

General report on the survey of the Eastern coast of England, for the purpose of carrying into effect and establishing the system for saving ship-wrecked persons / [By G.W. Manby].

Contributors

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GENERAL REPORT

ON THE

SURVEY

OF THE

EASTERN COAST OF ENGLAND.

GENERAL REPORT

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EASTERN COAST OF ENGLAND,

FOR THE

PURPOSE OF CARRYING INTO EFFECT

AND

ESTABLISHING THE SYSTEM FOR SAVING

SHIP-WRECKED PERSONS.

LONDON:

PRINTED BY AND FOR J. CAWTHORN, 5, CATHERINE-STREET, STRAND.

(Bookseller to Her Royal Highness the Princess of Wales.)

1813.



TO
THE RIGHT HON. GEORGE ROSE,
AND
WILLIAM WILBERFORCE, ESQS. M. P.

London, May 10, 1813.

GENTLEMEN,

To your generous Patronage, and above all, to the very handsome manner in which you did me the honor to propose in the House of Commons, an Address to His Royal Highness the Prince Regent, I feel myself indebted for my appointment to carry into effect a system for saving ship-wrecked persons on the coasts of the United Kingdom. It becomes therefore a duty that I should use the earliest opportunity of communicating my proceedings, not only for your satisfaction, but for the information of those persons who have expressed a deep interest in the success of my endeavours. You will be pleased to observe, that in this undertaking, I

have availed myself of the great assistance given me by the Lords of the Admiralty, who have at my solicitation, directed the Officers of the different Signal Stations, to afford me such information as could best conduce to correct the charts, and point out dangers in navigation hitherto unnoticed. Conceiving it a primary consideration in my pursuit, to suggest such ideas as might be best calculated to prevent occurrences of ship-wreck—availing myself at the same time of every method to confirm my suggestions, and to omit no means that promised public good and ultimately tended to the success of the undertaking, although perhaps not immediately within the letter of the duty on which I had the honor to be employed. On completing the service to Leith, the severity of the season, added to the difficulties and in many parts the almost impracticability of travelling, prevented me from carrying it more northward for some time; anxious however, to further the views of the Legislature with the utmost expedition, my time was employed in confirming my theoretical observations by practical experiments, in the presence of the Highland Society of Scotland,

being well assured that an Institution so distinguished for promoting scientific pursuits, could do more towards establishing the use of the service by its approbation, than my labours could effect in any space of time, with the utmost assiduity and perseverance. I consider the Report of a Committee selected by that Society, a proud mark of approbation, carrying with it a conviction of the utility of my plans, and it is highly gratifying to submit the same for your perusal. The admirable manner in which the detail is completed, so as to elucidate each progressive step delivered in my lectures, will not fail to render it more interesting. In the earnest hope that my humble endeavours may prove conformable with the object of your benevolent intentions, and that of the Legislature,

I have the honor to be,

Gentlemen,

Your most obedient Servant,

GEO. W. MANBY.

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tinguished for promoting scientific pursuits, could
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intentions, and that of the Legislature.

I have the honour to be,
Dear Sir,
Your most obedient servant,
GEO. W. HARRIS

The enclosed is a copy of the report of the
Committee on the subject of the
proposed new system of
teaching in the
Schools of the
County of
Middlesex.

TO THE RIGHT HONOURABLE LORD SIDMOUTH,
SECRETARY OF STATE, &c. &c. &c.

Boston, Lincolnshire, 8th Sept. 1812.

MY LORD,

IN the honor of addressing your Lordship, I consider it my duty to state, that in commencing on the service, and prefacing the annexed "General Report on the Survey of the Coasts of the United Kingdom, for the Purpose of carrying into Effect, and establishing my System for saving Ship-wrecked Persons," I have lost no time in obeying your Lordship's commands, and those of the Legislature, in making the survey with minute and diligent circumspection, and in instructing the inhabitants on the most dangerous parts of the coast in the necessary measures to be adopted in the event of shipwreck. As the season is fast approaching when their exertions in the cause of humanity may be hourly called forth, I must express my hopes, that the stores so essential will be speedily sent to Yarmouth, for the purpose of being conveyed to the respective officers, along the sea coast commanding signal stations, and such other persons and places as are pointed out, all of whom have received every necessary instruction from me.

I have, however, a painful task to perform in stating to your Lordship, that I find my health greatly injured by fatigues endured during the

three last winters, by passing many nights on the shore, aiding vessels in distress ; which, added to intense application, deep research, and repeated experiments, so indefatigably bestowed in my various productions, to perfect a subject of so much importance to my country and to humanity, that I fear I may not make that rapid progress along the coast your Lordship may expect, and that I so ardently wish. My anxiety to promulgate the service with every promptness, induced me to set off from Yarmouth, contrary to the advice of my physicians and friends ; and I regret to say, the zeal with which it has been pursued, has brought on a train of complaints and debility ; that I despair, without some speedy alteration, a close of my existence will be the result. The survey, as your Lordship will observe, commences at the south extremity of Norfolk, and in the pursuit it is a matter of infinite gratification to me, to find the great approbation that has attended my labours, and the marked conviction of success and utility that has followed, from those features of simplicity that characterize the service. Independent of my instructing every officer of signal stations, by practical proofs (having a mortar and stores with me) I leave with him (as an appendage to his station) my Essay on the preservation of ship-wrecked persons, embellished with explanatory plates of every part of the service, im-

pressing on his mind that by due attention to them, and to the direction given, it never can fail. In every parish on the confines of the ocean through which I pass, I leave descriptive sheets of the service, with a set addressed to the clergyman, and the subjoined circular letter*.

* SIR,

In obedience to the commands of his Majesty's Government, for establishing along the coasts of the united kingdom, my plan for rescuing the lives of ship-wrecked persons, I conceive the best means of promoting this humane object to be in submitting a copy of my "Directions for using the Apparatus" to the Clergyman of every parish resident on the coast.

Under this impression, "Sir," I beg to offer the accompanying descriptive sheets for your attention, being convinced there is not a Clergyman resident on the confines of the ocean, whose philanthropy will not adopt so charitable an institution, nor any set of men, who would not, in so virtuous a cause, distinguish themselves by their zeal and energy, in promoting an event so deeply interesting to those feelings of humanity which have ever been the pride of Englishmen.

I trust, Sir, these instructions will be carried into effect, and those of your parish, who cannot contribute in a pecuniary manner to this charitable work, will yet immortalize themselves by their personal exertions.

I have the honor to be,

Sir,

Your most Obedient Servant,

GEO. W. MANBY.

To the

Rev.

To every Lord Lieutenant of a maritime county, several are forwarded, requesting they may be disposed of in such way as appears to him best to promote the work of humanity. I cannot however conclude without stating to your Lordship, and humbly calling to your attention the general opinion and assurance of every person, with whom I have conversed upon the subject, of the infinite benefit that would result from a head-money being granted to the active people of the shore, for each life saved in such cases of difficulty and hazard, when in the effort their own lives are exposed to the greatest danger: it would likewise be the means of reimbursing them for the damage done to their boats, and defraying the expences attending getting down the mortar and stores.

In making this appeal I cannot avoid submitting an extract from the sixth number of the British Review on the subject:—"And if in addition to this precaution, the activity of the fishermen and villagers on the coast were stimulated by a bounty in the way of head-money, for the life of each mariner, saved out of a wreck by this process, at least in every case of difficulty and hazard, when the people concerned risk their own lives in the attempt, the provision would be a wise one, and worthy of the justice and humanity of a British Board of Admiralty." I beg further to have the honour of stating, it

has been the subject of a memorial from me, and been repeatedly urged, from a conviction of the great good that would result from it.

It will, I hope, be pardonable in me to state to your Lordship every suggestion that appears calculated to benefit the cause of humanity, and to carry the country's views into the fullest extent; this has induced, and ever will stimulate me, to seek with unwearied attention, as far as my health will permit, to deserve my country's praise and your Lordship's approbation.

With the profoundest respect

I have the honour to be,

My Lord,

Your Lordship's

Most obedient humble Servant,

GEO. W. MANBY.

GENERAL REPORT
ON THE
SURVEY OF THE EASTERN COAST
OF ENGLAND,

FOR THE
*Purpose of carrying into Effect and establishing the Sys-
tem for saving Ship-wrecked Persons.*

YARMOUTH.

FROM the uncommon flatness of the shore, causing such high and lengthened surfs, must be attributed the number of lives that annually perished here, previous to the method now brought into use for saving ship-wrecked persons; and although the application of projecting a rope has successively saved the crews of eight merchant vessels at this spot, it will be necessary to guard against, and provide for the casualties that may occur from those of a large draught of water, sharp built, or vessels of war being

driven on shore. I consider it proper, in addition to a piece of ordnance carrying a 24-pound shot, to have a 42-pounder and a 6-pound mortar, as a portable piece for prompt and incidental purposes, and for using from a boat where the vessel running from the harbour has grounded on the bar, with such stores and ammunition as will be pointed out to the officer commanding the depot at Yarmouth.

CAISTER.

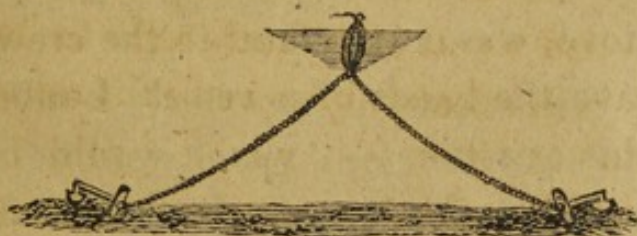
From the nature of this shore, many circumstances of distress have occurred here, and as vessels are generally driven within 60 or 70 yards of the shore, a 6-pound mortar with stores, and a coil of $1\frac{1}{2}$ inch rope to haul a boat off by, will effectually remedy future calamities.

WINTERTON.

The outer bank which runs parallel with the town, has always been found to present great dangers to vessels stranded here; particularly when of large draught of water, and generally fatal to the unfortunate crews. On minute investigation I find there are two banks recently formed more to the northward of the town, pro-

duced by the remains of wrecks having diverted the course of the current ; they are from 250 to 300 yards from the shore at high water, and extend from N. E. to E. b. N. of the light-house. In the event of vessels not being able to weather the Ness, new and increased dangers will from this cause be created : but I am persuaded the mortar already placed here is amply sufficient for rescuing the lives of such unfortunate persons as may be on board them. At the distance of two miles parallel with the Winterton shore, lays the cockle sand, recorded for its manifold fatal circumstances of shipwreck, and the total destruction generally of their crews. In hard easterly gales, the violence of the surf prevents boats being launched from the shore to render them assistance ; and it can only be effected by having

two pairs of anchors laid out by the ruleprescrib-

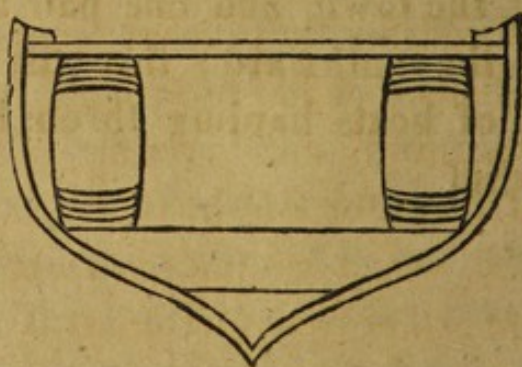


ed by me, one pair half a mile to the northward of the town, and one pair at the same distance to the southward ; this will ensure the certainty of boats hauling through the surf to their relief.

HASBOROUGH.

The outer bank at this place shifts, and appears to be regulated by the tides, as the currents are increased by the winds or other causes; at which times the bank is removed to so great a distance from the land, as to render it doubtful whether the $5\frac{1}{2}$ inch mortar already placed there would project a rope to a vessel driven on it. I therefore suggest the propriety of a 42-pounder howitzer likewise to be placed here, as no place offers more fatal testimonies from fleets having been caught in the Wold, by a gale of wind flying to the N. E. As the most prompt and certain method of saving a crew is by hauling a boat by the rope projected over the vessel, so in order to obviate a danger that occurred at this place last winter, which, their boat being stove, was nearly fatal to the crew, who went to save the hands of a vessel, I submitted to them this question:—"which would be the most desirable to have a regular life-boat, or their own boat simply fitted up with empty casks in the manner here described?"

The opinion I rejoice to say, was instantaneous and unanimous, that boats thus fitted up would be superior to all the life-boats ever



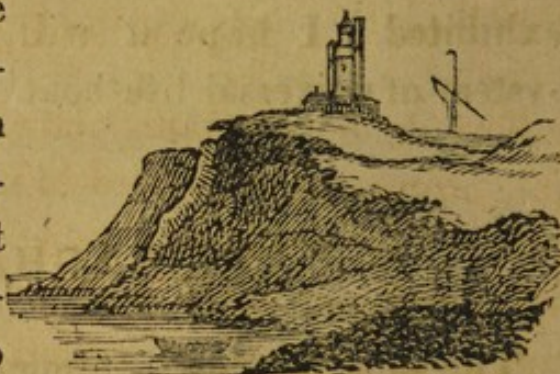
invented ; and the benefit for saving lives and going off for property would be infinite. It may here be necessary to remark, that I have made several experiments on fitting up boats, but the manner here represented, by section, from its simplicity, readiness of fitting up, and less obstruction to the rowers, is calculated for boats of every description, (consequently those in which they have confidence) and on many other important considerations, having a decided preference to all others, has received the highest approbation of every person to whom it has been exhibited. I hope it will thence establish a system of universal life-boat.

TRIMINGHAM.

The shooting down of immense masses of cliff, has greatly assisted in creating outer sands ; an evil which I find increasing, and which renders it necessary to have a $5\frac{1}{2}$ inch brass mortar, with a 6-pounder mortar to be promptly forwarded to Mundsley, to prevent recurrences of the fatal accidents that have occurred from the mortar of Hasborough not arriving in time. It may be used from the life-boat, when it cannot pull up to the vessel grounded from the broken and white water that surrounds it.

CROMER.

I observe with uncommon regret, the ravages made along the coast ; but particularly at this place, by shooting down of the cliffs, occasioned by the springs not being diverted, which certainly is practicable, and may be remedied by persons who have made a professional study of it, as the late Mr. Elkington. It is, I must beg to submit, a subject worthy of attention ; the loss of so much national territory, independent of the face of a high land being so much changed, and the light-house here standing in such a wretched jeopardy. An acre and half directly on its front shot down last winter, and I have no doubt but it will speedily extend.



For facilitating the means of assistance, and for using from the life-boat, a 6-pounder mortar will be necessary at this place*.

* *Copy of a Note from Lord Hardwicke dated
31st March, 1813.*

Lord Hardwicke presents his compliments to Captain Manby, and returns him many thanks for the perusal of his very interesting Report upon the Eastern Coast. He was particularly struck with his observations on the state of the Cliff at Cromer, and the danger to the Light-house and Sig-

BESTON AND KELLING.

These stations being at so great a distance from the shore, the Signal Officers will therefore place the ordnance and stores sent to them, the former at Sherringham, the latter at Waybourn, to prevent the recurrence of those dreadful circumstances of shipwreck that have so repeatedly happened. The shores are steep, and the vessel consequently coming close, a 6-pounder mortar will be sufficient.

BLAKENEY.

The dangers of this place, and the innumerable circumstances stated to me of distress, proceed in a great measure from vessels when caught by a hard gale at N. or N. E. being obliged to run for this harbour, which would however be perfectly safe at the top of high water, had they lights to steer for it; at the spring tides there is plenty of water, but at those periods of the day, which in winter is generally dark, that is six o'clock. In order to remedy this evil and

nal Station at that place, from the want of attention to the Springs, the injurious effects of which might be easily obviated. From every thing Lord H. has heard upon the injury of the Light-house upon the Isle of May, he considers Captain Manby's observations of the greatest importance, and thinks the subject has been too long neglected.

recurrence of future fatal accidents, I suggest that two large ship lanterns should be placed in the charge of the Harbour Master, to be regulated by his observations of the shiftings of the bar, for the guidance of ships in darkness. Two 6-pounder mortars should likewise be placed, one to give assistance on the Eastern point of land, where the crews of so many vessels have perished, and the other for boats that may go to the assistance of vessels that may be driven on the bar. It may be necessary to add the following information: viz.—“The bar of Blakeney, although buoyed out tolerably regular, is a very dangerous one for strangers to attempt, as it often shifts. Sometimes there are six or seven feet over it at low water, and at other times, not more than one or two. However, it may be said, that in a heavy gale of wind from the Eastward, if you cannot clear the land upon either tack, it is much better to take it, than to run the risk of being driven on shore.”

HOLKHAM.

In the vicinity of this station, is the river running to Wells: for the effectual preservation of lives at the entrance of that harbour, and for giving the promptest relief to vessels driven on shore on the coast near this place, a 6-pounder mortar for each service is necessary.

Remark.—I have found no alteration of currents in the survey of this country; but learn that from 800 to 1000 persons have been seen to perish on the coast, that I have been assured might have been saved by means now brought into use.

There is one method of announcing to the people of the coast, from each signal station in the event of cases of distress, which I beg leave to recommend. I therefore suggest that each station should be furnished with the following flag, which, by changing its position, will indicate four distinct and necessary pieces of information.



There is a ship in distress in the Offing.



{ The ship in distress is coming to the shore, to the right of this station.



{ The ship in distress is coming to the shore to the left of this station.



Prepare to give immediate assistance.

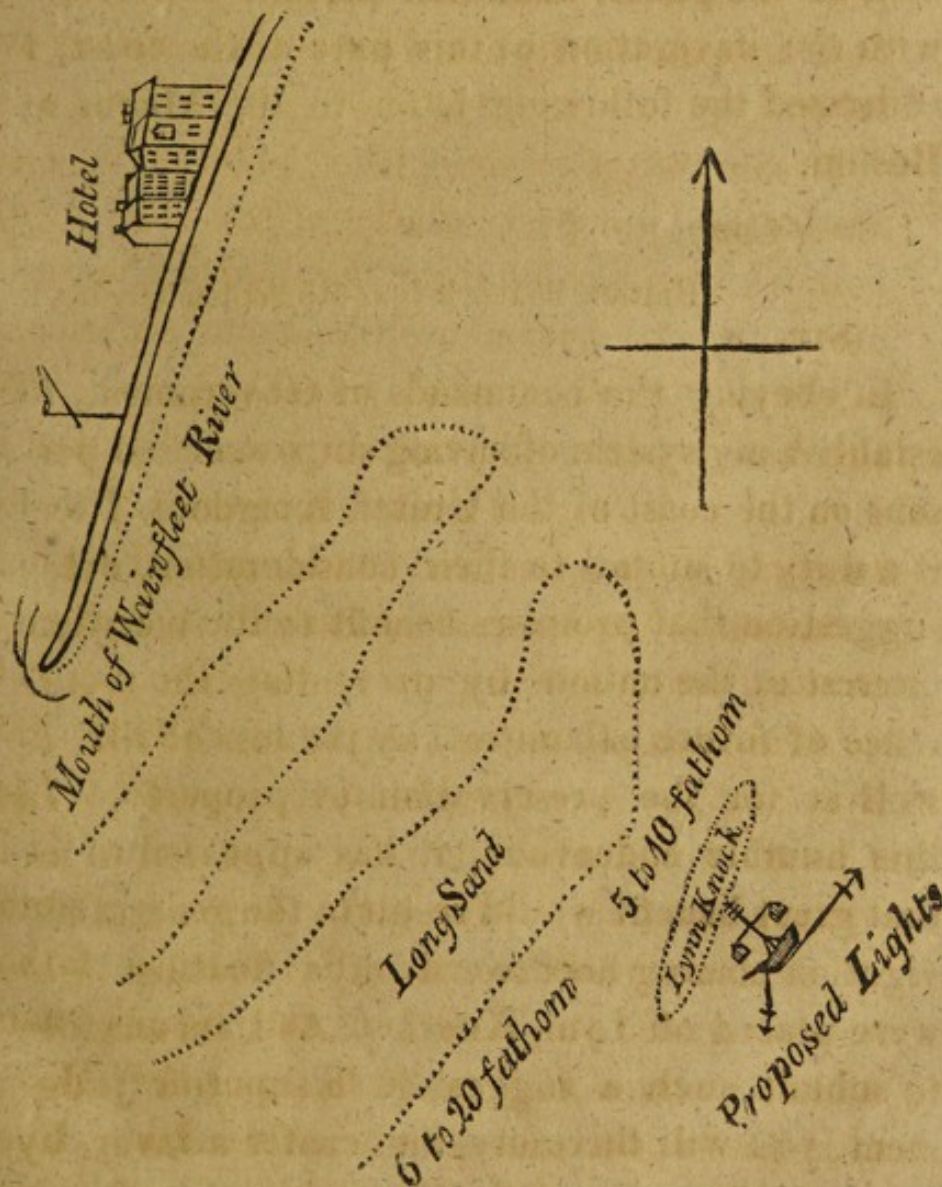
N. B. The advantages of such a flag would be, that in thick and tempestuous weather, it is more distinctly seen than any other.

LINCOLNSHIRE.

On commencing the survey of this county, I was struck with the extent of its shoals, and the consequent danger thereby presented; and the more so, when informed that the numerous unseen shoals and over-falls laid off the coast, some newly created, some unnoticed in charts generally in use, and some having greatly increased, and extending themselves, since a survey was taken.

In minutely examining the charts of the Eastern Coast (but particularly of this part of the country) and comparing them with the information received from intelligent and experienced pilots on the causes of shipwreck, I was deeply impressed that a FLOATING LIGHT placed off Lynn Knock, would greatly prevent future distressing occurrences, and be extremely beneficial to the shipping interest of the nation, and general navigation of this part of the North Sea, by enabling vessels when caught in a N. E. gale, that cannot make the Humber, to run for Lynn Deeps, and anchor in safety (in from six to twenty fathoms) with good holding ground, or securely ride in from five to ten fathom water, under the lee of the Knock Sand, which is extending N. N. E. and S. S. W. $1\frac{1}{2}$ mile in length, and $\frac{1}{2}$ mile in breadth. It appeared likewise, that it would be a great pre-

servation to vessels coming down during the night, which dare not take the Deeps or Well, from the causes above-mentioned, and are at present obliged to anchor until day-light, to make out the buoys. The necessity of this, has been attended with the loss of innumerable cables and anchors, as well as sometimes the loss of the vessels and their crews.



In order to prevent this proposed light being mistaken for the Dudgeon, Hasbro, or any other light when vessels are crossing the sea, I should recommend it being displayed in the form of a triangle, by three large lanterns, the glass of each to be, one clear—another stained blue—and a third red.

Finding my observations justified by the opinion of the pilots, and other persons conversant with the navigation of this part of the coast, I addressed the following letter to the Mayor of Boston.

(Copy.)

Boston, Peacock Inn, 8th September, 1812.

SIR,

In obeying the commands of Government, to establish my system of saving ship-wrecked persons on the coast of the United Kingdom, I feel it a duty to submit to their consideration, every suggestion that promises benefit to the maritime interest of the nation, by preventing the recurrence of future calamities, by the loss of life, as well as for the preservation of property. In this humble endeavour, it has appeared to me that great benefit would result to the general navigation coming northward, if a floating light were placed off Lynn Knock. As I am anxious to submit such a suggestion to superior judgment, you will therefore, Sir, confer a favor, by taking the opinion of the Commissioners of your

Port, and others conversant with the general navigation on the subject, whether my suggestion is correct for me to report on, and to recommend the same.

I have the honor to be,

Sir,

Your most most obedient servant,

GEO. W. MANBY.

The Worshipful

The Mayor of Boston,

Lincolnshire.

Cross Chamber.

Boston, 10th September, 1812.

At a Meeting of Merchants and Ship Owners of the Port of Boston, to consider a proposition made by Geo. W. Manby, Esq. as to the utility of placing a Floating Light near the bottom of Boston Deep.

The Mayor in the Chair.

RESOLVED,

That the entrance to the Great Bay, between the coast of Lincolnshire and Norfolk is rendered extremely perilous by many shoals and sand banks.

That in the North Easterly gales of wind it has frequently happened, that vessels bound to the ports of Lynn, Boston, and Wisbeach, or such as have been seeking shelter in the good Roadsteads of Boston or Lynn Deep, have been

stranded upon the said shoals and sand banks, and their crews sometimes lost.

That it is the opinion of this Meeting, were a floating light to be placed near the Lynn Knock, it would very much diminish the dangers of this navigation, by rendering the Roadsteads of Lynn Deeps, a sure retreat from the North Easterly gales in dark nights for all vessels navigating the North Sea, and especially for all vessels embayed between the Spurn and Cromer, and that thereby many ships, cargoes, and lives would be saved.

Signed in behalf of the Meeting,
W^M. BOUSFIELD,
Mayor.

SKEGNESS.

In my examination of this part of the coast, it having been stated to me, that it had been fatal to some foreign vessels, and was still dangerous to ships and vessels, by their having mistaken the lights at the windows of the bathing-houses and hotel, for the lights placed as a guide to navigation; the following letter to the officiating Minister of the parish, on the subject, was addressed by me.

Skegness, 12th September, 1812.

SIR,

In availing myself of Lieutenant Bunce, commanding the signal station at this place, deliver-

ing to you a descriptive sheet, and other papers, soliciting your benevolent attention to the subject therein contained, I consider it not only right, but a bounden duty to state to you, as officiating clergyman of the parish of Skegness, a circumstance that has been pointed out to me, and offered to be attested on oath by respectable persons at Boston. It is, that vessels have been actually led into the fate of shipwreck by the light from the numerous windows of the bathing-houses and hotel at this place, they being mistaken for lights regularly placed for the purposes of navigation and preservation of seamen's lives. To prevent future calamities and provide a remedy for similar fatal effects, I should consider myself extremely reprehensible did I not suggest that blinds or shutters to the windows, and closed at night, would obviate such future occurrences; and permit me to observe, that I feel fully persuaded that your friendly interposition, by representing this statement to the owners or occupiers of those houses, will induce them to carry into effect a circumstance of so much importance to the lives of our fellow creatures. I have the honour to be,

Sir,

Your most obedient servant,

GEO. W. MANBY.

To the

Rev. Mr. Green,

Officiating Clergyman

of the parish of Skegness, Lincolnshire.

Judging the harbour and river of Wainfleet to be too trifling to afford protection to vessels; and learning it was never attempted in a gale of wind, I have considered it needless to advise sending a mortar here, or to Skegness, as the adoption of a floating light on Lymn Knock is ample security for the preservation of lives and property to this part of the coast.

SUTTON.

In the vicinity of this place, I was informed from the extreme flatness of the shore, that it rarely occurred, when vessels were driven on it, that lives were lost; for if the vessel had strength to bear the first shock of striking, the tide retiring so very fast, would soon leave her dry, and the people be enabled to walk from on board; but the property or cargoes were often greatly injured; this, however, they assured me would be obviated by the suggestion, "that if a floating light was placed off Lynn Knock, ships when meeting with contrary winds, might in the night put into the deeps, which now cannot be approached with safety, and are consequently obliged to keep the sea." Near this place off Thelthorpe, is a new shoal or knock on which several vessels had grounded, having only 6 feet water on it. At low spring tides, it lies S. E.

and is about a quarter of a mile broad ; a sail's breadth open to the eastward of half course or Thelthorpe church will clear it.

Having received further particulars respecting the shoals of this place, I shall extract observations communicated to me by the very intelligent Collector of the Customs at Grimsby.

“ There are two shoals called Theddlethorpe
 “ Knowles : they run parallel with each other,
 “ the outward one lying at the distance from
 “ shore of about 7 miles, and not laid down in
 “ any chart that I have seen ; the inward one
 “ laying about 4 miles from the shore, and about
 “ a quarter of a mile in length ; the inward
 “ knowl has little more than one fathom water,
 “ at low water.”

As the people of this place are active, and ready with their boats to give assistance, a 6-pounder mortar should be sent for such services ; the system of fitting up boats by casks was here most highly approved.

SALT-FLEET.

Here is a very dangerous sand, on which vessels often get, called the Rose : it lies about a mile to the northward of this place ; a deep channel or swatchway runs between it and the main, that enables boats to go off ; but the difficulties

of approaching them require other aid : it will therefore be necessary to send a 6-pounder mortar, and a 42-pounder, for the relief of vessels when run upon the south end of the Hale sand. This latter sand has most considerably extended itself to the southward beyond the representation of any chart I have seen, and consequently increasing its danger.

CLEYNESS.

As there are not any boats near this place, and if one had been here during a gale of wind last winter, three persons might have been saved ; I recommended a man of war's jolly boat to be fitted up with casks, according to the method I have suggested, and to be sent here with a 6-pounder mortar, to apply from the same. I do not deem it necessary to recommend any stores being sent to the remaining part of the Lincolnshire coast, from its more insular situation.

YORKSHIRE.

Along the borders of that admirable bay of the Humber, I found nothing to notice until I reached the Spurn, where a life boat is placed by the gentlemen of the county, for the purpose

of going out of Hawke Roads to the assistance of vessels that may be driven on the Binx, or New Sand, which is outward of Spurn Point* ; I propose that a 6-pounder mortar should be sent for the use of that boat, to aid and secure the purposes of the intention. On finding, as I proceeded along, that the coast was totally uninhabited by fishermen and sea-faring people, and no boats whatever kept ; and vessels generally wrecked here, were upon the above-named sands, which are at a distance from the land, and in some instances the crews have been saved by pilot vessels sent out of the port of Hull, by the Trinity House of that place, to meet vessels and navigate them into the Humber, &c. I was induced to address a letter to the Elder Brethren of that Institution, accompanied with a book of instructions, and sheets of description for the various methods of saving ship-wrecked persons.

* The light-house at this place had been occasionally complained of, which induced me to watch it particularly while I was in the neighbourhood, and as far as my own observation went there was no appearance of neglect,—this was during the summer, but I fear from the information I gathered, that in the long and cold nights in winter the *small light* is not sufficiently attended to : it is to be observed, that it is raised in an iron basket on a high lever, detached from the light-house, which it is necessary to lower and replenish every half hour in an open space exposed on every side to the inclemency of the weather.

In that appeal I pointed out the infinite advantage that would be derived by the pilot vessels under their controul carrying a small mortar and apparatus to effect communication with vessels when driven on shoals at a distance from the land, or in distress at sea, when it is both difficult and dangerous to approach them. I likewise suggested the advantages if the boat of each vessel, when on such duty, were to be fitted up in the manner prescribed by me in the Directions, to render them efficient life-boats; stating, that if this were carried into effect, the greatest possible benefit and security would be derived to a considerable range of this part of the coast, superior to any other system of protection that could be recommended. The Trinity House has signified their approbation and thanks to me, for my suggestion, “and expressed their readiness to promote it, as far as they can command and assist.”

BRIDLINGTON.

Nothing could possibly be so conveniently situated for vessels coasting from the northward, or when embayed between Flamborough Head, and the Spurn Point, as the harbour of Bridlington for them to take refuge in, and be sheltered from north easterly and south easterly gales.

Yet in its present state, I regret to observe that it will not afford such protection; and I feel it a duty to point out, and to declare, that on this very perilous coast nothing would so much conduce to the preservation of lives and property, as by that improvement, to make this harbour an asylum for distressed ships, and to render it perfectly safe, secure and commodious—a work which is most practicable.

To the northern and eastern trade, the most incalculable benefits would be derived, as vessels are now frequently compelled to anchor in the bay (for the shelter of the Head and Smithwick Sand) in the hope of the weather moderating; but if the gale continues to increase, they are obliged to relinquish their situation by cutting (which is generally attended with the loss of anchors), and not daring to attempt the harbour, from the difficulty of its entrance, &c. consequently endeavour to proceed to sea, where being on a lee shore, they are often wrecked, with the total loss of crews.

FLAMBOROUGH.

To enumerate the accounts of vessels lost here, with the perishing of all the crews, previous to the erection of the light-house on the Head, exceeds all possibility. Since that period the num-

bers have greatly decreased. I was, however, furnished with still melancholy details, proceeding from vessels driven in by storms, drawn imperceptibly by the influence of suction, which is extreme in this Bay, rendering it almost impossible to work out; and the light being obscured by fogs and snow storms, on which occasion it was stated to me as not to be discernible at one hundred yards distance; they are consequently, by the draught of the Bay, set upon the rocks which have proved so fatal. To prevent similar distress, it will be necessary to apprise the unwary navigator of his danger by a bell or gun. In consequence of making known this suggestion, it was pointed out to me, that a plan, or working model for a bell, to act by water, had been made for such purpose.

I have been to examine it, which was done with minute observation. It is the invention of Mr. Milne, the Collector of the Customs at Bridlington; and I can only observe, that a more ingenious contrivance, or one better calculated to answer this very important purpose, cannot be produced, and does the highest credit to his mechanical genius.

To give security to Flamborough Head, it will be necessary to send a 6-pounder mortar for the use of the Bridlington life-boat, and a brass royal mortar for the preservation of the crews of vessels when stranded on the beach. Similar

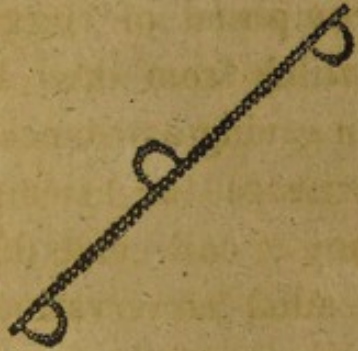
pieces of ordnance should be sent to the signal station at Flamborough, likewise a rope ladder. I was much gratified to find there were, near the Head, several fishermen pointed out to me for their activity in cases of distress; there being instructions and printed directions left with them will greatly tend to save the lives of future ship-wrecked persons, at a spot where such numbers are recorded to have perished. From the point of this awful, but truly grand Bay, the cliffs rise in every diversity of form, and are composed of rugged mouldering white stone, which from their looseness requires much care in giving assistance to the ship-wrecked; otherwise in the attempt to save, the loose stones might fall, and destroy the object of our intended preservation. But on minute observation, I was happy to discover several favorable spots presented themselves, as projecting ledges of firm rock, and little sandy bays.

The high promontory of the southern point of Filey Bay, is Speaton Cliff, stupendous and terrific beyond all possible conception, exciting every excessive horror that can affect the mind. It rises perpendicular upwards of 400 feet, and has deep water at its foot. At this fatal place an infinite number

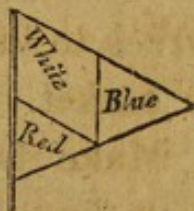


have perished, and when here driven their fate has hitherto been considered inevitable, as the efforts of the inhabitants of the surrounding country have been exerted in vain to rescue them; for when vessels are close under the cliff, ropes have been repeatedly lowered to their assistance, but from the severity of weather at such times, and the extreme height of the rock, it has been found impossible for them to ascend by a common rope. I here exhibited my rope ladder, that is capable of being projected from a piece of ordnance, requiring of the people their opinion if such would be useful for that place, and similar situations.

It gives me the most infinite gratification to say, it was not only approved, but I was assured it would have saved hundreds at that spot, from the means it affords of supporting both hands and feet by the loops, in which they could occasionally rest when much exhausted and benumbed. From the promontary just mentioned, a bay of sand (on the beach of which several vessels have been driven) sweeps round to an extraordinary ridge of flat rocks called Filey Bridge, protruding themselves more than a quarter of a mile into the sea, which is covered at high water. This has been the cause of numerous losses of lives and vessels: to



prevent a recurrence, it will be necessary to send a royal mortar, and a 6-pounder, for the advantage of speedy assistance in certain cases. The same number and description of ordnance should be sent to Scarborough, the former for the preservation of the crews of vessels that strike on the back of the pier in attempting to run for the harbour; for when this occurs, they are consequently driven on the beach where lives have been lost; and for the use of the life boat, the latter is recommended. During my experiments at this place, and instructing the beach-men in the various methods of saving ship-wrecked persons, in the presence of many distinguished, experienced, and scientific persons, I tried a method of conveying directions to persons on board of stranded vessels, in the following manner, by a triangular flag of three distinguishable colours, which by changing its position on the staff, would produce several distinct signals. Such a flag



I propose should accompany each mortar intended for the use of this shore, which, when exhibited would at once indicate to the people on board a distressed vessel, that assistance was at hand; animate the crew, and encourage them to exert themselves for their own preservation, and that of the ship and cargo. On the person in whose charge the flag is left, seeing that a vessel is in great distress, and must inevitably come for

the shore, he will wave the flag to the right or left, to direct the people on board which way to steer the vessel for some favourable part of the shore, and by fixing the flag in the ground, will point out the best and safest spot for the preservation of the crew, and least injury to the ship and cargo. This experiment was accompanied by a monograph, and I was much gratified by the approbation it received. The man from whom this method of telegraph was to be communicated, placed himself directly in front of the flag, in the following attitudes, to indicate, look out for the rope.



Secure the rope, and make it fast to some firm part of the wreck to haul off the boat, cot, or basket.



Make fast the rope round your body with a close hitch under your arms, and let the knot be on your breast bone.



Prepare to jump over-board, and take care to clear the wreck.



On leaving Scarborough, not a mile did I travel on this very destructive coast but some melan-

choly tale of distress was related to me. At Robin Hood's Bay, one that excited uncommon interest was here detailed, that occurred a very few years since, it was of a vessel stranded in this bay, and all hands perishing amounting to sixteen; the vessel was navigated by a person resident near this spot, and the crew consisted of inhabitants of the villages close in its vicinity, they perished within 100 yards of the shore in the presence of parents, friends, and relatives. I was assured every soul would have been saved if the method had been then known of projecting a rope.

To prevent future calamities a $5\frac{1}{2}$ inch mortar will be necessary.

WHITBY.

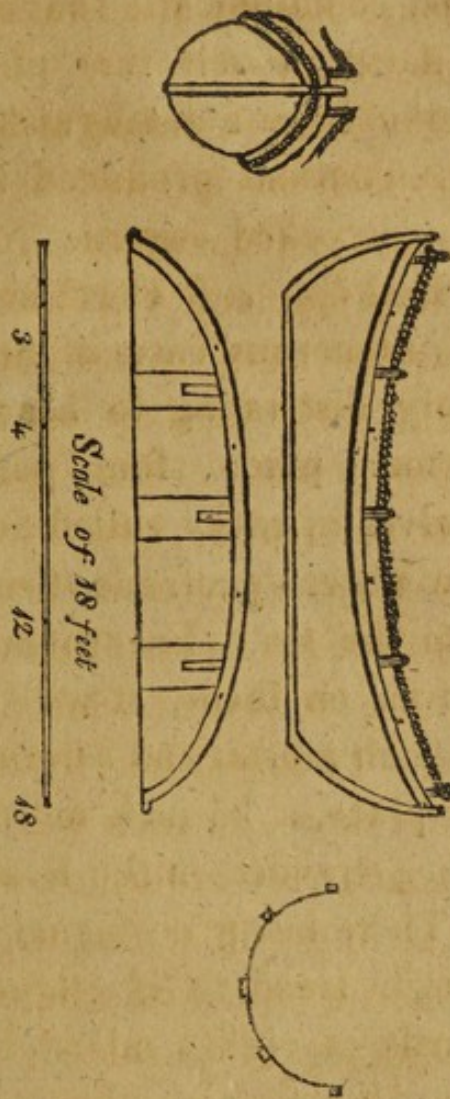
Whitby presents every feature of horror to a navigator's mind, from the broken water indicating sunken rocks, rugged cliffs, and extreme flat shores. To prevent a recurrence of distresses arising from vessels striking on the rocks in front of its harbour, a 6-pounder mortar will be required to be applied from a boat, and which from its portability can be used with great success. When a vessel is driven under Sortick Nabs and Cliff, a rope ladder will likewise be of

infinite benefit for lowering to persons driven under them.

To give protection to Sandend Bay and Shore, a $5\frac{1}{2}$ inch mortar will be requisite, and similar pieces for Runswick and Staith's bay. For the sake of humanity, I had to regret at Whitby, that the life-boat was in total disuse, from a general prejudice against it; although certainly the place offers advantages peculiar to a boat of this description, by having a harbour to go from, but they assured me its size and weight prevented a possibility of her being forced against a violent wind and over a high raging sea. To impel her by the power of oars, from a flat shore, in such weather as described, when the surfs are broken or white water, I admitted to be impossible, but urged the advantage here, of going out with the ebb tide. Finding the prejudice to be rooted, that nothing would induce them to use it again, I submitted the plan of a boat as here represented, which was much approved, constructed by me in the year 1808, for the use of the public, and sent to the Island of Anhalt for their benefit.

Conceiving that good may arise from a knowledge of its construction and properties, I consider it a duty for general information, to state it thus in my report. It was fitted up with boxes of air, but the method by casks, is infinitely to be preferred, and particularly when secured to the lower part of the boat; for should the bottom of the boat be stove in, her buoyancy is still preserved and safety for the crew

provided. This boat above represented, I had the honor of exhibiting before a committee of Naval Officers (Admiral Lord Gardner, President) appointed by the Lords Commissioners of the Admiralty, whose report justified the sanguine hope I had formed of producing a small portable boat, combining in its construction every principle for security and service, and particularly adapted for the employ of bringing in safety to the shore the crew of a stranded vessel,



after communication has been effected by a rope ; I flatter myself this plan will at some future period have a distinguished rank in the various constructions produced for the preservation of ship-wrecked seamen.

Red Car and Cortham, are so notorious for the numerous cases of destruction, that it was truly distressing to hear their recital ; at the former place, four parallel most dangerous shelves of rocks called Salt Scars, (seen only at low water) protrude themselves a great distance into the sea. For giving assistance to vessels driven on them, it will be necessary to send a $5\frac{1}{2}$ inch mortar and a 6-pounder ; and at the latter place, a $5\frac{1}{2}$ inch mortar, for relief to vessels when stranded on the Bran Sand or South Gare.

There being no Signal Station from Flamborough Head to Hartlepool, a distance of upwards of eighty miles, I found it necessary to provide for, and point out in whose care the mortars, &c. recommended should be placed. For Filey Bay, the Rev. Mr. Wrangham of Hunmanby ; Scarborough, the Committee of the Life Boat ; at Robin Hood's Bay, Mr. Cook ; Whitby, the Collector of the Customs ; Sand-cud Bay, Runswick Bay, and Snaith's Bay, the Earl of Mulgrave, and that his lordship be requested to appoint such persons as he might think proper to direct the same. Red Car, for the similar disposal of Lord Dundas, and at

Cortham, H. Vansittart, Esq. These arrangements being made, I am fully persuaded that nothing can contribute so much to promote the views of the establishment, as rank, opulence, and respectability interesting themselves in the cause of humanity.

DURHAM.

Hartlepool is surrounded by rocks close to its frightful shore, which extend some distance to the northward, there is likewise a reef that stretches itself far into the sea, called Long Scar ; to the South, there are however very favourable bays of sand on each side of this place to ensure the safety of lives, by the aid of a $5\frac{1}{2}$ inch mortar, when vessels are driven on them. As I made a point at every place where a life-boat is kept of inspecting it to suggest whatever I conceived may conduce to its utility, I was much gratified at the admirable appointment and arrangement made for it here. A committee of experienced persons judge the merits of any extraordinary case, and exertion of the people appointed to it, and reward accordingly. A fund for this purpose is principally supported by a *Sermon annually preached in the Parish Church* ; on this occasion, every one attends and contributes as far as they have ability, to carry

into effect that benevolent design. How glorious would it be for the cause of humanity, if every clergyman of a parish on the coast would imitate such a plan of charity and patriotism; for thus sanctioned and patronized, it would excite the opulent to extend their bounty, and induce every inhabitant to contribute, whereby a blessing would be diffused by a parochial institution providing the means of snatching the shipwrecked mariner from a premature death. A whole set of apparatus will not exceed £20.

The salutary effects of such an exercise of benevolence would soon be experienced, and the universal system of preservation promptly established, would erect a monument of unparalleled national beneficence. There is not a clergyman, I am convinced, who will disregard this appeal, or be offended at the suggestion, when it arises from the zealous feelings of an individual who loves his country, and is so deeply interested in the welfare of mankind.

Easington has both rocks and sandy bays, and will require a $5\frac{1}{2}$ inch mortar for the preservation of the crews stranded on each side of the signal station.

Sunderland has many dangerous rocks in front, and extending on each side of the Pier, running far out, where innumerable vessels have been lost. It will be proper to send to this place, from the various natures and requisite methods

of giving assistance, a 42, 24, and 6-pounder. The life-boats here are particularly worthy of notice, having a superior advantage over every boat I have seen or heard of, from apertures going through their bottom, that when the sea breaks over and fills them, discharge the water to the regular buoyancy of the boat in a very short space of time. It is the contrivance of John Davison, Esq. of this place, and does high credit to his ingenuity. A few slight suggestions by having the air boxes detached from the bottom of the boat, in case of the bottom being stove on rocks, a circumstance which has been fatal to the whole crew of a life-boat on this coast; and a projecting rope round the gunwale, for men firmly to hold by until they can be taken into the boat, (should they be obliged to swim from the wreck) would render these boats perfectly adequate to any service, and give security, at the same time precluding all danger.

On leaving Sunderland, the extensive lime-kilns, situated on eminences, attracted my notice; and I have since been informed, that they have been the occasion of the loss of many vessels, by mistaking them for lights intended for navigation. Surely, when the remedy to prevent such future evils can be accomplished by having a screen placed before them, no owner nor occupier of such works will refuse to have it carried into execution.

WHITBURN.

At the front of this point of land, a most dangerous reef of low rocks runs far into the sea, called the Steel; a $5\frac{1}{2}$ inch mortar must be placed at this station, which will also be a protection to the dangers of Marzon rock, bay, &c. A similar piece at South Shields will likewise be necessary to afford assistance at Suter Point. Frenchman's, Graham's, Manhaven bays, and the upright rock under which vessels have so often been driven and immediately gone to pieces. And it will also serve for the bay called Hard Sand, on which such tremendous surfs break. For the aid of vessels stranded on the bar running for the harbour, of which there have been such innumerable instances, a 6-pounder mortar for the life-boat will be required. In examining this boat I was attended by several of the Committee, (under whose direction it is vested) together with many persons who have repeatedly been employed, and the means of rescuing upwards of 100 lives from wrecks.

In the presence of these persons I submitted such suggestions as appeared calculated to benefit the properties, and provide assistance or a remedy for the inconveniences complained of; that is, first, the boat's weight, and secondly,

having on some occasions been obliged to relinquish the object of their endeavours, from the necessity of returning to bail out the water, which had broken over and filled the boat; in consequence of which I had the satisfaction of receiving the following testimonial, signed by thirty-one persons :

South Shields, 10th Nov. 1812.

We, the undersigned pilots and seamen, who are used to the life-boat at this place, and have been off in her, and at the saving of crews from wrecks, do consider Captain Manby's method of applying casks or kegs filled with air at the bottom of the boats, to be a very great improvement of this, and other boats of the like description; as it will greatly take from the weight, and consequently make them more lively in the sea, by being much more buoyant.

The water discharging itself by pipes is likewise of great consequence.

To the Committee of the Boat at North Shields, I made the same observations, and signified my intention of sending a 6-pounder mortar for its use.

NORTHUMBERLAND.

TYNEMOUTH CASTLE.

For the purposes of giving assistance to Short-sand Bay, Sharpness, the intervening dangerous rocks and bays up to Hartley Point Reef, a $5\frac{1}{2}$ inch mortar will be required. At this place the encroachments of the sea demanded particular attention, as I found a considerable part of the wall, in front of Clifford's Fort, was washed down; much of the contiguous property totally swept away; and others greatly injured. Conceiving it a public duty, I was induced to trace the whole, in the endeavour, not only of pointing out the evil consequences, but to discover the cause; and of humbly submitting my opinion of what appeared would best tend to check its future progress. Leaving the Light-House, I proceeded by the Bay (called Low Light Bay) to the eastern extremity. A considerable part of the Fort wall, as before stated, had been washed down, and much of the contiguous property swept away. The range of buildings called Low Lights were in a most perilous situation, by the sea nearly making a breach to them: had this been the case, a clear passage would have been made to the river, sweeping away the range of buildings before-mentioned, as well as

the Fort, Lighthouse, Custom House, and in short every species of property from the west end of the barrack wall. On examining the effects of this high tide, which occurred on the 22d of October, I found it had washed considerably higher than the wall and pavement at the south front of the barracks, and that the wall alone had been saved by breakwaters. The hill on which the barracks stand, is much saturated by springs, and a considerable portion is loose, and will eventually slip, consequently it will be attended with much public expence, if not prevented by the springs being cut off, or the wall heightened, and the inclined plane of pavement on its top greatly extended for its support. The east corner of the barrack wall requires particular attention, for if any material accident were to happen to the barrack wall from a similar gale and tide, I conceive the whole hill and barracks to be in great jeopardy. These observations I made in the presence of the Barrack Master, Captain Mann. The cause of these ravages appear to have been from rocks and large stones in the bay (being considered impediments) having been incautiously removed, without previously considering the effects that would thereby be produced in permitting the sea to make an uncontrouled sweep round the bay, which in a S. E. gale is greatly accelerated; and dashing very high up the cliff, threatens the destruction of the

places enumerated. In the front of the Fort is a projecting ridge of shingle or small stones, (called Muscle Scarpe) which is dry at low water: on this were formerly large rock stones, and others interspersed about the bay, to a higher range called black mittens, stretching to the easternmost point.

These barriers provided by nature, have been blasted and carried away; to this must be ascribed the evil that has been produced, and which is still further threatening.

To submit a remedy I beg to offer two methods: first, the most simple and prompt way to prevent further injury or encroachments, would be by continuing a wall from that of Clifford's Fort to the westernmost extremity of the barrack wall, with occasional firm and lofty break-waters. It would be advisable, in making these break-waters, for them to be angular, falling off to an inclined plane towards the sea. And secondly, to render this work efficient, and to recover the space called Low Light Bay, can only be done by a substantial barrier, carried from the point of the harbour under Tynemouth Fort, to Black Mittens Rock, and sweeping to the exterior angle of Clifford's Fort.

This would divert the course of the water, and keep the set of the tide to the centre of the channel. This latter observation is particularly worthy the attention of the shipping interest of

South and North Shields, from the advantages that would be derived to the ports of these places, by removing the sand banks now in the channel, which I witnessed to be a considerable hindrance to navigation. It would likewise render the circumstances of distress much less frequent on the Bar, by accelerating the velocity of the current, and consequently deepening the water thereon.

NEWBIGGIN.

It will be necessary for the officer at this station, to place in the hands of some responsible person at Blyth, a $5\frac{1}{2}$ inch mortar, to provide for the great dangers that are in its vicinity, as difficulties might occur in getting one promptly across the two rivers to the relief of any casualty that might occur to the southward of that place. A similar mortar will also be required at the signal station; for a vessel came upon the rock, within 50 yards of the station in March last, and immediately went to pieces, and every soul perished. It will likewise be able to afford assistance to the intermediate places as far as Creswell.

HASKERLEY POINT.

By having a mortar here, it will not only tend to prevent a recurrence of distresses from the many dangers of reefs of rocks about Bondicar, but from the long beach of sand to the southward.

It would likewise be of considerable importance, for the giving assistance to vessels driven on the rocks, about and on Coquet Island, which might be taken over in a boat (the island being to windward) by fishermen who are at hand, and are stated to be active and zealous. Considering there is not a place of security to shelter vessels from easterly gales, (which are the most dangerous on this coast) between Shields and Holy Island, I was induced to enquire of the most intelligent persons, whether vessels could anchor and ride in security in a storm under the lee of this island. The reply was, most certainly: but it is scarcely known to any but the navigators of vessels, who are continually coasting it, from Leith, Berwick, &c. On this, being strongly urged thereto, I considered it a matter of extreme importance to collect, from the judgment of the most experienced, the necessary

sailing directions, and to give a representation of the complicated dangers, for their future security.

DIRECTIONS

FOR SAILING INTO THE ANCHORAGE AT THE
COQUET ISLAND.

Should circumstances admit, it will always be desirable to go round the north end of the island to this anchorage, the passage being much less intricate than on the south side. Being to the north and eastward of the island, bring Bondicar Point to bear S. W. by S. then run directly for it, taking care, however, to keep it open with Hauxley Point, in order to clear the Pan Bush, run in this direction until the old tower on the island bear S. E. by E. and Bondicar Point shutting in with Hauxley, you will then be in a good anchoring birth with not less than 4 fathoms at low water.

Being to the southward and eastward of the island, and not able to weather it, bring the Old Tower to bear N. $\frac{1}{2}$ W. then run directly for it, until you bring the centre of Warkworth Castle on with the chimney of the old ruin at Amble Pans, coming not nearer the island than a good cables' length, run with these marks on until the Old Tower on the island bears S. E. by E. then

anchor as before. In thick or hazy weather, when the marks may not be visible to run in on the south side, bring the Tower to bear N. by W. and run directly for it to within a little more than a cables' length of the island, then keeping about that distance bring the Tower to bear N. E. from which steer N. W. till it bear S. E. by E. and you will be at the anchorage.

Should a ship not be able to ride out the gale, but from parting her cables or any other cause go on shore, there is a fine sandy beach and smooth water, with every probability of at least saving the lives of the crew. It may be worthy of observation, that on the first half of the flood the tide sets directly into Druridge Bay, and vessels coming from the southward have often times in consequence of this, with a fair wind and thick weather, got upon Bondicar Rock, by not keeping a sufficient offing; this may be prevented by their making use of the lead, and not coming nearer the land than fifteen fathoms.

Coquet Island.



Warkworth Castle.

The advantages of this information being generally known for vessels of a certain description to shelter in, promises considerable benefit.

It would be extremely advisable to have a mortar placed at Aylmouthe, for the extraordinary dangers of a point of land at Bromer, called the Steel; and for a preventative of the many accidents on the dreadful iron-bound coast, in its vicinity, where vessels have been lost. A mortar being placed at Howick would be extremely desirable; therefore, for this very purpose, I shall solicit Earl Grey for his permission, so that it may be lodged at his sea house, and be ready for any future occurrence of distress.

DUNSTANBOROUGH CASTLE.

The coast about this station being so much interspersed with sunken rocks and projecting reefs, requires a mortar to be placed here, and one also at North Sunderland, under the care of Mr. Blackett, agent to the Trinity-House, for similar reasons.

BUDLE HILL.

For the convenience of giving prompt assistance to vessels when attempting to run for the shelter of Holy Island, but cannot succeed, and are stranded in consequence, a $5\frac{1}{2}$ inch mortar will be necessary. Also a 6-pounder to be lodged with such a person on the Island as the officer may judge desirable.

BAMBURGH CASTLE.

This place exhibits at one view, more dangers to navigation, and records more distresses, than any place on the coast; particularly before the Corporation of the Trinity House placed a revolving light on the Great Fern Island, and a similar one on Brownsman's Rock, one of the Staples Islands. These situations, so noted for destruction, no doubt, pointed out to the philanthropic and patriotic trustees of Lord Crew's estates (left for unconfined charitable uses) the infinite benefit that would result to mankind, by the application of part of their funds, among numerous other acts of beneficence, to cases of shipwreck; stimulating exertions in giving assistance, encouraging every effort to save the lives of

the crews, and providing comforts for them when rescued. An institution more wise, no human policy ever formed, and their judicious and humane distribution does infinite honor to their heads and hearts.

The service in which I am engaged, constituting so material a feature, and so congenial to the views of the Trust, produced me an invitation to the Castle, with a declared readiness to carry into effect whatever would conduce to this work of national charity. By the uncommon assistance they took care to provide for me, I have been enabled to explore the dangers with the deepest attention, and produce those suggestions for the benefit of my country, which could not have been derived from any other source.

The uncommon flatness of the shore, with the contiguous and extended reefs of rocks require a 42 and a 24-pounder. And to give them the greatest power and range, they should be placed on wheel carriages, to allow the wash of the sea to run under them. A 6-pounder will be necessary for furnishing a boat. Sets of the night apparatus should likewise be lodged here, with an ample supply of light balls for signals; a buoyant boat basket for bringing helpless women and children from wrecks, and a cot fitted up with enclosed air to prevent it from sinking, when the distance will not permit the rope to be kept at a proper tension. In short, this benevolent

institution should be furnished with every production intended for the preservation of a class of men who are so intimately connected with the security and prosperity of our country.

In examining this space of dangers, I have judged it proper to make a faithful representation of them *, in order to point out some subjects of importance to navigation, and submit to your consideration what (it is reasonable to hope) will prove superlatively beneficial to present and future ages.

Among the many situations that have come under my consideration, none has called my attention equal to the space here represented, on ac-

** Copy of a Letter from Vice-Admiral Otway.*

DEAR SIR,

I return your Book, with many thanks for its perusal. I trust that your very judicious recommendations will be attended to, as the most extreme benefits, public and private, must result therefrom.

I am, Dear Sir,

Your faithful and most

Obedient Servant,

Albany-Street,

WM. AY. OTWAY.

6th Jan. 1812.

P. S. I think it very desirable that you should send a Sketch of the Fern and Staple Islands, with the new discovered shoal of the latter, and an account of the anchorage you recommend to the N. W. of the great Fern Island, to Captain Ward, the Hydrographer to the Admiralty.

WM. AY. O.—

count of the contention of currents running in every direction; settings of rapid tides, sunken rocks, dangerous shoals, straggling islands and hazardous beaches, where souls beyond number have perished, and property exceeding all estimate has been lost.

In taking a retrospect of this view, I shall first go to the exterior.

Not in any chart that I have seen, or been informed of, has that shoal been laid down, which is N. E. of the Nearstone about half a mile, nor have the directions for vessels sailing by the Fern and Staple Islands ever noticed it. The race and rippling of the current over this shoal, occasion in heavy gales of wind a most tremendous swell; and it is strongly presumed, and most firmly believed by those whose judgment may be relied on, that the loss of the *Britannia*, of Newcastle, and the *Mermaid Cutter*, are to be attributed to it, by their passing over the shoal, as they had been seen a little way to the Southward of steering North, with a severe Easterly gale*.

** Copy of a Letter from Captain Buckle, dated
Adamant, Leith, 9th March, 1813.*

MY DEAR SIR,

I herewith return your Books, for the perusal of which I am much obliged to you, and am of opinion your exertions cannot fail being attended with the most happy effects.

Your little Chart of the Staples, brings to my recollection

In all the attentions given to preservation in the vicinity of these multiplied dangers, one very material has been overlooked, viz.—The necessity of pointing out perils, and warnings at a time when thick fogs prevail and obscurity pervades, so that neither the islands nor light houses are discernable. To provide a safeguard for this period of difficulty and hazard, I strongly urge the necessity of *Sound*, to apprise the stranger or negligent navigator, and to arouse the unsuspecting seaman to have recourse to his

the accident that happened to the L'Amiable in 1810, when she struck on the outer edge of the Staples, and in consequence, was docked in Brunt Island, where a large piece of rock was taken out of the bottom of the ship. Admiral Otway at the time sent me her Log, from which I worked her course, and layed off what I supposed her track on two of my charts in pencil, which lines are still there, and so very near the shoal you appear to have discovered, that I think it more than probable the L'Amiable struck on the identical rocks which you have mentioned, and which do not appear in any Chart.

I cannot refrain from saying, that I think you ought not to lose any time in acquainting the Admiralty with this new Nearstone, that they may take such steps as they may judge proper.

Wishing you health and success in your meritorious pursuits,

I remain, my Dear Sir,

Your's Faithfully,

MAT. BUCKLE.

LEAD, as his surest and best regulator. For this purpose I recommend a bell of sufficient size and weight as to be distinctly heard in all the neighbouring islands. Steam will be the best and most certain principle by which it could act, and it will require an extremely simple combination of mechanics, to produce a moving power for raising a weight to strike the bell. It is needless to submit a design or plan for its construction, as there are so many ingenious artificers better skilled in the application of steam, to answer the purpose required. The situation best adapted, is on the island where the outer light-house stands, called *Brownsman's Rock, (one of the Staple Islands) from its central situation to the Crumstone, Nearstone, Megstone, Fern Islands, and within hearing of †Holy Islands. A square substantial building

* I am persuaded if this mentioned light-house had been placed upon an Island, three quarters of a mile to the Eastward, called Longstone, it would have been a situation of much greater safety, and advantage to navigation.

† The Bell on the top of Bambro' Castle, is rung during fogs, by order of the Trustees, but its size is not adequate, nor is its situation at all calculated to do the good intended by this benevolent institution; as fogs generally rise from the Eastward, consequently the sound is to leeward, independent of the extreme roarings of the surf, breaking on a flat and extended beach, thereby preventing a possibility of its being heard at any distance from the land.

(originally the coal light-house, 36 feet high, and 20 feet diameter, on the E. S. E. of the light-house) is capable of being converted at very little expence to answer the purpose intended.

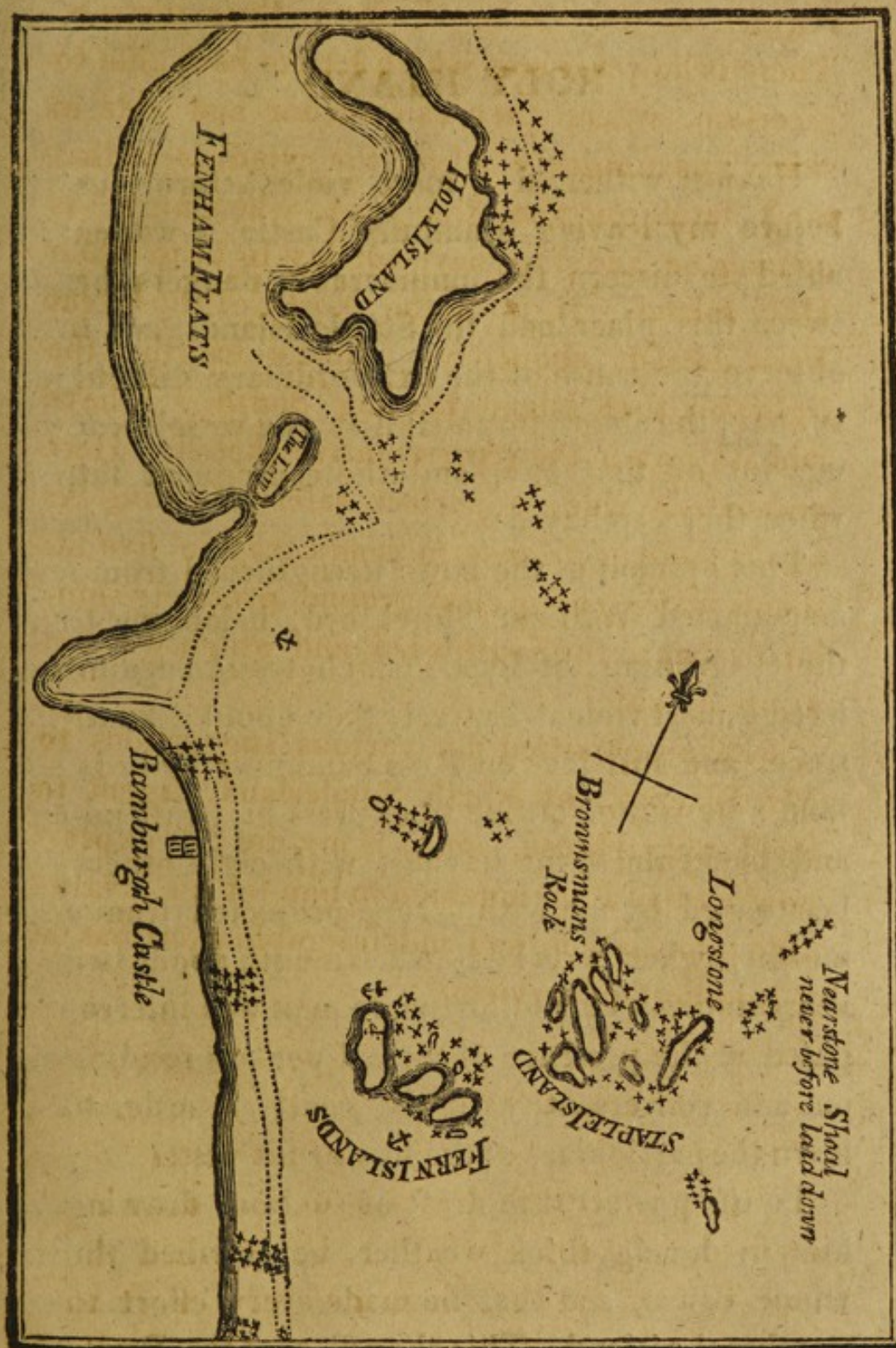
Its situation (the light-house being round) can be no objection, as the sound would fly from the tangent of the arc, and collect again to fill the space. To distinguish this bell from those of the churches on the coast, it might strike twice, as quick as the lever could be raised, and pause with the intermediate silence of five minutes. No additional aid would be required to attend it, as the people superintending the light-house being four in number, could discharge the occasional duty.

This suggestion being carried into effect, would give infinite benefit to the Fern Islands, and to navigation it would be incalculably great; besides the advantages which poor industrious fishermen would derive from it. It is therefore humbly hoped, that the Hon. Elder Brethren of the Trinity House, will speedily adopt a subject of so much importance to the maritime interest of the country, and to humanity.

In my attention to the Roadsteads about the Islands, to discover where vessels might shelter and anchor in safety, one only is laid down in any Chart, or scarcely known, which is under the great Fern Island, the light on it bearing N.N.W. but this affords no safety, nor could vessels an-

chor in gales, most fatal on this coast, when they require to be sheltered from their distress. There is however one, which I have been able to ascertain, where they can anchor and ride in safety, particularly when the wind is at that most fatal quarter, the East, when night is coming on, and ships have not day-light to reach Holy Island. It is on the North of the Great Fern Island, about one cable's length, the light on that Island bearing South. I have laid it down in the representative sketch. Here vessels can ride in perfect safety (*having the whole chain of Islands to windward*) in five fathoms water, and in clear ground, precisely similar to that to the Southward, and which will not injure a cable.

I have submitted my various suggestions to Mr. Blackett, of North Sunderland, Agent to the Trinity-House, and it is my duty to express how greatly I am indebted to him for his invaluable information, and indefatigable exertions on this important service.



HOLY ISLAND.

Having witnessed a most violent storm just before my leaving Bamburg Castle, I was enabled to discern the innumerable dangers between this place and the Staple Islands, and to observe the cause of the extraordinary difficulty, nay, the almost impossibility of a vessel beating out of that bay, and the consequent fate when there embayed.

This opinion is the more strengthened from a man named William Shuckford, belonging to the Brig Susan, of Lynn, which vessel encountered a most violent Easterly gale about a month since, and still lays on Ross Sand near Holy Island ; he waited on me to express his gratitude and thankfulness for having, with eight others, been saved by me with a rope projected from a mortar, when wrecked at Yarmouth about two years since. This unfortunate man was interrogated in the presence of several persons residing on, and conversant with the coast, in order to learn the particulars of the loss of his vessel.

To the powerful in draft or suction, drawing him in during thick weather, he ascribed the whole cause, and that he made every effort to weather the island. This the officer at the Budle Hill signal station has not only confirmed, but

assured me, that he never saw such seamanship and exertion used by any merchant vessel in carrying a press of sail to clear the land. It was at a period of tide when there was not sufficient water upon the Bar of Holy Island, (which is composed of rocks, as well as both points of the entrance into the harbour,) consequently he dare not attempt it at that time, from destruction to his vessel and crew being inevitable, had he touched on the bar. Finding every effort unavailing, the safety of his crew and self became the next consideration, and relying on the strength of his vessel, he run her on the Ross Sand near an island called the Laws. On my pointing out the anchorage on the north of the Great Fern Island (which has been laid down by me in my preceding chart) he assured me, had it been known to him, he would there have anchored in safety, and saved his vessel. I have enquired of Lieutenant Wallace, commanding the signal station, if during his command he had ever seen a vessel anchor in the situation alluded to. He says, for nine years, the period of his residence, he never saw but that one vessel employed in the discovery, and considers it hitherto unknown, and promising great benefit to navigation. The small island called the Laws is uninhabited, and has beacons or marks on it, for sailing into Holy Island. It is a spot peculiarly adapted for preservation, as vessels, when unable to get into

Holy Island, have this alternative, inevitable destruction to their crews if driven on the rocks, or certain security when driven on this sand beach when a mortar and ropes are at hand. For this purpose I recommend such being placed on this island, as the men from Holy Island can cross in a boat and repair to give immediate assistance.

It is the property of Earl Tankerville, and it would be proper to submit to his Lordship the great advantage that will be derived by permitting a small building to be erected thereon, to contain the mortar, &c.

BERWICK.

The gale continuing on my arrival at this place, and it being high water, the uncommon dangers attending vessels running for safety into this harbour, was evidently to be observed. On visiting it at low ebb my opinion was confirmed of what was obviously the cause of the difficulties, and what was best calculated to ensure a preventative.

The injuries to the navigation of this place have greatly proceeded from similar causes as those pointed out at Tynemouth, the destruction of rocks near the harbours' mouth that formerly directed the course of the current, and kept a

clear passage for its tidal movements. The rock spoken of is lime stone, the property of the Lord of the Manor, Lord Lisburne, with whose permission it is said to have been taken away. To this, and this only, is to be ascribed the sand bank formed in the Channel, the encroachment of the sea on property in the Bay, and the danger that threatens a considerable part of the garrisoned town walls. To remedy these, must be by continuing the Pier, which is in contemplation; and I deeply lamented to learn apprehensions were entertained, that obstacles were likely to arise to retard its completion for the want of pecuniary aid, a circumstance infinitely to be regretted, as the advantages would be incalculably great, vessels could then run with certainty and safety into the harbour at high water, when at present it is extremely hazardous, and almost impossible, if of burthen. A more judicious arrangement was never displayed to check evils, than those combining the improvements to this harbour, reflecting high credit on that celebrated engineer, Mr. Rennie.

There is one suggestion, which I thought proper to point out to the conservators, the necessity of entering into terms with the proprietor of the Lime Stone Rock; for admitting the Pier is completed, it will not be secure if more of the rock be taken away. The work of the Pier, and every subject relating to it, is directed

by Commissioners acting under the powers of a recent Act of Parliament, and they are enjoined to render an annual statement of the receipts and disbursements of the sums collected, and intended for the improvement of the harbour, which are raised on all goods landed or shipped, termed Shore Dues.

Nothing can be of so much importance to an iron bound coast, as safe harbours to shelter in, for the preservation of life and property. Consequently my enquiries were diligently made respecting the application of the funds to the purposes intended, and I found them here most satisfactory. On making enquiries if the same system were adopted on other parts of the coast, I was led to understand not, as they are in some instances received by societies, or persons without any account being exhibited to merchants or others—surely a tax raised (not under the controul of government, or general incorporated societies,) from the public, should be accounted for to the public, when collected for any particular service, for them to be satisfied the revenues are applied to the purposes for which they are granted, and their balances carried forward.

On being attended by some intelligent Commissioners to the works going on at the Pier, I impressed on their minds the injuries to which this harbour was liable, and what must be done for its security and improvement.

Learning there was not at this port a boat calculated for giving relief to vessels when grounded on the Bar, or driven on the dangers at the harbour's entrance, I deeply regretted it; and the more so when informed of the cause, that the money collected for a life-boat was lost by the failure of a provincial Bank in which it was lodged. In consequence of which, I took much pains in pointing out the good that would accrue by having one, and explained in how simple a manner, and at what an easy rate, the properties of preservation could be given to any boat, by casks of air with the usual mode of application. The pilots here are active, and under excellent regulations, they are controuled by the Commissioners, and I have no doubt, that by sending them a $5\frac{1}{2}$ inch and a 6-pounder mortar, considerable good would be derived from them.

The little harbour of Air Mouth has a most dangerous approach from reefs of rocks, and to lessen the recurrence of fatal events, it will be proper to have a mortar lodged at the barracks.

ST. ABB'S HEAD.

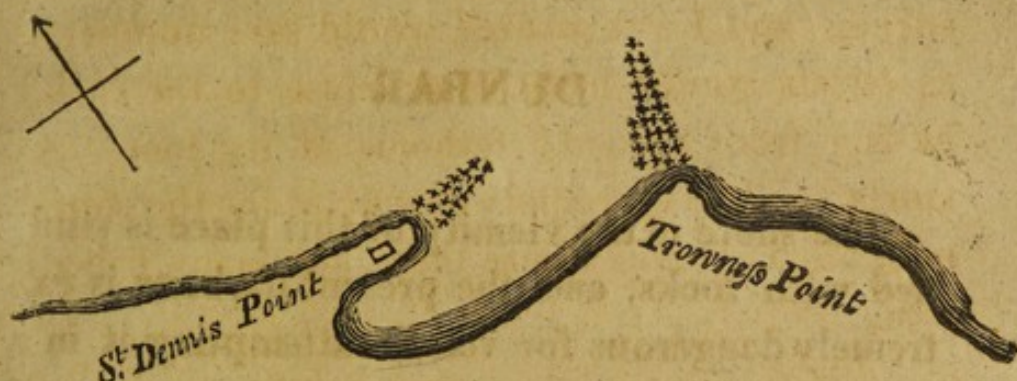
This protruding Head Land has to record an infinite number of distressing cases from vessels

being driven under it, and where the fate of their crews have been inevitable. The rope-ladder may here be applied with considerable success, and I was assured would save numbers, as vessels would have come close to the rock, having from 8 to 11 fathoms at its foot. A mortar will be extremely beneficial for the shore of Coldringham, where there are many fishermen.

DOWAL.

The situation of this place, so nearly resembling the difficulties and dangers of St. Abb's Head, will require a similar apparatus. The extraordinary features of horror this iron bound coast presented, with the various histories of melancholy events that have transpired, with the loss of the Pallas and Nymphe frigates, so fresh in remembrance, dictated the infinite benefit that would result if a harbour could be obtained.—With this hope I minutely explored Skateraw Bay, in the vicinity of Black Castle Signal Station, a situation that appeared advantageously placed, and formed by nature, by protruding points of land, for such a design, and promising incalculable good, by affording a shelter to vessels when embayed between St. Abb's Head and

North Berwick, for the want of which so many vessels had been lost.



The Bay was formed by a point of land, called St. Dennis Point, (where the ruins of an old chapel still remain,) and Trowness Point. There was sufficient water within the Bay for any vessel, and a projecting ridge of rocks extremely favorable to enclosure, stretching from St. Dennis Point to the eastward, and from that of Trowness to the N. N. East. On the closest inspection a shelter is certainly practicable, but the expence in accomplishing it, to completely lock it in, would be very considerable. The Bay is perfectly free from uneven ground, and composed of slate, gradually sloping to an inclined plane, into deep water; but as its surface was too hard to yield to the bill of an anchor, I lamented that my labour was in vain, as the want of secure anchorage militates so greatly against the benefits of a harbour.

DUNBAR.

The shore in the vicinity of this place is studded with rocks, and the present harbour is extremely dangerous for vessels attempting it in a gale of wind. I here exhibited the manner of giving relief in cases of shipwreck, in the presence of Earl Lauderdale, and many persons purposely collected by his Lordship, from their having particularly distinguished themselves by their activity in cases of such distress, when I was assured it would have saved every life that perished when the frigates were wrecked, and many other lives that have been lost for want of such aid; it is therefore desirable that a $5\frac{1}{2}$ and a 6-pounder mortar should be sent there.

NORTH BERWICK.

Sunken rocks, others visible, and islands influencing currents, readily account for the danger and the cases of distress stated to me in this neighbourhood, a $5\frac{1}{2}$ inch mortar must be placed here, with a similar one about four miles to the N. W., which I earnestly hope and trust will

prove a safeguard to the mouth of the Firth, and prevent future calamities proceeding from those winds E and N. E. that have been so fatal to the maritime interests of the country, and so distressing to humanity.

ISLAND OF MAY.

Among the various improvements produced with a view to guard against ship-wreck, and constituted to add security and advantages to navigation, the system of LIGHTS, deservedly stands first, because it warns and points out objects of danger in the hours of darkness, and by giving certain information of a vessel's situation in a trackless and stormy ocean, aids her to reach her destined port in safety. If however the admirable and well designed plan be not duly attended to, and from neglect (for to nothing else can it be attributed) the lights are at times invisible, or present repeated obscurations, the dangers that attend the maritime interests of the country, and to which the lives of a most valuable class of men are constantly exposed, will increase in a truly alarming degree.

These remarks occurred to me from the observations I have made on the Light upon the above Island, which is situated at the mouth of

the Firth of Forth. My attention was particularly directed to it by the repeated representations I received from persons along the coast, that the loss of many vessels had been attributed to it; and it was farther said to have involved the destruction of the two frigates lately wrecked near Dunbar.

In order to make correct observations for forming my opinion, I took the aid of a good glass, and employed myself in looking at the Light on several clear winter nights, *sometimes* (when I presume the fire was stirred) *a bright flame was exhibited, but it was of short duration, and sunk again into darkness.*

I am confirmed in this remark, by the officer commanding the Signal Station at Black Castle, which is on an eminence immediately opposite to the Island, and by the reports of many of the Officers commanding ships of war on the Leith station; but I may in particular mention Captain Peirce, of his Majesty's Sloop Rifleman, who declared in the presence of the Vice-Admiral (Otway) commanding on this station, that during the eighteen months he had been under his command, he had repeatedly run within half a mile of the Island before the light was discernible.

This light is maintained by coals, which is at all times, and in any situation improper, but it is more so on this coast, because there are many

lime-kilns burning so near it, that unless the utmost attention be used to keep up a regular uniform blaze, and render the stream of light perceptible, it can be of no use in navigation, and may easily be mistaken from its similitude to those lights on shore.

The Island of May, with its lights, are private property (the Duke of Portland's,) and to that circumstance I cannot avoid attributing in a great degree its imperfection, from the want of that controul which is essential to so important a subject, and cannot be maintained except by Government authority, or a well regulated society.

Under a strong impression of this truth, I would earnestly recommend that this light be purchased and placed under the immediate controul and direction of Government, or of a Society such as the Brethren of the Trinity-House, or the Commissioners for Northern Lights. I need scarcely add, that the illumination should be with reflectors, so as to form a distinction from any other.

I cannot conclude without remarking, that no study would be more beneficial to navigation, than that of producing a method of determining the situation of, and knowing every light when seen.

It is a subject worthy of serious consideration by those to whose department so important a branch of maritime science belongs, and I shall most readily give my humble aid to perfect a system, the result of which would be of incalculable good to the nation.

GEO. W. MANBY.

REPORT read to the **COMMITTEE**
of the **HIGHLAND SOCIETY**
of **SCOTLAND**, appointed to
consider and report upon my
Plans for saving Persons in cases
of Ship-wreck and breaking of
Ice, I have been favored with,
accompanied by the following
letter. **G. W. MANBY.**

London, May 8th, 1813,

12, South Molton-Street.

DEAR SIR,

The Highland Society of Scotland are constituted for encouraging Agriculture and Manufactures in Scotland, but the common cause of humanity in which you have so indefatigably and successfully exerted yourself, induced them to appoint a Committee (of which I have the honor to be Convener) to meet with you and

report the result of, and their opinion upon the series of experiments you were pleased to make in illustration of your plans for effecting a communication with a vessel stranded on a lee-shore, and rendering assistance to ship-wrecked persons.

I consider myself very fortunate in the opportunity I had of so particularly noticing your experiments and understanding your plans, of which I have endeavoured (with the approbation of Admiral Frazer, who accompanied me) to give a connected description, in the form of a Report read by me to the Committee of the Highland Society, and which in compliance with your request I now beg leave to enclose to you.

From what I have stated of the constitution of the Society, you will readily perceive, though the Committee contained the names of Dr. Playfair, Dr. Rutherford, Dr. Hope, and other scientific men, it would not be consistent for them to report scientifically and minutely on a subject of which they were to judge as country gentlemen, therefore, though they were pleased to give a portion of that credit to me for my description of those plans, which of right belongs to you as the author of them, the Meeting declined going into a detailed Report, but requested me to draw up a short one, approving generally of the result of your experiments, concurring in opinion with the Parliamentary

and other reports, than which nothing can be more strongly expressed, and recommending to the Society to use every endeavour to promulgate these plans, and induce the parishes and landed proprietors to aid the views of Government for establishing your apparatus along the dangerous parts of the Coast and Islands of Scotland, and further to recommend to the Society to present you with a Medal expressive of the high sense they entertain of your abilities and exertions in so meritorious a pursuit.

The above is the general outline of what the Report will contain, of which you will receive a Copy on application for it to the Secretary, as soon as it is officially notified.

My own opinion is so fully expressed in the Report read to the Committee, that to add to it here would be superfluous; but if the plans proposed by you be not adopted along the Coast, I shall certainly think, independent of the great loss which must happen to our mercantile interests, that the public will be accessory to a degree of neglect so great that I may almost apply to it the term of criminal, because many valuable lives are from the absence of such means annually lost. This opinion is not chimerical, for a Greenlandman (the Orion) was wrecked on the Aberdeen Coast no longer ago than last month, and 46 men perished so close to land, that their features were quite discernible by

those on shore, and under circumstances, that had your apparatus been there, the most reasonable prospect appeared of saving every one of them.

I am, Dear Sir,

Yours faithfully,

PATK. WALKER.

Capt. G. W. Manby.

REPORT, &c.

THAT on the 1st of February, Captain Manby proceeded to explain the principles of his plans illustrated by drawings, models, and the production of part of the apparatus; on the 4th of February they were continued by some experiments in the Castle, and on the 8th of February, 2d, and 5th of March, they were further exemplified by throwing the shot and rope affixed, from mortars placed in Bruntsfield Links. The mortars used on these occasions were a 12-pounder and a two-pounder. By the former a deep sea line was projected, both with the common shot and the barbed one, about 190 yards, with 8 ounces of powder, and the 2-pounder, with $1\frac{1}{2}$ ounces, projected a line above 120 yards with a pear shaped shot. At the second exhibition the ~~for~~ *latter* ~~was~~ went above 200 yards with the same quantity of powder, but on this occasion probably a few degrees of elevation were gained by the slope of the ground from whence it was fired. Upon the other trials the elevation of all the mortars was $17\frac{1}{2}^{\circ}$. A tree was selected to represent the mast and rigging of a vessel over which

the projections were made, with the utmost precision, though the wind blew a hurricane from the S. W. almost at a right angle to the line of direction given to the shot.

These experiments and others have been performed before former Committees, ~~and~~ whose reports, accompanied with such certificates and documents as appear ^{ad} proper to form the most complete and comprehensive view of this highly important subject, were submitted to us.

The Committee are bound to notice in the outset the praise-worthy and humane motives which induced Captain Manby to lay his plans before the Society, namely, that in obedience to the commands of government he was in the course of examining the coasts of the United Kingdom, for the purpose of promulgating and establishing such plans as might seem to him most likely to be of assistance to ship-wrecked persons. This, he stated, he had now performed from the southern extremity of the coast of Norfolk to the Frith of Forth, and his report thereon had been forwarded to the Secretary of State for the Home Department. As the season prevented his progress on that service, he judged that from the influence of the Highland Society extending along the whole coast of Scotland, his time could not be more usefully employed, nor the objects of government be better attained, than by submitting to them the whole of his plans.

It appears that in most cases of shipwreck upon a lee shore, the vessel strikes within eighty or a hundred yards of the beach. This was particularly the case with his Majesty's gun-brig, *Snipe*, which was wrecked on the 18th February, 1807, within fifty yards of the Avens Mouth at Yarmouth, and upwards of sixty persons lost. Other melancholy wrecks were recounted by Captain Manby, but the *Snipe* is here mentioned only as it was the cause of drawing his attention to perfect the plans now under consideration.

Communication with the vessel in distress, forms the most prominent and essential feature in this service. To obtain this, Captain Manby's plan is to project a ball with a rope attached to it from a mortar on the beach.

The apparatus consists of a mortar, a ball with a hook and eye to affix the rope to, a piece of plated hide or leather, or a case or tube to cover about two feet of rope, and a rope of length and thickness proportioned to the size of the mortar. These form the primary means to effect communication, and shall be noticed separately.

The mortars used by Captain Manby, in the experiments shewn to the Committee, are peculiarly light in their construction, and powerful in their effect, which are most important qualifications in this service; for though his 24-

pounders are preferable to his 2-pounders, because they convey a larger rope, yet it often happens that sufficient space cannot be had to lay them; besides, they require additional power and time to convey, and more hands than at all times can be found to manage them. Three sizes are used, one that throws a 2lb. ball with a long line above 120 yards, one that throws a 12lb. shot with a deep sea line 200 yards, and one that throws a 24lb. shot with a $1\frac{1}{2}$ inch rope 250 yards.

Three different kinds of balls were also shewn, with each an eye rivetted into them. The first was a common round shot, the second had a longer neck to the eye, on which are grapples with barbs, and the third of a pear shape to fit the small mortar, which by this form, gains a third in weight, acquires a greater range, and consequently produces a greater effect. It may here also be observed, that Captain Manby proposes another shot similar to the former two, but with the addition of holes to insert fuzes, which when enflamed enable the people on board to see what part of the rigging the rope attaches to in a dark night.

The rope forms the next consideration: a good deal of difficulty and consideration has been requisite to attach it to the shot:—experience has proved that as little play at the eye as possible should be given to it. A chain had been tried

un *fully*
 out success, owing to its being without sufficient resistance and elasticity, and a rope, though it possessed these qualities, was affected by the fire in defiance of several chemical applications. Captain Manby has adopted, and successfully used a piece of plated leather or hide to affix to the ball, or he applies with like success a leather tube or case to pass that part of the rope through.

Though not strictly within the object of this report, yet as connected with it, and forming a matter of itself important, the Committee think fit to notice what Captain Manby stated regarding ropes, the characters and qualities of which he had been led to attend to in considering those best adapted for this service. The requisite characters are—pliancy, strength, and durability. The former implies elasticity, as essential to resist the violent action or impulse occasioned by projection; for if the elasticity be in any place checked by a kink, there it is almost certain of breaking; strength is obviously requisite, and nothing will tend so much to attain it, as an attention to the regularity of the yarns or strands. To acquire durability, the use of mucilaginous matter must be abolished. It has been usually employed to render the threads smooth, but when it is affected by humidity, that powerful enemy to vegetable substances, it causes a process of fermentation that mildews and destroys the rope. To counteract this, a character of

water-proof may be given it by a solution of equal parts of sacchrum saturni and allum. The patent ropes are those recommended by Captain Manby, and used by him.

Having now noticed the radical apparatus, the next and most important consideration is the delivery of the rope to follow the progress of the ball, for if it happens to be in the least entangled, or overlapped, it is next to impossible to expect success. Two things are necessary to be in view; first, ease and readiness for the rope to deliver itself; and second, to be laid in such a form that a glance of the eye may at once discover any irregularity in it.

To accomplish this, three modes were exhibited, which all afforded the first of these qualities, termed French faking, whale laid, and chain faking; but as the two last do not partake of the second qualification, they are abandoned, being liable to confusion in the hour of hurry and distress. On the other hand, though the French faking does possess them both, yet it requires a large smooth space of level ground which may be chosen for the purpose of calm experiment, but cannot be had on the rugged and uneven ground, where service in most cases require the use of the rope.

These difficulties have been removed by the ingenuity of Captain Manby's ~~discovery of a~~ ~~new~~ method of laying the rope within a narrow

compass, in a sort of double or compound French faking, and consists of an alternated French fake, placed longitudinally and transversely; this has been exhibited to other Committees, and the whole extent of the largest rope used in this service is laid in a crate or frame of 3 feet by 6, and 4 inches deep. The top is fastened down until required, when it is hurried to the beach along with the mortar and its stores, and when the top is removed, all is ready for action, the bottom of the basket forming a level bed, and the rope by that means is projected from it on the most rugged rocks or surface without the chance of interruption.

A new and simplified mode of coiling or laying the rope has been invented by Captain Manby since his arrival in Scotland, that enables it to be done amidst the dark and storm with the greatest correctness. It consists of a square or oblong frame, with its outer edge surrounded by conical pegs at equal distances, along which the rope is laid, and the rope, as in the one exhibited to former Committees, fastened down by a cover or lid until required, when it is only necessary to invert it, unlace the side straps and lift up what was the bottom part, and the pegs immediately quit the rope, which is thus left upon what was the lid, more correctly laid than by any other mode could be done ready to be used as from a platform.

Departing from the order, but with a view to complete the description of apparatus, the Committee think fit next to notice Captain Manby's mode of exploding gun-powder, and setting off a mortar by means of a composition. The rugged beach and uneven ground have been by the former contrivance completely overcome, and following out the train of obstacles that are likely to be met with, this mode enables a mortar to be exploded when the contending elements prevent the use of a light or application of gun-powder. This is done with the common tube, primed with a powder, that on being touched with a liquid (even after immersion in water) an action immediately takes place, it ignites and communicates combustion to the powder in the mortar.

A sailor was now exhibited with the deal frame already mentioned, containing 150 yards of log line coiled for service, slung as a knapsack, with the two-pounder mortar slung by a leather strap in a socket and two rounds of ammunition, with his box of tubes, liquid, and powder fastened in front round his waist, the whole weighing only 32 pounds. The sailor said he could readily go aloft with it, and the intention is to give the people on board the chance of aiding themselves by throwing a shot on shore from the tops. It appears by the Artillery Report (22d May 1811,) that a man was exhibit-

ed equipped in a similar way on horseback, but having a 3-pounder on its carriage fixed upon the saddle, altogether weighing 62 pounds, with which he travelled $1\frac{1}{3}$ miles, dismounted his mortar, and projected a line 153 yards from it, all in six minutes.

On many rocky parts of the coast it may not be possible for the crew to get up some of the stupendous cliffs under which vessels are sometimes driven, but even here Captain Manby puts despair to defiance, for he uses a rope-ladder, which consists merely of a rope with loops at convenient distances, spliced on for the support of the feet and hands in getting up the cliff. This was projected 194 yards from a 24-pounder mortar before the Artillery Committee.

Captain Manby's exertions have also produced a mode of applying all these means of communication in the night, by the contrivance of a compound yet simple process. Three points are necessary to be gained—first, to ascertain the situation of the vessel to which relief is wished to be given—second, to fix its direction by points on shore—and third, when the shot and rope are thrown, to enable the unfortunate people on board to know on what part of the vessel the rope has fallen, which once ascertained, a sailor can make his way to it in the dark.

The first of these points is obtained by throy-

ing light spheres or balls filled with luminous balls of star composition, and a charged fuse from a mortar at an elevation of 80° which bursts when between 2 and 300 yards high, and produces a great body of light for nearly a minute, so as to point out the exact situation of the vessel. The second part is in readiness to be applied when the star-light is thrown from the sphere: it consists of a board of two or three feet long, with a tall thin white piece of wood at each end, which is brought to bear upon the vessel so as to set or ^{by two points on shore} fix her line of situation, which is thus preserved in the darkness that succeeds. The mortar is then laid behind this piece of wood, so as to prolong the line of direction already fixed by the two pieces of wood, and fired with the fuzed ball of the description mentioned, when speaking of the different kinds of shot as intended to be used to point out the part of the rigging to which the rope attaches.

Having described the various modes and situations in which communication is to be effected with the vessel from the land, it remains to speak of the means of bringing off the unfortunate people, which varies according to circumstances. At one time the people may bring themselves on shore, but in many cases they are benumbed and lashed in the rigging, without the power of assisting themselves. Sometimes persons must go from the shore to cut them from

their lashing, for which purpose a boat may be occasionally used with success; but Captain Manby has formed a cot or cradle, supplied with air tubes to preserve its buoyancy, and skirts of fortified bands of cork along the sides to prevent its oversetting. This forms a useful part of the invention, for it is so light that four people can carry it with the greatest ease and expedition, and serving as a machine to bring the sick or wounded men or ^{on shore} women. The cot is made to travel between the shore and the vessel, and return by the exertions of the people on land, by the application of what is termed a gun-tackle purchase, and a tail block. This was explained by a model of the cot, which by this plan travelled back and forward between the table of the Committee Room and a map hung on the wall, representing a vessel, over which it was presumed the barbed shot had been thrown.

Situations, however, often occur where the vessel is on the point of going to pieces, and to project the rope is all that the perilous occasion will admit of, or perhaps no boat is ready. A knot called a clove hitch is here applied, by which persons can fix themselves in the rope at any part of it, and on the shot being cast off are immediately drawn to shore. This, however desperate it may appear, has been used with success, as is certified by 9 persons saved. The only

caution here necessary is to bring the tying or knot part to the breast bone, so as when the rope is pulled, the face may occasionally be enabled to be above the surface of the water to obtain respiration.

Perhaps in point of order, it may be next observed, that Captain Manby proposes a telegraphic mode by certain marked gestures of the human body, which will enable the people on shore to understand what is doing on board, and vice versa; as for instance, when to cast off the ball, when to pull, when to quit the wreck, &c. ^{It is} ~~They are~~ very simple, and annexed to his report to the Secretary of State. Connected with this is a triangular flag divided into three compartments, or triangular shaped colours, by the transposition of which, signals may be made to vessels which are compelled to run for the shore, to denote a favorable spot, or one to be avoided. These are to form part of the stores of each mortar, and he recommends that they should be universally adopted, and no vessel allowed to clear at the Custom House without being in possession of a copy of them.

Before describing the mode successfully employed to get a boat from the beach, it is necessary to state Captain Manby's observations upon life-boats. He considers them in many instances objectionable from their being so large and cumbersome, as to render it both difficult to have

them conveyed to the point of danger, as well as in many cases to get them from the beach, ^{as the} power of the winds and waves take such a hold on their unwieldy size. Besides, they are generally so different from the figure of the boats in which alone the people on the coast have confidence, that it is often with difficulty they are manned. The boat at several places ~~have~~, from these defects and a general prejudice against it, been given up.

If life-boats are continued, much improvement is requisite, and here great credit was bestowed by Captain Manby on John Davidson, Esq. of Sunderland, who remedied an important defect in such boats; for at Shields it had been obliged to return without effecting its purpose of assisting at a wreck to bale the water out, which suggested to him the propriety of a mode of fixing a sufficient quantity of air in the boat to force it to its own buoyancy, which, though filled with water, he has enabled it to recover by means of holes in the bottom to allow the water to escape. Still, however, Mr. Davidson's boat is not so safe as it may be made by securing the air in kegs, for at present the air may be entirely lost by an accident to the bottom of the boat, and the lives of the crew endangered, when by this improvement, her buoyancy will continue to be preserved, though her bottom was gone.

Captain Manby's plan is to convert the boats

n common use at any place into a life-boat, because the people are accustomed to repose confidence in them, and he conceives that that confidence will naturally be encreased by any additional means of safety and security proposed to them. Several plans have been produced upon the same principle, by fixing casks in boats, but Captain Manby's mode of distributing them is certainly advisable. He calculates on two gallons of air being requisite to support a person, and he secures this in oil casks as most preferable. The whole expence will not exceed 50 shillings a boat, therefore he holds it highly culpable in any vessel whatever which is not so prepared.

Having now stated Captain Manby's remarks on life-boats, the attention of the Committee was directed to the situation of a vessel on a bar at the entrance of a harbour, with his suggestions for giving relief with a small mortar placed in the boat's bow; and when on a bank at a distance from a shore, where, owing to a heavy surf, it has been found impossible to get a boat from the beach to her assistance. This most distressing situation has been successfully remedied by Captain Manby, by the following simple process:—On parts of the coast where wrecks frequently occur, and where the storms raise such a surf as is above alluded to, he moors a buoy between two anchors put down beyond the breakers, and parallel to the shore, having

the length of rope proportioned to the flatness of the beach and the flow of the tide, which prevents its embedding in the sand. When an accident happens, the barbed shot is projected over this buoy, and ^{the rope is} when hauled ~~upon~~ holds upon the rope connecting the two anchors, and by means of this purchase the boat's head is kept to the wind and weather, when no oars could propel her, and so reaches the deep water, where her oars may be applied, and she then becomes manageable and useful.

A new apparatus was submitted to the Committee for assisting persons liable to perish from the breaking of the ice. One part of it is alike applicable to accidents at sea, as a person, for instance, falling overboard. It consists of a rope with a noose, which can be tightened by drawing a small wooden button or slide, through which the doubled part of the rope passes. The noose part is kept open and afloat by a piece of whalebone, with which the rope passes through a number of corks. An egg-shaped piece of wood, as a small buoy, is also upon the rope, so that when grasped by the person in danger, it is prevented from slipping through his hands. The object is for the person to get the noose over his head and arm, when he may be drawn up the ship's side in perfect safety, and the corks have the additional use to prevent him being hurt by the rope.

The cradle or wicker boat, with little alteration,

is made to slip along the ice and settle in the hole where it is broken, and in case the body has sunk, the person in the boat is prepared with a long grappel, fixed upon a shaft that may be lengthened at pleasure, by a set of pieces each six feet in length, for the purpose of immediately fishing up a body that may have been drawn some distance under the ice.

The Committee having now concluded their description of the apparatus used, proceed to state their conclusions on the experiments made before them, with such other observations as may have been submitted to them by Captain Manby, on the different uses to which these inventions may be applied, and suggestions for promulgating the means of aiding persons who are shipwrecked, and encouraging the people on the coast to be aiding on these melancholy occasions.

It is unnecessary for the Committee to repeat any thing they have already stated in describing the apparatus, as to the mortar, rope and shot, nor can any commendation of the Society add to the high character given to this mode of communication by the various reports of Committees more qualified from their habits and educations to form a correct judgment of them than this Committee.

A good deal of discussion has taken place in regard to the originality of this part of the plan,

but all the other parts are admitted to be the result of his own mind. This, however, is a subject it is not ~~presumed the Society~~ meant ~~the Committee~~ to inquire into, nor does it seem to be of any moment to the cause of humanity, for it is an equal chance that the mode of projecting a harpoon with a rope attached, and the using a ball thrown from a mortar on board, as proposed by Mr. Bell, to the shore, and from the shore to the vessel, as practised by Captain Manby, may have all been discoveries by these individuals unknown to, and unconnected with each other. To both Lieutenant Bell and Captain Manby the greatest merit is due, but surely the copiator, who nobly practices the invention of another, and by it saves above NINETY lives, cannot be too highly applauded.

Upon this point it would seem that the Committee of Parliament had judged of the originality, for they state, " It has been proved to this Committee that the lives of 33 persons have been saved; ~~that the invention is new,~~ highly meritorious, and when generally known likely to be productive of very great and essential service." Captain Manby maintained before the Committee his right to be considered the inventor, without wishing to interfere with Mr. Bell. " In justice to my own feelings," said he, " I do now declare, that in all the various productions, I have availed myself of no

“ man’s labour, and profited by no man’s ability,
 “ but they have been the result of infinite reflec-
 “ tion, intense application, much toil and great
 “ expence.”

Mr. Bell’s mode was to fire the shot from the vessel, and he made several successful experiments from a boat on the Thames in a calm day. The Parliamentary Committee upon this point reported, “ that the invention of Mr. Serjeant “ Bell, in 1791, referred to in the Report from “ the Board of Ordnance, printed by order of “ the House in the last Session, though ingeni- “ ous, has in no instance produced any beneficial “ advantage, and it appears to this Committee to “ be totally inapplicable in case of vessels being “ stranded, the sea in such cases breaking over “ them in such a way as would prevent a shell “ being fired to shore, supposing the vessel to “ be provided with a mortar, which is never the “ case in the merchant service.”

An Artillery Committee made several Reports ~~which are hereto annexed~~, wherein they uniformly gave great praise to Captain Manby, whose experiments had been most successful in their results, but still they as uniformly revert to the plan proposed by Mr. Bell of that Corps, and do not seem to coincide with the opinion of the Parliamentary Committee, which was, that it was “ totally inapplicable,” for the Artillery Committee report that Mr. Bell’s “ idea was to

“ project the rope from the ship to the shore,
 “ *which is assuredly the method most to be de-*
 “ *pended on*, as the vessel in that case carries the
 “ means with it, and need not rely upon any
 “ fortuitous assistance from the shore.”

Though the Committee are not to investigate the fact of who first suggested the mode of projecting a shot with a rope attached from a mortar (which is the only part claimed for Mr. Bell) they think it their duty to give their opinion upon whether the projection of the rope from the ship to the shore, or from the shore to the ship, is likely to be attended with most success. In judging therefore between them, reference must be had to actual experiment, and results aided by the opinions of experienced and practical men, all of whom are decidedly in favor of Captain Manby's method of communicating from the shore to the vessel.

If the rope could be projected from the vessel, the Committee would concur in the opinion of the Ordnance Committee, that it would still be better than the other mode, though it might expose those who offer their assistance on the beach to the hazard of being struck by the shot, but until some other invention is made, the Committee must, though much against their inclination, concur in the opinion of the Parliamentary Report, the truth and justice of which is proved, first, by the certificates of naval men and people

who have been saved by means of projecting a rope from the shore, when it was utterly impossible to have fired a mortar from the vessel ; and second, by the grateful certificates of numbers who have been saved to their country and their friends by Captain Manby's method of communicating with the vessel from the land, whereas not an instance of one having been saved by Mr. Bell's method has been produced to the Committee, from which they conclude that none has occurred, because it was found impossible to fire from the deck of the vessel.

It is also to be remarked, that Mr. Bell, in place of laying the rope as Captain Manby does, used it on a common fishing-line reel, which is assuredly a bad plan, and never to be depended on, for the chances of its breaking are very many, and even if it should not break, its direction is made uncertain, and its range much reduced by the continued resistance and jerking occasioned by its disengaging itself from the reel.

It has not failed to meet the observation of the Committee, that other cases may occur at sea, where a shot and rope may be projected from one vessel to another, when communication might be essential, and could not otherwise be obtained. In this way a vessel might be taken in tow, or receive other assistance without hazard of danger by approaching too near when water-logged,

when damaged in action, and numberless other cases which especially in large convoys often occur, and can easily be conceived.

On this subject Doctor Jamison, Physician to the Fleet, says—"I think I may quote with propriety from my own knowledge, that had our fleet been supplied with your apparatus, in the gale following Trafalgar action, that several hundred lives might have been preserved, when all other attempts would have proved dangerous and abortive."

The difficulties of firing a mortar from a stranded vessel, are in some degree obviated by the application of Captain Manby's chemical powder and liquid, and though it may not be practicable to fire it from the deck, there may still be a distant possibility of firing it from the tops, and however remote the chance, it is certainly worth the trial. In this view the sailor was equipped as already described, with his little mortar and stores to go aloft: a life-boat should also be provided with a small mortar, though it may not always be possible to discharge it; it is no encumbrance, and if one case occur in a hundred, where a life-boat upon approaching a vessel stranded on a reef or bank, finds her so surrounded with breakers as to prevent her communicating with her, and which could be accomplished by projecting a rope, it would be

highly culpable not to be prepared even for such a chance.

It is not in the cause of humanity alone that the plan of projecting a rope from a mortar may be useful. It promises to be of service in the art of war, in effecting communication with the opposite banks of rivers and creeks, and so to expedite the passage of an army or its stores and supplies, especially where they move in detachment or act in desultory warfare in a country intersected with rivers, which is thus confirmed by the opinion of General Sir David Baird :—

“ I have no hesitation in expressing my firm
 “ conviction, that the mode you adopt for the
 “ projection of ropes, might be successfully ap-
 “ plied to effect a passage across a river, and
 “ might materially facilitate military move-
 “ ments, by aiding the construction of bridges
 “ in countries intersected by streams of water
 “ courses. “ D. BAIRD.”

“ *June 3, 1812.*”

The Committee, in concluding this part of their Report, beg to add their entite approbation of the plan to the many strong opinions in its favor already given, by which, to use the words of Dr. Jamison, is “ given to a shot discharged
 “ from a gun, the too frequent messenger of
 “ death, the new character acquired when
 “ armed with the invention, of being the wel-
 “ come messenger of protracted life.”

With respect to the mode of firing a gun without a match or lock, the Committee have now to speak. It is a subject worthy of particular attention, both as forming an important part of the means of assisting ship-wrecked persons, and as it regards other branches of the public service and the art of war.

The attention of Captain Manby has been a good deal directed to overcome the difficulties which can easily be supposed to generally occur in firing a gun amidst wind, rain, and spray. He had always preferred a tube to loose powder for priming, as it is neither liable to be blown away, nor does the cartridge require piercing. It is very simple, and easily made with a paste of meal gun-powder and spirits of wine, the case is of a piece of common writing paper, rolled up and cemented with gum at the outer edge. The only care is when the paste is put into the case, and in a drying state, to make a longitudinal perforation through which a stream of fire will issue with such violence when inflamed, as to penetrate and explode the cartridge.

Previous to the application and discovery of the chemical composition, Captain Manby used mechanical means to get the better of the weather. He used a pistol successfully, having the lock covered with a tin box, and the barrel obliquely cut over so as not to require much

exactness in the direction of the aim. This has been given up since the chemical discovery, but the Committee conceive it would be well to be prepared with it also.

In all the experiments made before the Committee, and in firing the guns in the castle, Captain Manby used a powder to prime his tube, which upon being touched with a liquid, never failed to explode. Neither the powder, nor the liquid produced any action with gun-powder when separately applied, but whenever they met, ignition immediately took place, and exploded gun-powder. Port fires, slow matches, tubes, and a wax taper, were primed with the powder, and inflamed on the application of the liquid.

The component parts of the powder were not explained to the Committee, who do not conceive that it partakes of the character of several powders, which they ^{know and are aware} in similar circumstances will ignite, though never applied to discharge pieces of ordnance. Under the impression that it was a fulminating powder, and having heard it reported to be dangerous, as being liable to explode by percussion or friction, they attended several experiments to have that fact ascertained.

For this purpose, a small instrument on the principle of a gun-lock was used, with a hammer, which struck a smart blow on the pan, when the trigger was drawn. Many trials with it were made, but Captain Manby's powder

remained quite inactive, while others exploded with considerable violence.

The Committee also attended Captain Manby at the Castle, on the 4th of February, when the guns were fired by his primed tubes and liquid, and at their request, some of the powder was placed in every different way, behind and around the trucks of the guns, in heaps, scattered, mixed and unmixed with gun-powder, and primed tubes and port-fires, but the guns when fired, recoiled over them, and except scattering the powder and squeezing the port-fire and tube, no alteration or change took place. The powder was first ascertained to be the same used by Captain Manby, by the application of the liquid to it, both before and after the discharge of the guns.

Under all these circumstances, the Committee are inclined to think that independent of the advantage to be derived from its use in cases of ship-wreck, that it may be of great service in war, especially on board of ship, as they cannot imagine any danger likely to arise or chance of its igniting between a deck, and the percussion ^{covered} ~~of~~ by the recoil of a gun with a wooden truck, since it would not do so either between the two metallic bodies when tried with the instrument, nor between an iron truck and a stone platform, when tried with the Castle guns; and further, that these appear to be more severe trials than

the casualties of an action are likely to produce. The Commander-in-Chief of the Forces in Scotland, and several General and Naval Officers who were present, concurred in this opinion.

For land-service, it is on many duties especially to be recommended, as in secret and night attacks, for the explosion is most certain, the whiteness of the powder aids the direct application, and the effects are felt by an enemy before they are aware of the danger; whereas by the common mode, the port-fire in general use, acts like a blue light, both to betray the movement and strength of the party.

In regard to the other agent, the liquid, the Committee had no opportunity to judge, but by perusing the Naval Report of Admiral Murray, and Captains Curry and Farquhar, it appears that no danger can arise from it, as it will not inflame gun-powder, port-fire, slow match, pitch, rope, or wood, and that the only effect is, that if allowed to remain, it will destroy the rope and scorch the wood, so as to leave a deep stain, but it is instantly checked by the application of water.

The Committee at the time they formed their opinion in favor of this mode of discharging guns, were not aware of the high corresponding opinions given both by the Artillery and Naval Committee, which they now beg leave to add. The General and Field Officers of Artillery, re-

port to Parliament, that in the experiments made before them, "the effect was certain and instantaneous, and particularly well adapted to the service he proposes, which frequently happens during severities of weather, when it is most difficult to keep matches alight, or to make the fire of a lock take effect, and in situations where, from the impossibility of renewing a light, the delay might prove fatal." And the Naval Committee above-mentioned report, that it appears to them, "if properly understood by those who use it, and the materials retain their properties, to possess more facility, safety, and certainty in firing off guns, than with the match or lock." Admiral Sir James Saumarez gives a similar opinion in a letter to Captain Manby.

The mode of ascertaining the situation of a vessel at night, and of setting her so as both to throw the shot with precision, and also to enable the crew to know on what part of the rigging the rope has attached, strikes this Committee in as strong a point of view as it appears to have done the Parliamentary Committee, in whose opinion they concur, "that it is admirably adapted to its purpose."

This plan occurred to Captain Manby in consequence of the loss of a Swedish brig called the *Wandering Main*, which came ashore in a dark and dismal night at Hasborough, on the 5th of

January, 1809; for seven dreadful hours attempts had in vain been made to effect the communication, and when the first dawn enabled them to accomplish it, the vessel had been so strained in the night that just as the cot had nearly reached her, she went to pieces, and all on board perished. The mode of effecting the communication at night has not been tried, but affords the strongest prospect of success.

The method of getting a boat from the beach is a most useful and simple discovery. The Committee are very much disposed to agree with Captain Manby, in thinking the life-boat too large and cumbersome to enable it to be useful on all occasions, and though it would be greatly aided by this contrivance, still it is certain that much benefit would accrue if every vessel had a common boat fitted up with casks, and a proportion of the boats in every fishing village along the coast prepared in like manner. The expence is so trifling, and the inconvenience so small, that many a valuable life might be saved if generally adopted.

The rope-ladder, the buoyant cot, the rope for aiding persons who have fallen overboard, or are in danger owing to the breaking of the ice, and the grappel and other apparatus for fishing up quickly the bodies when they have sunk, are all well adapted to the purposes for which they are proposed by Captain Manby, who seems so sensibly

alive to every situation of human distress, to so many of which his fertile and persevering mind has afforded the prospect of relief.

One other subject is necessary to be touched upon, though unconnected with the more immediate means which Captain Manby has produced for affording relief to ship-wrecked persons.— He wishes to stimulate the fishermen and villagers on the coast to be aiding in cases of wreck, by giving a bounty or head-money for every person saved. Captain Manby has strongly urged this subject, and contrasted the head-money that is given for prisoners taken in war, with the saving of British lives, for which, though more merited, no reward is given.

The Committee join with Captain Manby in the opinion that something ought to be done for those who assist at wrecks, but they are not inclined to think that any reward should be given in the way of head-money, because humanity is too precious a jewel to admit of having a price put upon it, and it is to be hoped that the natural impulse is so strong among the people on the coast, that the cry of a fellow-creature in distress will be a sufficient stimulus. Besides, the giving to them ~~to render every aid in their power,~~ head-money, might lead to accidents, as the people would get out of controul, and lose all in ^{perhaps} ~~their~~ endeavours to take too many. It occurs to the Committee, that Captain Manby's laudable

views would be equally attained, if assurance was given that the families and friends who depended for support upon those who might be lost in their endeavours to save persons from shipwreck, would be amply provided for by the public: that no other inducement would be requisite in most cases. At the same time, a reward now and then to persons who signalized themselves, would no doubt be of infinite service, and secure the assistance of others whose motive might not be so pure.

Captain Manby estimates, that by the general adoption of his plan along the coast, the number of lives which may be saved will average at least 500 per annum.

In concluding, the Committee feel that so much is due by the country, and indeed by the world, to Captain Manby, for his able and zealous perseverance in not only perfecting such a system as that under consideration, but in putting it so successfully in practice. In truth, what words from any Committee can convey to the heart of Captain Manby feelings half so grateful, and proof of the success of his plans so strong, as the known fact that they have “been
“already instrumental to the preservation of
“ninety souls from a watery grave, of whom se-
“venty-seven were our own countrymen, and
“thirteen unfortunate Hollanders.”

The Committee beg to give the concluding

opinions of the Artillery and Parliamentary Committee. The former “ most readily sub-
 “ scribe their opinion in favour of Captain
 “ Manby’s experiment, and unanimously ex-
 “ press themselves in commendation of his laud-
 “ able zeal and perseverance in bringing to per-
 “ fection an invention for so noble a purpose.”

And the Parliamentary one thus concludes:—
 “ The strong and cogent proofs which have been
 “ adduced before your Committee, place the
 “ advantages likely to result from Captain
 “ Manby’s plan in the most favorable point of
 “ view, and indisputably prove that its general
 “ adoption will be the means of preserving an-
 “ nually a number of valuable lives.

“ The evidence produced by Captain Manby
 “ has satisfactorily proved the great and import-
 “ ant benefits likely to be derived from his plan
 “ being generally adopted.”

The Committee do upon the whole most heartily concur and report their opinion to be the same with the above. The readiness and attention shewn by government in furthering Captain Manby’s plans, and enabling him to survey the British coasts for the purpose of promulgating them, and suggesting such improvements as may occur to him in his progress to afford assistance to shipwrecked persons, deserve the best thanks of the nation. It is to be hoped that at every signal station, at every Custom-house and

Excise-office, and even at every Light-house where they can be kept with safety, government will enable mortars and requisite stores to be kept, and give directions for training the persons in charge of them to the proper use of them.

It is not, however, to government alone that the only success is to be looked for. Much may be done by individuals at no great expence, since the most complete set of apparatus for a 24-pounder will not exceed £20. and the 12 and 2-pounders in proportion.

The Committee beg to suggest that it be recommended to all the parishes in Scotland, and more especially the maritime ones, to join in the views of government by establishing sets of apparatus for their own application in case of necessity, and as the influence of this Society extends along every creek and haven in the coast of Scotland, the Committee would recommend still farther, that at the houses of the principal proprietors or their factors, and even in the smaller islands where perhaps a single family reside, that the small mortar, with its stores (which ~~the Committee have seen~~, can be easily carried and managed by one man,) be provided, and the larger ones where the population or situation will admit of them.

Thus will the views of government, and the best interests of a maritime country be forwarded, and the unfortunate mariner, who has

been driven upon those shores for which he has fought and conveyed their produce and manufactures to other lands, have still a hope left, and cling with heartfelt gratitude to those means of preservation which Captain Manby's inventions have enabled his friends on shore to communicate to him.

The Committee would advise a record also to be kept of the various persons saved, and of the persons who have been instrumental in saving them, and in transmitting their thanks to Captain Manby, which the Society cannot do in too marked a manner, They would also recommend to his consideration some arrangement for fixing in Scotland a depot, as has been done in England, where parishes and individuals may be supplied with the mortars and apparatus by the tradesmen at fixed estimated prices.

Drumseugh,
15th March, 1813.

PATRICK WALKER.

THE END.

have driven upon those shores for which he has
 fought and conquered their produce and manu-
 factures in other lands, have sold a horse hair and
 a ring with inscribed mottoes to these enemies of
 his country which Captain Mundy's investigations
 have enabled him to find on shore to communi-
 cate to him.

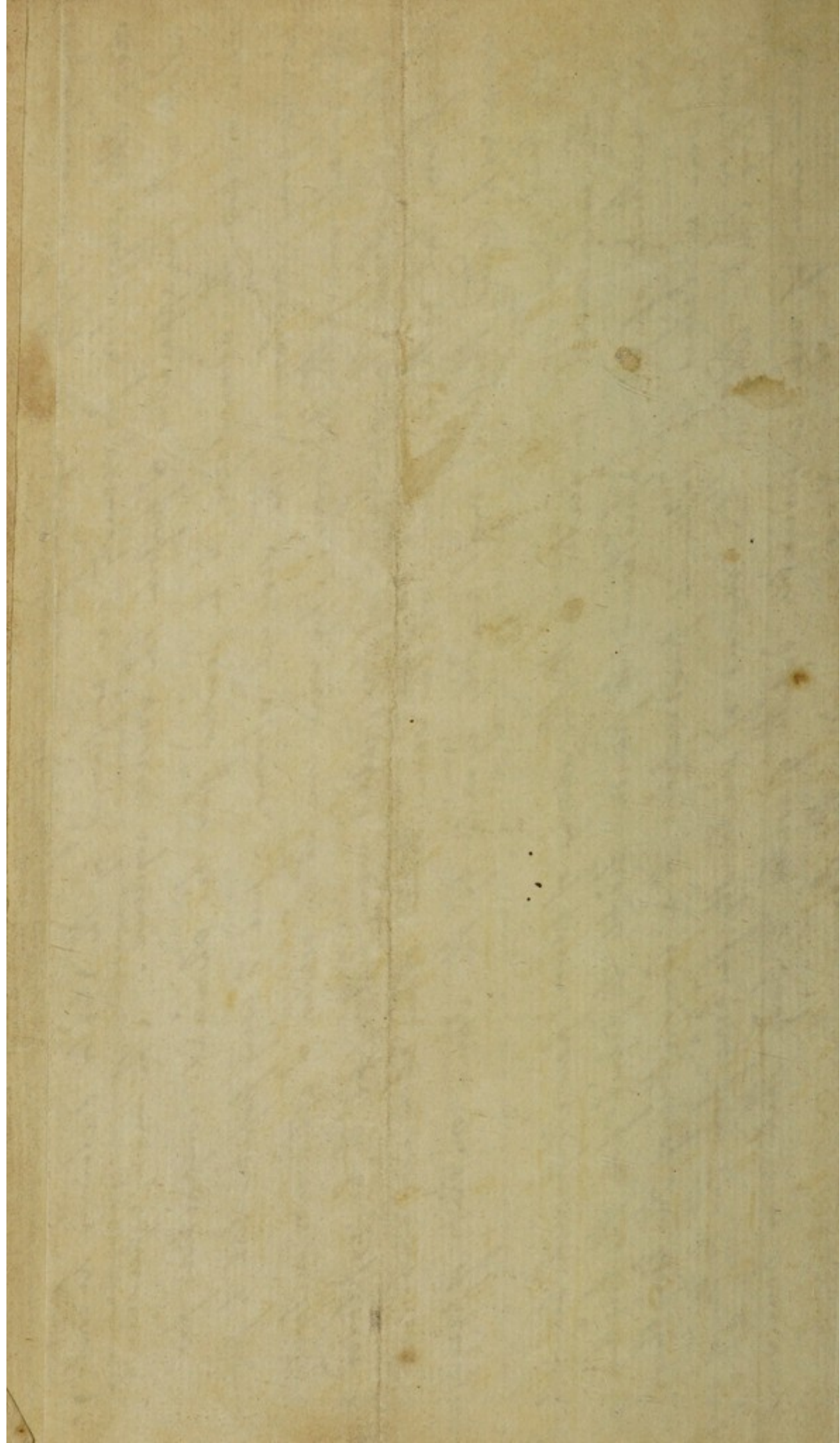
The Committee would also be a record also in
 behalf of the various persons named and of the
 persons who have been instrumental in saving
 them from a dangerous and shameful fate. It is
 obvious, which the Committee cannot do in too
 many instances, that we will also recommend
 to the Government of our country for fixing
 a reward and a bounty upon those who in England
 who are not yet known may be supplied
 with the means and apparatus for the trade
 and in fixed estimated price.

W. A. K. E.

Further Experiments at Longburg

The unfortunate state of the weather on Monday last prevented the exhibition from taking place but according to the arrangement of the local Board the play upon Wednesday was Dikley's "The Power" & in view of the fact that the exhibition experiment was to be made at Bramfield Hall. At one of our meetings we discussed the necessity of the different methods of communicating with standard signals in a clear & concise manner by means of signs & lines, applied to what I find from a model, by which the method of varying the line of flow or hand was varying described. The manner of varying a rope in the hand by a frame constructed with pins in which the rope was wound & on the frame being indicated the pins in the form of small readily interchangeable, after the rope laid for certain & immediate application, I did, from its simplicity, with application, as I did the necessary with which the rope was applied that of a framework. A simple method of giving assistance by means of communication ^{signals} I thought, & having that it was capable of being carried & any other & performed by one person (as I will suggest) proved quite tangible to each part of Dugmore's staff as our thing indicated, & for velocity when particularly only one man needed; this was achieved by a chair equipped with a large number carrying a 3 member wheel along at his side; & frame constructed upon the same principle as the one just described, having 100 yards of log line around in the case, was along at his back in the manner of a handbag; a box filled with changes of handles, joined tubes, fasteners, needles, & a bottle of liquid to replace that used; was stopped around him, the whole equipment weighing 32 lbs. The master was fixed when the wheel was thrown with the line attached, & the witness of guide. This method (as I will state) he was anxious to purchase not only for the purpose described, but that any other might carry with him the means for his lower preservation so it could be used from a chair, when it is utterly impossible to apply the system from the back of a standard signal in a heavy case; this suggestion for security was confirmed by the Chair Industry he could adopt with the apparatus & perform the service required. The next experiment was to show the advantage of the device from his chemical composition for Dickson's method in the several forms, & put to every possible test to prove the importance of the discovery; they were carried in water & afterwards instantly explained without the application of fire, which was attempted to be explained by pressure, but without effect, at the same time other chemical combinations were exhibited that did not readily ignite by the same methods of pressure just tried.

The experiment connected with the varying of pressure from the pressure being shown in methods of giving assistance to persons liable to panic from the breaking of the wire explained by different procedures to a committee of the Longburg Station Club, & since his means of instantly giving from the bottom of any place even of very considerable depth of water a body that may have sunk or is down a great distance under the sea.



It is proposed that Mortars carrying a 6" shell with stores there enclosed should be sold at 10£ -

length of a 6th meter by which at the rate of 12
by the end of the same length to form 128 ft 6th 0 - 16 - 9
8. six pounds at weighing 18 at rate of 14 ft 6th 0 - 6 - 2
weighing 8 at 3 each - 0 - 2 - 0
from for buying the rope & other measures for charge - 1 - 0 - 0

2-4-11
 English 9-15-1
 £ 10-0-0
 "

Delivered that Proctor carrying 24 shot with 6 lbs provided
 should be sold at $20 \frac{1}{2}$ ¢ a
 bushel of Proctor 2-1-22 at the above proposed rates 3-8-6
 4 shot round per caskety communication at $3 \frac{1}{2}$ ¢ each 0-14-0
 4 backed shot per caskety to the rigging of a vessel 0-18-0
 2 for getting a boat from a beach 0-18-0
 same with copper measure 1-0-0

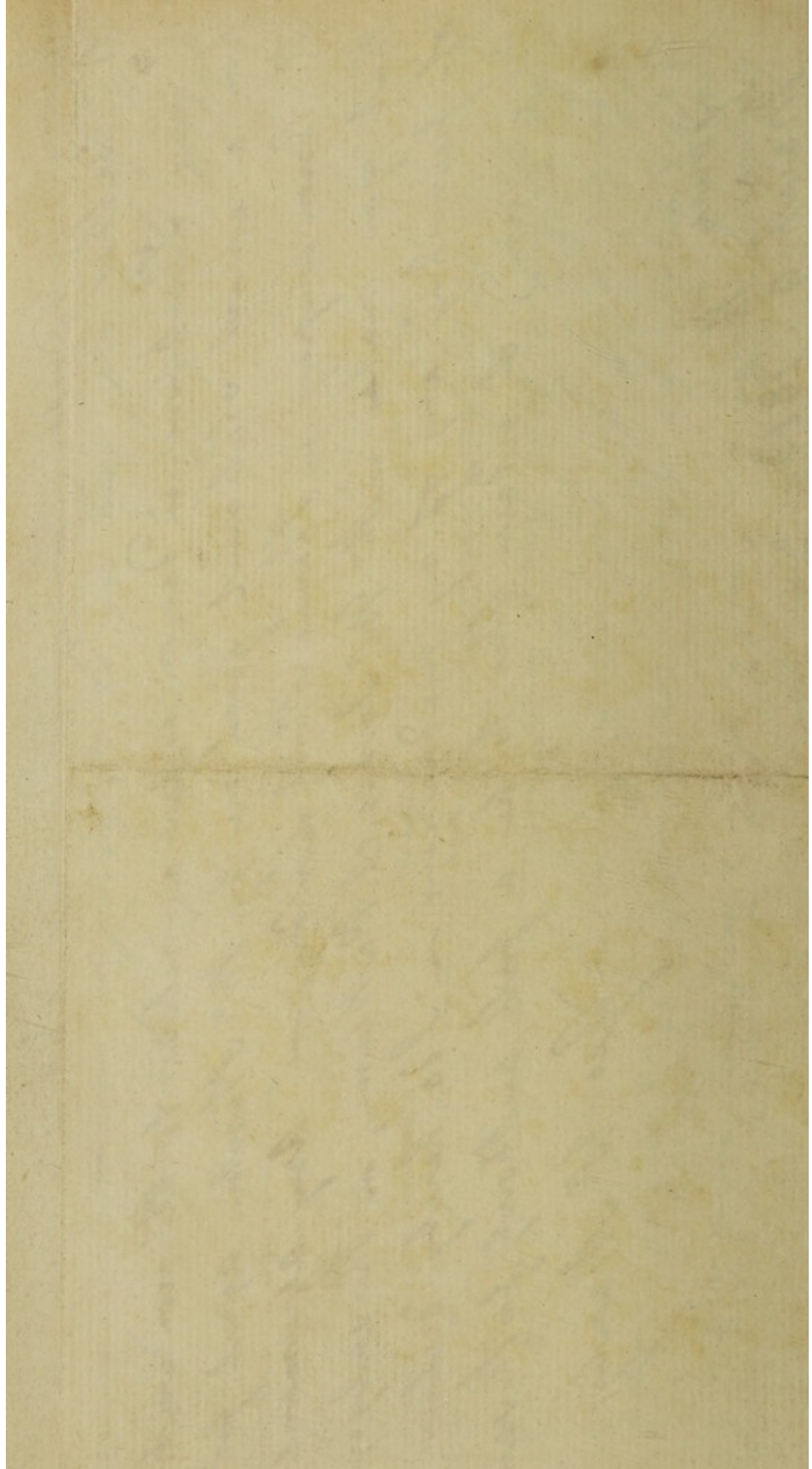
$$\begin{array}{r} 1-0-0 \\ 6 \cdot 0 \cdot 6 \\ \hline \text{profit} - 13-19-6 \\ \hline \text{£} 20 \cdot 0 \cdot 0 \end{array}$$

A book of instructions with explanatory representations of the different
will furnish with every one of apparatuses — —
Dr Walker

The above is drawn up for as relates to the iron work
from a correct statement given me by Mr Johnston agent for
the Cotton Company in Thomas & Child London — Any agreement
that you make with Mr Jones, & Co. however, on the subject
of furnishing any of my productions — I do hereby declare
to conform, & ordain this to be a full authority for the same,

Geo. W^m Manby.

Livingston
March 9. 1813



Oxford Coffee house
Monday 6. 66 -

Dear friend

The moment I saw your card, I
went to the Gloucester Coffee house
to Alas! could not meet any thing of
you; which I much deeply regretted
being anxious to take by the hand as
soon as when I am so much indebted -

I shall call at the Gloucester at
1 o'clock tomorrow morning, being directed
to attend Mr Rose at 10 & Mr Whitbread
at 11 - should I not meet you at
I will call again punctually at 1
o'clock when I hope business will permit
and giving me a meeting -

very sincerely yours

Geo. W. Manby

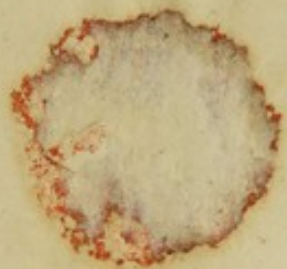
at 7 o'clock on Thursday Nov 5 -



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Peter Walker Esq
Gloucester Coffee house

at Mr Abbotts —
12 Clements Inn, Strand
Wednesday Mr

Dear friend

I regret most exceedingly
not meeting, particularly as I
am Town tomorrow for ten days —
my return I shall most anxiously
be for you, you will therefore
kindly oblige by writing to me at
the above address, & stating when
you find you on my arrival;.
Mr Ross is so highly pleased with
your report, that he has desired a
copy of it may be made at his ex-
pense to lay before the Society
tomorrow & request their earliest
attention to it — you will greatly
oblige as soon as the Committee
post arrives, to forward it for
— at Henry Abbotts Esq's the above address

Your report I took upon as one
of the greatest importance to
I shall ever consider the last
kindness you have exerted for
ever to be entitled to my warm
gratitude.

Dear My Dear Walter

Yours very sincerely
J. M. M. M.

I wish you state the circumstances
the loss of the Greenland men to me
at the time, & give your opinion of
what you can collect, how far my
production would have been in
I would have saved —



[Faint, illegible handwritten text, likely bleed-through from the reverse side of the page.]

Patrick Walker Esq

Gloucester Coffee House