that a vessel had been wrecked on a reef on the west side, and that all the crew had perished I made up my mind to search the coast thoroughly, to ascertain if any of the unfortunate men were spared, being then ignorant of the facts.

"On the 1st of January, anchored in a bay where I knew some Sydney vessels had procured sandal-wood. In a short time the natives paid us a visit, and among them some from the Isle of Pines, with whom I had before been acquainted, and who seemed rather surprised that the vessel should have come round by the way of Botany Isle.

"My first enquiry was respecting the vessel I was previously informed had been wrecked, and to my horror and surprise they told me no vessel had been wrecked; but, that two boats' crews of the *Vanguard* had been cut off by a tribe, about nine miles N.W. from where we then lay, and, that the schooner had gone to sea, but not until the natives alluded to tried to cut her off. I then inquired of them the manner in which those merciless savages had cut off the crew, and from their statement it appeared the whole of the men very imprudently left their boats, and all to a man unarmed; that while each man was carrying his load, the natives pushed the boats off from the shore, and then rushed upon them with their tomahawks, and ham-strung them, severed their heads and arms from their bodies, and then made one heap of the whole, and burned them. Capt. Cunningham was the first they attacked, and not one of the party escaped.

"It may be said, and perhaps oftentimes with some truth, that surely the crew must have given some provocation; but, in this instance, I can vouch for it, there was none given, for I particularly inquired of the friendly natives, whether the tribe who made this bloody attack, had been previously fired upon by the crew, and they replied in the negative. From the frequent opportunities, also, I have had in seeing Capt. Cunningham trade with the natives, I am satisfied he would not have allowed any one to have committed an offence against them, but always treated them with liberality and kindness.

"On the morning of the 2nd of January, the chief Agulla moved the two whale-boats belonging to the *Vanguard* out of my sight, to a distance of six miles, and then hauled them up in the bush, picking out a spot where the water was so shallow that we could not get our boats within musket shot; for we had been preparing to attack these merciless savages and rescue the boats, if at all practicable; but they were too much on the alert to be taken, and took to the mountains. I am of opinion that, no ship-of-war would ever be able to punish these savages. It must be done by trading vessels, in which the crews should be under good discipline, otherwise the innocent would suffer for the guilty.

"The natives of New Caledonia are not generally hostile to Europeans, for in many parts of the island, I have, with my own boat's crew, been treated with great kindness, without the means of making them any return; and on some occasions, with as much as I could expect from my own countrymen, or perhaps, more so.

"With respect to the *Avon*, had the officers obeyed the instructions of their commander, they would never have been attacked; but, I doubt not the poor fellows seeing a quantity of wood, and anxious to do the best for their employers and themselves, they were induced to run a greater risk than they would have done on ordinary occasions. No officer can succeed in the sandal-wood trade, unless he continually exposes himself to the natives. It is, therefore, his duty, for the safety of his own life, and of others under his command, to act with the greatest caution."

When the *Eleanor* left Lefoo, the *Spy* had on board twenty-five tons of wood, and was then employed in saving what she could of the wrecks of the *Sarah* and *Castlereagh*.—*Ibid.*

Nautical Notices.

Weiling Light Vessel and Heyst Light.—A notice has been given by the Belgian Government, dated the 24th of October, that a light-vessel, carrying a Red Light, will be established in the Weiling Channel, near the bank, called the "Paarde Markt," at a date to be afterwards announced, and from which the following compass bearings are given :—

Ville d'Ecluse, Tower	S.
Flessingue Tower	E. ¾ S.
West Capel Light	N.E. ½ E.
Lissewaghe Tower	S W.b.S.

The light will be visible eight or nine miles distant. The light-vessel will be painted Red, and will have a Red Ball at her mast-head.

At the same time, Heyst Light, in lat. 51° 20′ 22″ N., and long. 3° 14′ 10″ E., which is now Red, be altered to the natural colour.

A notice, dated November, has been given stating, that the foregoing measures are carried into effect.

Trinity House, Hull, October 31st, 1848.

River Humber Buoyage and Beaconage.—Notice is hereby given, that in consequence of the recent encroachments of the sea at Kilnsea North Cliff, on the coast of Holderness, the beacon erected there a few years ago, has been removed about a quarter of a mile north, one-quarter west of its former site. The following are its present marks and bearings :—

Easington Church bearing	N.b.W. ½ W.
New Sand Light Ship	S. ½ E.
Spurn High Lighthouse	S.W.b.S.
Outer Bank Buoy	S.S.E. ¼ S.

from which Easington Church is seen open about two ship-lengths to the eastward of the beacon.

Ships coming from the northward, and steering for the New Sand Light Vessel, must keep Easington Church well open to the eastward of the beacon to clear the Outer Bank.

The beacon is distant from high-water mark one hundred and sixty yards, and is eighty-seven feet above the level of the sea at high-water.

N.B.—The above bearings are compass bearings.

By Order,

W. M. Bunney, *Secretary*.

Buoy off Penlee Point, Plymouth.—A chequered Red and White Buoy has been moored off Penlee Point, two cables' length from it, in 5½ fathoms, with the following marks :—

Tor House, on with high-water mark of Redding Point; and the Breakwater Beacon on with the upper corner of the southernmost quarry at Bovisand.

Particulars of a new channel between the rivers Weser and Taher, for vessels of a moderate draught of water, arriving with a S.W., or departing with a N.E. wind.

This channels laid down with Three Red and one White Buoy; on each of the Three Red Buoys (Bojetenne), is an iron rod, with a wicker basket, differing in color and shape from those in the old channel of the Weser and Taher. The White Buoy is a customary one, but likewise with an iron rod and wicker basket. At a later period, this will be replaced by a Bojetenne. Vessels on arriving, have to keep the Red Buoys to the right; and the White one to the left.

The first Red Buoy (No. I), bears S.E. ¼ E. from the Key Buoy, 8 fathoms, at low water; from thence the bearings are as follows:

The steeple of Wangoroog W. ¾ S., and the lighthouse is to be run free to the north of the steeple; Minser Church S S.W. ¾ W.; Light Vessel (No. I), S.E b.E. ⅛ E., at ebb tide; Red Buoy (No. II), S.E.

The second Red Buoy (No. II), lies in 5 fathoms, at low water, near the Taher Plate, which rises steeply; the bearings from these are

White Buoy (No. O), N.E.; Red Buoy (No. III), S.E. ¾ S.; steeple of Wangeroog, W. ¼ S.; Minser Church S.W. ¾ S.; Light Vessel (No. I), S.E.b.E. ⅛ E., at ebb tide; Red Buoy (No. I), N.W.

The third Red Buoy (No. III), lies in 7 fathoms, at low water; the bearings from thence are

Eighth Black or G Buoy, S.E.b.E.; steeple at Wangeroog W. ⅛ N.; Minser Church, S.W. ¼ W.; Light Vessel (No. I), E. ⅛ N., at ebb tide.

The White Buoy (No. O), lies in 4½ fathoms, at low water; the bearings from thence are

Steeple at Wangeroog, W. ⅛ S.; Minser Church S.W. ¾ S.; Red Buoy (No. III), S.S.E. ¼ E.; Red Buoy (No. II), S.W.; Light Vessel (No. I), S.E. ¾ E., at ebb tide.

The steering through this channel from the Key Buoy to the first Red Buoy, is S.E. ¼ E.; and from thence S.E., till between the seventh Black or F Buoy, and the eighth Black or G Buoy. From thence in the old channel of the Weser, steering for the Mellum rather nearer to the F than to the G Buoy, where there are nearly three fathoms at low water.

The flood tide runs southerly in to the River Taher, and the ebb tide northerly. In navigating the new channel a pilot is to be recommended.

These bearings are by compass.

The Arctic Expedition.

The following further accounts of the Arctic Expedition have been received since our last:—

Ness, Stromness, October 23rd, 1848.

Sir.—I take the liberty of communicating the following intelligence of the Arctic Expedition, under Sir J. C. Ross, handed me by Mr. Richard Hill, of the Hull Whaler, *Lord Gambier*, arrived at this port on the 21st inst.

On the 21st of July, communicated with H.M. Expedition, Capt. Sir J. C. Ross, and Bird, lying at a berg, near the "Devil's Thumb," lat. 74° 20′, found all well, remained in company until the 25th, when a breeze sprung up from S.W., with thick fog, did not see the ships again. Plyed to the southward, and crossed to the west land of Davis's Straits, on the 3rd of August, found little interruption from ice, and made "Agnes' Monument" on the

morning of the 4th of August. Captain Hill, has no doubt the Expedition would cross to Lancaster Sound about the first week in August.

This will, in all probability, be the latest intelligence of the Arctic Expedition this season, which you will oblige by communicating to my Lords Commissioners.

I have the honour to be, &c.,
(Signed) JOHN ROBERTSON,
Trinity Agent.

Hull, November 3rd, 1848.

HONORABLE SIRS.

The *Lord Gambier*, Capt. Richard Hill, having arrived from Davis's Straits last evening, I beg to inform you that, on the 21st of July, he made fast to the same iceberg as Capt Sir James Ross, and the other discovery ship, and was on board of them both on that day, and they were all well, and in good spirits, and hoped soon to get a north passage; this was off Cape Shackleton. On the 25th of July, he parted company in thick weather (just before the "Devil's Thumb," bore S. distance 9 leagues). He got across into the west water in about 70° 40′, and was alone on the west side, and as far north as Cape Bowen, on the 2nd of September, but saw nothing or any signs of Sir John Franklin, or his expedition.

I regret I have no more favourable news to communicate; but, having seen Sir James Ross, probably the last, thought it advisable to inform you of it.

I remain, yours, &c.,
(Signed) ROBERT COLLISON,
Managing Owner.

We have frequently had occasion to record in these pages the account of bottles being found, and have thereby arrived at a fair illustration of the surface currents of the ocean, as the bottle chart in our volume for will testify; and, it is a remarkable fact that, it is to a similar means of obtaining information that we are now placed in possession of the latest accounts of the Arctic Expedition, gone in search of Sir John Franklin. By the kind attention of the chief of the Record Office, in the Admiralty,* we have been enabled to preserve a complete record of the intelligence which has been received of the progress of this expedition, to which we now add the following account, transcribed from the original document; and, as some time must now elapse before we have any further accounts of the expedition, we may allude with some degree of satisfaction to this true seaman-fashion of turning to good account the currents of the ocean. By this account we find that the ships had fairly gained the entrance of Lancaster Sound, in time we hope to find their way into snug winter quarters.

Stromness, Orkney, November 7th, 1848.

SIR.—We have the honor to forward the enclosed letter, picked up by Mr. Thomas Lee, of the Hull whaler, *Prince of Wales*, off Cape Hooper, Davis Straits, in lat. 68° 10′ N., long. 64° 30′ W., on the 1st of October.

The *Prince of Wales* arrived here last evening, and we beg you will lay these before the Lords of the Admiralty.

We have the honor to be, &c.,
DAVIDSON & SINCLAIR, *Agents.*

Secretary of the Admiralty, London.

* John Barrow, Esq., who has contributed several papers of professional interest to the pages of this work.

The following is a copy of the paper alluded to :—

"H.M. ships *Enterprize and Investigator*, cleared the main pack in Melville Bay on the 20th of August, and after examining Ponds Bay on the 23rd, passed to the northward in search of the expedition under the command of Capt. Sir John Franklin.

"The cask which contains this paper was thrown from H.M.S. *Investigator*, on the 28th of August, 1848, in lat. 73° 50′ N., and long. 78° 6′ 30″ W., all well, *Enterprize* in company.

"Whoever may find this paper is requested to forward it to the Secretary of the Admiralty, London; with a note of the date, latitude and longitude in which the cask was found.

"EDWARD BIRD, *Captain*."

BOTTLE PAPERS.

WHILE on the subject of the currents of the ocean, we shall here place on record the following bottle papers which have reached us; the first is communicated in the following letter from Lieut. Drew, R.N.:—

Coast Guard Station, Shoreham, Sussex, August 3rd, 1848.

SIR.—I beg leave to inform you that, about 12h. 30m. P.M., this day, a black bottle was picked up on the beach, containing the paper enclosed, which appears to have been thrown overboard from the *Agnus Sophia*. The paper was wet and torn, but I make it out to be

"Thrown overboard from the *Agnus Sophia*, of Padstow, in lat. 47° 53′ N., and long. 7° 34′ W., from Lisbon ten days, bound for London — June 8th, 1848. — William Jenkin."

I am, Sir, &c.,

FREDERICK DREW, *Lieut., R.N.*

To Capt. G. S. Reynolds, R.N.,
Inspecting Commander, Rottingdean.

We have numbered this 3 *b*. It has taken the usual course up the English Channel, and has travelled 350 miles in 56 days, or about 6 miles a day, N.E.b.E. The next is from Lloyd's agent at Maranham.

Maranham, September 12th, 1848.

SIR.—I beg to transmit to you the enclosed paper, thrown from the ship *Thomas Brocklebank*. It was found in a bottle in the Bay of Cucacoevia, to leeward of this port, on the 2nd of June last.

I am, Sir, &c.,

ANDREW NEILSON, *Lloyd's Agent.*

To the Editor N.M.

April 16th, 1848.

"*Thomas Brocklebank*, from Liverpool, towards Calcutta, lat. 6° 58′ S., long 28° 7′ W., wind S.E.

"HENRY PONSONBY, *Commander*."

To the Editor N.M.

This bottle we have called No 40 *b* on the Bottle Chart. It has taken the usual track W.N.W., making good 1050 miles in 53 days, or about 20 miles a day. The next is from Grenada.

Grenada, August, 7th, 1848.

SIR.—The cask in which the enclosed was found, was picked up on the shore of the windward side of this island, on the 14th ult.

I am, Sir, &c.,

ALEXANDER BAND.

May 7th, 1848.

Ship *Sophia*, Capt. Saxon, from Calcutta, February 11th, 1848, bound to Demerara, with Coolies. N.B. This cask was thrown overboard in lat. 5° 10′ N., long. 40° 20′ W. Whoever should pick this up will be kind enough to report it to the Editor of the *Nautical Magazine*.

This has drifted in the usual direction W.N.W., making good 1310 miles in 150 days, or about 12½ miles a day.

IMPORTANT DISCOVERY.—Under this head a correspondent of the *Southern Reporter* has the following:—"Within the last few days I have been informed on indubitable authority that some of the talented and scientific gentlemen connected with the Royal Irish Fisheries Company, have discovered that "the celebrated fishing banks of Newfoundland actually extend across the Atlantic to within 100 miles of Ireland!" and the quantity of fish on the said banks, is more than sufficient to supply the markets of the whole world.

LORD MAYOR'S DAY.—A new feature was introduced into the "Lord Mayor's Show" of Thursday, namely, a model of a very handsome brig, on a car, drawn by six horses. The little craft was neatly rigged, and was well found in serviceable stores, being supplied with most of the patent improvements and inventions of the age, such as Harris's lightning conductors, Brown's controllers, and Porter's celebrated anchors. She was well manned, and her gallant seamen on deck and in the tops cheered lustily in acknowledgment of the continuous plaudits of the crowded populace. Without any excessive stiffness, she stood up very well on her legs; she pitched very little, rolled less, and appeared quite easy. Indeed, we might pronounce her to be a "very easy ship;" she did not "strain anything" but the lungs of the spectators, and the hardy and fearless ship's company. "Generally speaking," she proved to be a very sound ship, and "exhibited no symptoms of weakness" after her perilous voyage through Ludgate-hill race and Cheapside flats; but this, in a great measure, may be attributed to the judicious application of "Jeffery's marine glue," with which not only her decks, but her sides were payed. She was quick in stays, and answered her helm remarkably well, especially when put "hard a-port." Aloft she was just able to have her royal yards crossed; but on deck they carried on till "all was blue," notwithstanding which not a spar was sprung, nor, strange to say, were any one of the crew, although the "main-brace" was so often "spliced." The ship's company seemed proud of their craft, and, with the grateful public, felt the greatest confidence in the bit of bunting flying at the mainmast head—

> "The flag that's braved a thousand years
> The battle and the breeze,"

under which the Lord Mayor, Sir James Duke himself, has so creditably served his Sovereign and his country. With reference to the festivities at Guildhall, conspicuous among the guests of the New Lord Mayor were the

members of the Naval profession, including, among others, the Duke of Northumberland; Admirals Dundas, Sir J. A. Gordon, Sir Henry Hart, and the Hon. Sir F. Pellew; Captains Sir J. G. Sinclair, Bart., J. W. Montague, and Sir W. Burnett, who expressed, by their participation in the festivities at Guildhall, their gratification at the eminent and honourable position attained by one whose extreme youth had been passed on shipboard in various climes. It was the crowning point of a life of progression—the consummation of a career which had commenced among the sailors of England, which had reached its highest altitude among the merchants of London, and which, after introducing Sir James Duke into the Legislature of his country, had installed him in the civic and judicial chair as Lord Mayor of this ancient capital.

Screw Propelling.—On the 1st November, we had the satisfaction of witnessing another of those admirable applications of this principle, which, under the able conduct of James Laming, Esq., the managing director, seconded in this case by the joint talent of Mr. Wigram and Messrs. Maudslay, the eminent builders and engineers, promise to establish one of the most successful and extensive mercantile associations of this country. The Earl of Auckland left the Brunswick-pier, at Blackwall, at noon on that day, to submit her powers to the test of the measured mile in Long Reach. A party of fifty ladies and gentlemen accompanied the directors of the company. Among them we noticed Edward Zohrab, Esq., the Ottoman Consul; Mr. Alderman Moon, the Messrs. Wigram and Maudslay; Richard Smith, Esq., of Manchester; Capt. Ford; Lieut. Jennings; and Captain Halsted, R.N., and Mr. F. P. Smith, to whose untiring energy and perseverance in forcing into public notice the performance of the Archimedes in 1839, the commercial interests of this country are indebted for the screw as a practical invention. The Reach was clear, the water smooth, and the weather favourable; and the result of four runs up and down, before the mile, taken with perfect accuracy, gave a mean speed for the vessel under steam only of 9·114 nautical miles. The mean revolutions while upon the ground were 66·75, showing a slip of 9·3 per cent. only. The Earl of Anckland is a three-masted schooner of iron, and of the following dimensions:—Length between the perpendiculars, 150 feet; breadth extreme, 25 feet; tonnage, O.M., 464. Her engines are of 60-horse power, and occupy, with 100 tons of fuel, 31 feet of the length of the vessel, allowing stowage for 400 tons of measurement goods. Her engines drive direct on the screw shaft; the cylinders are inclined, and are 36 inches diameter, with stroke of 18 inches to work, at 80 revolutions. The screw is 9 feet 6 inches in diameter, on Mr. Woodcraft's principle, with a mean pitch of 15·16. The mean draft of water was 8 feet. After landing her merry party at the pier again about half-past four, the Auckland proceeded to take her berth at the Tower Stairs. She is intended to take up her place among a line of similar vessels trading to Constantinople; the further development of the commerce of the Turkish empire having been selected as their first field of enterprise since the company has received the Charter of Incorporation, to which its able management has so well entitled it.—*Morning Chronicle.*

Edwards' Patent Preserved Potato.

The following letter affords us the opportunity of again noticing this valuable article as a Vegetable Diet for the use of the Crew on board Ship. Numerous

Special Reports and Testimonials have proved its efficacy in counteracting the ill effects produced by the continued use of Salt Provisions.

"It gives me much pleasure to add my unqualified approval of your Preserved Potato, I can only repeat what has been already said of it, viz., that it is an excellent *Antiscorbutic*, is *economical*, easily cooked, and capable of remaining good in any climate. I could wish it see it *entirely supersede that crude and flatulent article of Diet, the Pea.*

(Signed) "JAMES L. CLARKE, M.D., *Surgeon, R.N.*"

THE AMERICAN EXPEDITION TO THE DEAD SEA.

We translate the following from the *Courrier de Constantinople*:—

"Our readers may remember that in the spring of the year, Captain Lynch, and some of his officers, of the United States brig Supply, proceeded to Constantinople, to obtain permission of the Ottoman Government to explore the Lake Tiberias. This was granted, and the recommendations given by the Sultan to the different officers of the places visited obtained for the intrepid officers every kind of assistance required. Nobody opposed the scientific research, the Arabs themselves offering their assistance, and frequently declining any remuneration for aid often of the most valuable kind.

"Our little expedition (says Captain Lynch) composed of some 15 persons, landed at St. Jean d'Acre, from which place we were desirous of proceeding to the sea of Galilee, or Lake Tiberias, distant some 40 miles. We had with us two metal boats—one of copper, the other of iron; these we landed and put into good condition to sustain the shocks which when drawn by camels from one place to the other they inevitably must encounter. We were encouraged by the idea of being the first to embark on a similar expedition, except the late Mr. Cardagan, who did not survive the fatigues he underwent, and left no memoranda of his voyage to the Dead Sea. We also thought that all Christendom united in the thought of an expedition on this mysterious lake, and the interest it might present to the future navigator.

"No sooner had we landed than our difficulties commenced, we requiring so many things of which we had not even thought. All being prepared, we placed our boats on carts prepared on board the Supply, and we set out for the Lake. On the road we had to climb several mountains, and cross formidable ravines. On more than one occasion we had to lower our boats by means of ropes down the frightful precipices. But all our difficulties were surmounted by the patience and address which distinguish the true sailor; and on the 8th of April the two boats floated on the picturesque and deep blue waves of the Sea of Galilee, the American flag floating from the top of their small masts.

"We found the navigation of the Jordan very difficult and dangerous on account of the fearfully rapid currents. The idea of the fall of the Jordan between the Lake of Tiberias and the Dead Sea may be conceived by its crooked bed, which, in a distance of 60 miles, serpentines 200 miles. In this distance the expedition was plunged into no less than 27 dreadful rapids, not counting several others of a less remarkable declivity. The difference in the level of these two seas is 2,000 feet.

"For a few hundred yards from its mouth, the water of the Jordan is sweet. The waters of the Dead Sea are without smell, but to the taste they are bitter, salt, and disgusting.

"On entering, the boats encountered a gale of wind, and so thick were the waters that the boats appeared to strike against the hammers of the Titans rather than the waves of a raging sea.

"The expedition continued its daily operations, making topographical sketches, until its arrival at the southern extremity of the sea, where a very astonishing spectacle awaited us.

"On passing the mountain of Sodom (says Captain Lynch) we observed to the

S.E, a large column in the shape of a funnel, composed of solid rock salt, and covered by carbonate of calcium, a mine of crystallization. Mr. Dale made a sketch of it, and the doctor and I landed to obtain specimens.

"The expedition made the tour of the Dead Sea, and returned to the point of its departure; the boats were in the same condition as when we left New York, and all the crew in good health.

"The following facts are not without interest:—

"The bottom of the northern part of the Dead Sea is almost flat (a plain.) The meridional lines at a short distance from the shore vary but little in depth; the greatest depth found up to the date of this letter (May 3rd) was 188 fathoms, or 1,128 English feet. Near the shore the bottom is generally a saline incrustation, but the intermediate portion is of soft mud, with several rectangular crystals—most frequently cubes of pure salt. On one occasion we obtained only crystals with the lead line.

"In the same proportion that the north part of the Dead Sea is deep, so is the southern part shallow, to the extent that for a quarter of its length the depth was found to be but 18 feet. Its southern bed presented no crystallizations, but its shores are covered with incrustations of salt, and on landing the footmarks in an hour's time were covered with cristallizations. The shores in face of the peninsula, and its western side, present evident marks of destruction.

"Birds and insects are, without doubt, to be found on the shore; sometimes ducks on the sea, for we saw some, but we could find no living object in this sea. However, the salt sources it receives contain fish belonging to the ocean. I feel certain, says Captain Lynch, that the result of our expedition will confirm to the very letter the history of the Holy Land, as regards the sunken cities.

"After the examination of the Dead Sea, the expedition proceeded to determine the height of the mountains, and the level of a plain, from Jerusalem to the Mediterranean Sea.

"They found the summit of the western coast of the Dead Sea more than 1,000 feet above its surface, and level with the Mediterranean. It is a singular fact, that the distance from the top to the bottom of the Dead Sea,—that is, the height of its shore, the elevation of the Mediterranean, and the difference of the level between the bottom of these two seas, and the depth of the Dead Sea, should thus be an exact multiple of the elevation of Jerusalem above it.

"Another fact not less curious is that the bottom of the Dead Sea forms two sunken plains—one elevated, the other depressed. The first part, south, is composed of clay or fat mud, covered by an artificial bay; the latter, the upper part and more north, of mud, incrustations, and rectangular salt crystallizations, extending to a great depth, and with a narrow ravine defiling in the midst of it, corresponding with the Jordan at one extremity, and Wady Seib at the other.

"The official report of Captain Lynch will be shortly published."

New Charts

A List of Charts published by the Hydrographic Office, Admiralty, during the month of October, 1848.

DUNGENESS TO THE THAMES, *South Coast, Sheet 7, Capt. Bullock*, 1848, price 2s.

FARLAND POINT TO ARAN ISLAND, *(West Coast of Ireland) Com Mudge*, 1839, price 1s. 6d.

ARAN ISLAND TO DAWROS HEAD. *Ditto* *Ditto* price 1s. 6d.

ANCONA, *Italian Survey*, price 2s.

KARA-AGHAJ BAY, *(Archipelago,) Capt. Copeland*, 1833, price 6d,

KOS, NISERO AND PISCOPI ISLANDS, *(Archipelago,) Capt. Graves*, 1841, price 2s.

SIGHAJIK BAY, TO SCALA NUEVO GULF, *Ditto* *Ditto* 1836, price 2s.

STRATI ISLAND, *(Archipelago,) Capt. Copeland*, 1835, price 6d.

KARKI AND LIMNIONA, *Ditto. Capt. Graves, R.N.*, 1840, price 8d.

HELGOLAND BIGHT, *Danish Charts*, 1841, price 2s.

ESQUIMALT, *(North-west Coast of America,) Vancouver Island, Lieut. James Wood R.N.*, 1847, price 1s. 6d.

VICTORIA HARBOUR, *Ditto* *Ditto* *Capt. Kellett*, 1847, price 1s 6d

Births.

Oct. 20, at Portsea, the wife of Lieut. J. Inglis, R.N., of a daughter.

Oct. 22, at Woolwich, the wife of Lieut. G. C. Fowler, R.N., of a son.

Oct. 21, at Edinburgh, the wife of Com. C. Y. Campbell, R.N., of a son.

Oct. 24, at Sundridge, Kent, the wife of Capt. J. H. Rowland, of a son.

Nov. 13, at Newburgh, Northumberland, the wife of Capt. G. H. Coulson, R.N., of a son.

Marriages.

Nov. 4, at Marylebone Church, W. H. Newman, Esq. to Mary, daughter of the late Capt. Sergent, R.N.

Nov. 7, Witham, Essex, Com. W. Robinson, R.N., to Eliza Ann, eldest daughter of the late Capt. J. H. Weiburg.

Nov. 14, at St. George's. Hanover Square, G. P. Rickcord, R.N., to Jane youngest of the late R. Kirby, of Ashby-de-la-Zouch.

Deaths.

Lately, at Devonport, W. Chasman, Com. R.N.

Oct. 17, at Teignmouth, aged 61, Capt. Spratt, R.N.,

Oct. 30, at Ashton, Lieut. Tullis, R.N

Nov. 1. at Cockermouth Com. P. Wybergh, aged 55.

At Rosenithan, Ret.-Com. W. Lugg, R.N., aged 80.

METEOROLOGICAL REGISTER.

Kept at Croom's Hill, Greenwich, by Mr. W. Rogerson, of the Royal Observatory, From the 21st of October to the 20th of November, 1848.

Month Day.	Week Day.	Barometer In Inches and Decimals.		Fahrenheit Thermometer In the Shade				Wind. Quarter.		Strength.		Weather.	
		9 A.M	3 P. M.	9AM	3PM.	Min	Max	A.M.	P.M.	A.M.	P.M.	A. M.	P. M.
		In Dec	In Dec										
21	S.	29·82	29·88	43	45	42	46	W	W	2	3	ogr 1 2	o
22	Su.	29·78	29·68	48	53	38	54	S	S	4	5	bcp 2	qor 3 4
23	M.	29 68	29·63	52	53	46	54	S	SW	2	5	od 1 2	qop 3
24	Tu.	29·55	29·60	50	54	45	55	SW	SW	5	3	qbcp 1	or 4
25	W.	29·28	29·58	52	53	47	55	W	W	6	4	qop 1 2	bcp 4
26	Th.	29·89	29·89	43	54	39	55	S	S	2	4	b	bc
27	F.	29·51	29·38	51	53	45	57	SE	SW	6	4	qor 2	bcp 3
28	S.	29·49	29 59	49	49	47	51	SW	SW	6	5	qbc	qbcp 3
29	Su.	29·54	29·56	47	50	43	52	SW	SW	2	2	bcp 1 2	or 4
30	M.	29·53	29·54	48	52	50	54	SE	S	2	2	bcp 2	bc
31	Tu.	29·58	29 58	37	49	35	51	SE	E	1	1	bf	ber 4
1	W.	29·53	29·54	45	47	42	48	E	N	1	1	ofd 2	ofd 3
2	Th.	29 72	29·78	41	47	38	50	W	SW	2	4	bc	bc
3	F.	29·64	29·55	43	48	38	50	W	SW	4	4	bc	oprh 4
4	S.	29 50	29·58	37	38	35	39	N	N	6	6	qors 1 2	qops 3
5	Su.	29·82	29·66	30	41	27	45	W	SW	3	4	b	od 3
6	M.	29·68	29·63	44	47	43	49	W	W	2	2	o	o
7	Tu.	29·59	29·69	40	43	39	46	W	NW	6	5	b	qbc
8	W.	30·00	30·04	32	40	31	43	NW	NW	2	2	bm	bm
9	Th.	30·21	30·28	33	39	30	40	N	N	4	4	b	b
10	F.	30·34	30·33	33	42	31	43	N	N	5	4	qb	bc
11	S.	30·32	30·30	41	45	34	46	NE	NE	4	4	bcp 2	bcp 4
12	Su.	30·40	30·40	42	44	39	45	NE	NE	3	3	op 2	op 3
13	M.	30·43	30·42	41	43	37	45	N	NW.	2	3	bc	bcm
14	Tu.	30·31	30·29	42	43	36	46	N	N	3	3	b	b
15	W.	30·42	30·43	37	40	33	42	N	N	3	3	bc	bc
16	Th.	30·32	30·28	30	41	26	43	W	W	2	2	bc	bc
17	F.	39·07	29·92	44	47	39	47	SW	SW	6	6	qo	qop 3
18	S.	29·73	29·59	44	47	41	49	W	SW	3	4	bc	op 4
19	Su.	29·86	29·96	39	44	36	46	NW	N	2	3	b	b
20	M.	29·90	29·76	48	52	35	53	SW	SW	5	6	qo	qod 4

October 1848.—Mean height of Barometer=29·797 inches; Mean Temperature=50·8 degrees; depth of rain fallen=3·62 inches.

We have received Mr. Livingstone's and Mr. Redfield's letters, which we are obliged to reserve for our next.

GENERAL INDEX TO VOL. FOR 1848.

ENLARGED SERIES.

NEW BOOKS.

WOOD ENGRAVINGS.

London: Hunt, Printer, 130, St. Alban's Place, Edgware Road.