

An address to the President ... and members, of the Society for the Encouragement of Arts, Manufactures, and Commerce : occasioned by the conduct of a committee of the Society. Together with a vindication of the author from an imputation ... that he had pirated his system of rescue from shipwreck on a lee-shore, from a previous plan of Lieut. Bell / [George William Manby].

Contributors

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AN ADDRESS
TO THE
President, Vice-Presidents,
AND
MEMBERS,
OF
THE SOCIETY
FOR
THE ENCOURAGEMENT OF ARTS,
MANUFACTURES, AND COMMERCE:
OCCASIONED BY THE
CONDUCT OF A COMMITTEE OF THE SOCIETY.

TOGETHER WITH

A Vindication of the Author from an Imputation of some Members of the
Society and others that he had pirated his System of Rescue from
Shipwreck on a Lee-Shore, from a previous Plan of
Lieut. Bell of the Royal Artillery.

AND A COMPLETE EXPOSITION OF THAT SYSTEM.

Illustrated with Engravings on Wood by J. Berryman.

BY GEO. W. MANBY, Esq.

HONORARY MEMBER OF THE ROYAL HUMANE SOCIETY.

LONDON:
PRINTED BY T. BENSLEY AND SON,
Bolt Court, Fleet Street.

1816.

AN ADDRESS

DELIVERED AT THE TO THE READER.

It has been intimated to me, that I am accused by certain persons of having, in the following pages, unjustly and unreasonably, if not altogether in large measure, exposed to the world the conduct of one of the most distinguished and illustrious of our contemporaries. I am not likely to have any opportunity of clearing myself from this charge, as I have never been able to do so. On the contrary, an attempt to do so, and to discover that the charge is unfounded, would be a disrespect to the memory of the deceased. A respect for the memory of the deceased, and a respect for the memory of the living, are the only motives which should induce a person to do so. I have, therefore, in the following pages, endeavored to do so, and to do so in a manner which will be acceptable to the world.



HOWARD, WATSON & CO. PRINTERS, 15, N. 2ND ST. N. Y.

PRINTED BY WATSON & CO. 15, N. 2ND ST. N. Y.

TO THE READER.

IT has been intimated to me, that I am accused by certain persons of having, in the following pages, indiscriminately censured the Society of Arts at large in my Appeal to it against the conduct of one of its Committees. I never considered that any blame attached to the Society at large; and I am not likely to have expressed what I never felt. On the contrary, an attentive, and impartial perusal, will, I am sure, discover that the Society at large is most carefully distinguished from the censure laid on the Committee. A respect for the Society, which I sincerely felt, is, on every occasion, declared. The consequences of too much reliance on the persons who have formed some of its Committees is lamented as a misfortune, but not a shadow of blame is cast on it. To guard, however, against misconception or malevolence, I avow, that I admire the principles of the Institution, and feel that reverence and warm esteem for a great majority of its Members, which are due to their rank, virtue, and talents.

THE AUTHOR.

TO
THE PRESIDENT, VICE-PRESIDENTS,
AND
MEMBERS
OF
*THE SOCIETY FOR THE ENCOURAGEMENT OF ARTS,
MANUFACTURES, AND COMMERCE.*

GENTLEMEN,

MY address to you is occasioned by a wrong, which I consider myself to have suffered from the conduct of a Committee of the Society which you constitute. If the injury, of which I am about to complain, ended at me, I could, at the present period of my life, broken as I am by ill health, and subdued by repeated disappointment, without much violence to my feelings, have made my desire of redress submit to my aversion to give you trouble, and have suffered in silence. But the facility with which I have been injured, proves how little protection there is to others. A confidence, like the audacity of impunity, may be the consequence of escape from censure in the present instance; and the injustice, of which I complain, grow wide and frequent, till at length, the effects of your Society are the direct inverse of your intention on its institution. That intention was the promotion and reward of ingenuity, and nothing could be better adapted than the plan to the design. On its first exposition it attracted, as could not but have been foreseen, all the ingenious. Whether fame or reward was their end, the nearest way lay through the Society. Small contributions from the wealth of its numerous members supplied the expense of wide publication; and the commendation of so respectable a body assured general adoption. It became a necessary consequence, that, while the Society could furnish committees, fitted by science to estimate correctly the claims of candidates for its honours, and rewards, and too high, both in rank and mind, to look on any production through a prejudice against its author, the Society was, what it professed to be, an encouragement to the Arts. But it is, perhaps, too democratic in its constitution. Certainly the admission to it has been very general; and, if those, who are most fit from their rank, wealth, and knowledge, when the Institution has lost the excitement of novelty, are content to

continue their patronage without contributing their personal superintendence, the direction must fall on persons neither exalted by rank, nor that dignity of mind, which flows from liberal education, above the excitement of undue influence. With such persons, prejudice and ignorance will enter; and, left to their uncontrolled guidance, it is evident, that the Society may very soon have an operation on the Arts quite opposite to the professions in its title. If no such Society existed, the ingenious man, without any private support, when he has completed his project, must, if he would publish it, give it unushered by patronage, at once to the world. There it might meet the eye of some person able both to estimate its merit, and give it reputation. The artist is rewarded, and the public benefitted. But let him present himself to the Society for the encouragement of the Arts, where for the science and candour which he expects, he shall find that ignorance and prejudice pronounce upon him; and what are the consequences? He retires disheartened. With his hopes, he abandons his exertions. He either distrusts his own judgment, against that of the Society, or, if in the confidence of genius, he still maintains his opinion, yet with what chance of success can he now give his project to the public, clogged in all its parts by the disapprobation of the Society? Thus inventions, which might have added to the safety, ease, and elegance of life, may be cast aside for ever; and left to moulder away in the repositories of the Adelphi.

These reflections are my inducement, and form the best preface to the following statement of facts.

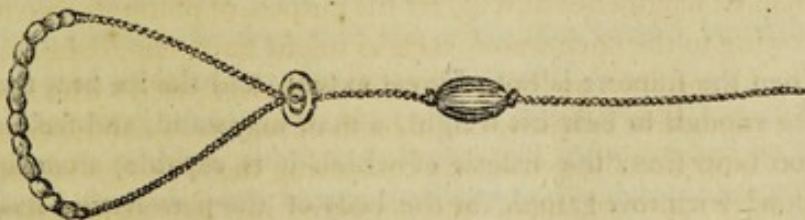
When I was in Scotland, in the winter of 1812, I was much affected at reading an account in one of the provincial papers, of the loss of 17 persons at once, by the breaking of the ice under them, in the presence of numbers, who were unable to afford them any assistance. I was induced by so extensive a calamity, to consider, how such fatal consequences might be prevented on the recurrence of such accidents: and I devised a rope, with a noose, distended by whalebone, to be thrown over the shoulders of any one, who might have fallen through, and be hanging on the edges of the ice. I also supplied a grapple drag, that could be lengthened at will, for the purpose of promptly discovering, and drawing to the open water, such as might have sunk obliquely, and on rising be confined under the ice; or for raising those who had gone down benumbed or exhausted in a depth of water. I submitted models of these designs to the gentlemen composing the skating club at Edinburgh, who approved them, and honoured me by voting their thanks to me. They were instantly provided; and kept during the frost under the charge of people, stationed to apply them at Lochend, and Duddington Loch, places most resorted to by skaters. The same precautions were taken through the succeeding winter; and, as I have learned by

a paragraph in the Edinburgh Courant, of the 21st of last January, are still continued.

In the following winter, a boy, a drummer of one of the Regiments of Guards, fell through the ice on the Canal in St. James's Park; and perished. On inquiry, I learned, that he could not be approached with assistance from the rottenness of the ice, consequent on a thaw, which had some time commenced. This accident made me think, that the means, which I had already provided, were not sufficient in all cases. I therefore added to them; and submitted the whole to a committee of the Humane Society, appointed, on my application, to inspect them. A description of the various instruments, and the method of using them, which I had then the honour to read, was published in the annual report of that Society for 1814. To this publication the following note was added. "The Committee of the Society, during the late extreme frost, stationed men on the Thames, and Serpentine rivers, who were supplied with the rope described by Captain Manby; and they cannot too warmly recommend it, from the great good derived by its use in preventing the drowning of a *great number* of individuals."

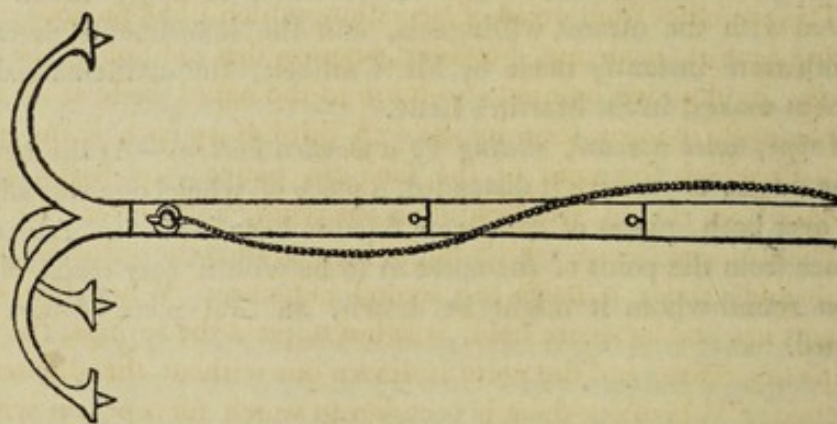
I found however, on the approach of the next winter, that no steps had been taken to provide the means of rescue, at the Canal in St. James's Park. I therefore, encouraged by his high reputation for philanthropy, requested Mr. Robinson, the Architect, of No. 215, Piccadilly, to bear with me half the expense of providing the instruments, and procuring the attendance of men in readiness to apply them. He assented with the utmost willingness, and the instruments described beneath were instantly made by Mr. Cuthbert, the mathematical instrument maker, in St. Martin's Lane.

A rope, with a noose, sliding by a wooden button.—At the bottom of the noose, to preserve it distended, a piece of whalebone was added; and, over both, pieces of cork were fixed to keep it afloat. At such a distance from the point of the noose as to be within easy reach of the person round whom it might be drawn, an oval piece of cork was fastened.



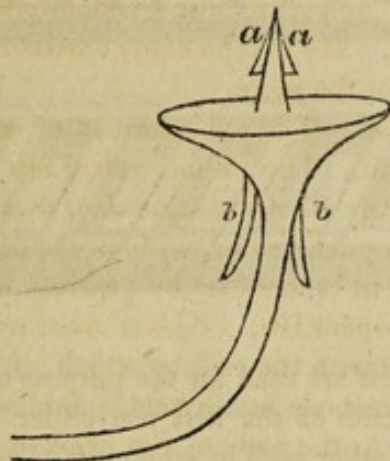
When a person who has fallen through, and is still struggling above water or hanging on the edges of the ice, cannot be approached to be assisted by hand, this rope is thrown to him. On its falling within his reach, he grasps it with one hand just above the oval piece of cork, which enables him to retain it in his grasp; and is thus supported, while, with the other hand, he places the noose over his head, and under his arm; and by pulling the wooden button towards his chest, adjusts it to his size. He is then easily drawn by the rope either to a firm part of the ice or the shore.

A grapple on a rod.—The rod is formed of several joints, and may be lengthened at will. The joints were 6 feet long. The ends and sockets of the joints are all of the same size, that they may, as occasion requires, be instantly put together, without the delay of selection. They are caught, and held in each socket by a spring, but to guard against the possibility of their separation, a rope is fixed to a ring in the grapple, and kept in the hand with the rod, by which, if the rod should, against probability, break, the body is still held, and may be weighed as well as by the rod itself. At the ends of the arms of the grapple are sharp points for the purpose of catching hold of the sunk body; but so guarded, that they cannot, by any accident, puncture deep enough to produce any material injury to the body; and, when it is considered, how little force is necessary to raise in the water a body, but very little heavier than the water itself, no laceration need be apprehended.



When the fracture is not of great extent, and the ice near the verge is strong enough to bear his weight, a man may stand, and feel in every direction (and from the length of which it is capable) a considerable way round with this grapple for the body of the person who has sunk: whether, therefore, he has gone down obliquely, and, rising, is confined under the sound ice, or is at the bottom, but has been carried by a current under the ice to some distance from the spot through which he broke or has sunk vertically, in a depth of still water, this instrument

may be used with every probability of finding him, and a certainty of bringing him to the surface after he is found. Aware it may sometimes happen, that when the body is found, the attempt to raise it may give an impulse to it which will make it rise faster than the hand will follow it with the drag, and consequently it may disengage itself, and another attempt to hook it become necessary, I had thought of barbing the points as in the subjoined figure; in which

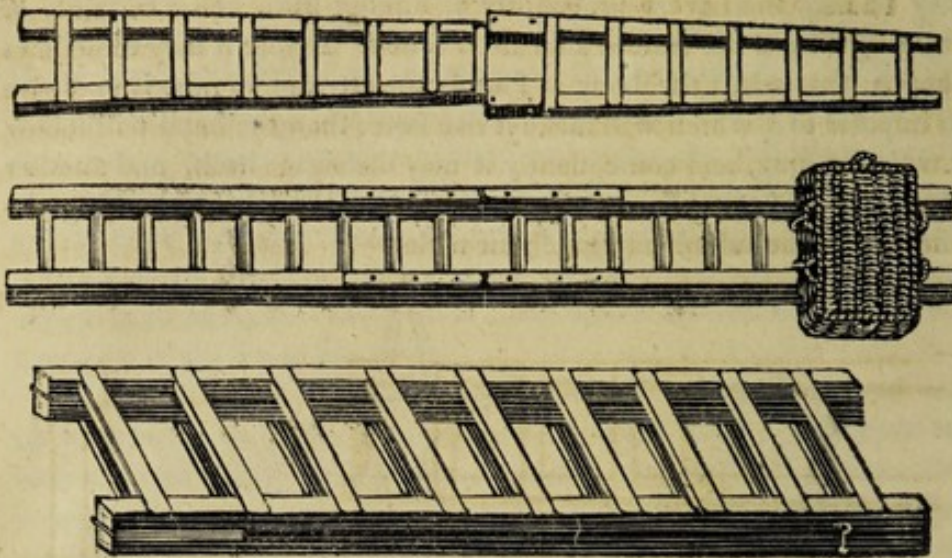


a a are barbs fitting with springs into mortices on the sides of the point.

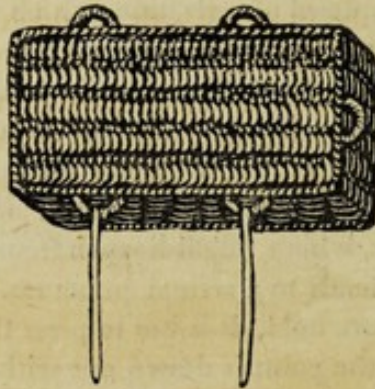
b b are continuations of the barbed springs, on the pressure of which between the finger and thumb, the parts a a are completely buried in the mortices on the sides of the point.

The prejudice from dread of laceration, which I had no hope of succeeding against, made me, however, suppress this addition to the drag; though, in my own opinion, no harm to the naked body at all considerable could happen from its use. A third of an inch is the utmost depth to which the point of the drag can pierce: the barbs, after it has once been caught, will hold it on the point, and prevent the possibility of disengagement, which might happen from the unbarbed points, and would render it liable to a second puncture. When the body is brought up, and in secure hold, it is but to press the springs, the barbs completely retire, and the point is drawn out without the slightest obstruction. Whenever there is occasion to search for a person who has sunk in his dress, the drag with the points thus barbed is, without the possibility of an objection, the best instrument.

As, however, the ice may be too weak or too widely broken to allow the point, at which a person may have sunk, to be reached by a wieldy length of the rod, some means auxiliary to the grapple were needed; and I therefore provided light ladders, which may be made either to fold with hinges, and be unfolded to the required length, or fit into one another by sockets, and so lengthened by adding ladder to ladder as the occasion may demand.

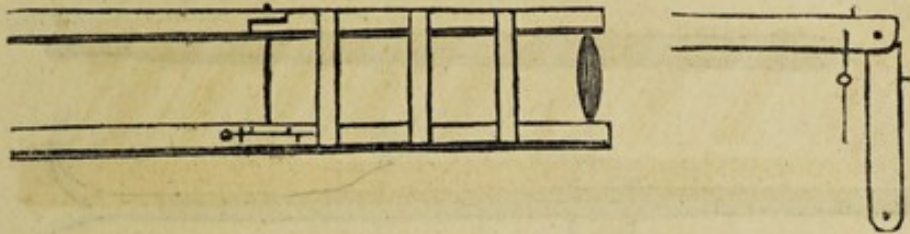


When these ladders are used for the purpose of reaching the person in distress, the butt ends of the first rest either on the shore or a firm part of the ice, the other ends of which are to fit into the sockets (in which they catch with a spring and are secured) at the butt ends of the next ladder, and so on till the required length is gained. Under the ends of the last ladder, which is to reach to the point of the water, open by the fracture in the ice through which the body has sunk, a copper box, 24 inches wide, 36 inches long, and 12 inches deep (covered



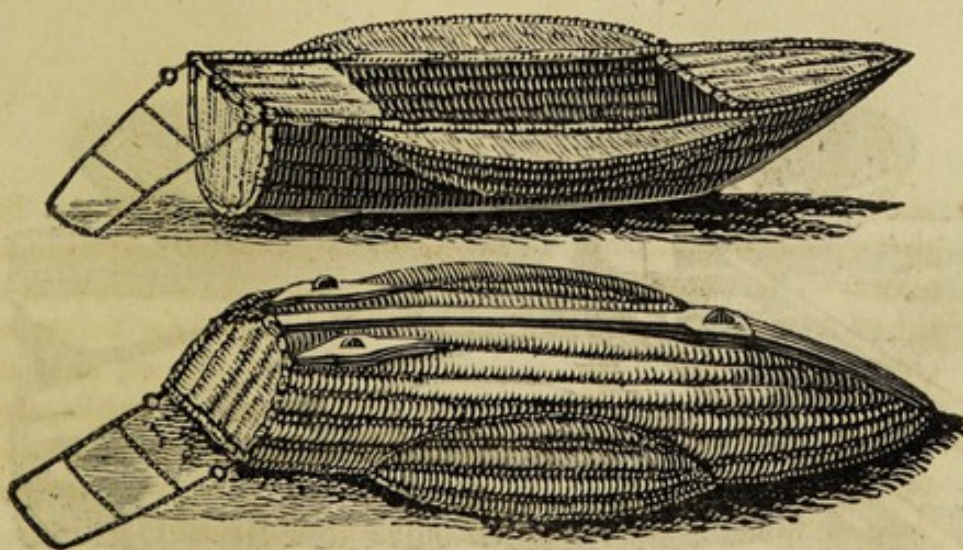
with wicker work to protect it from external injury) is fixed. This gives a sufficient power of buoyancy to the ladder for the support of two persons on it. Thus the man, who goes out to the assistance of the person needing it, stands firmly borne on the end of the ladder, and either rescues him, as he hangs on the edges of the ice, or is able freely to apply the grapple in searching for him, and raising him, if he should have sunk. When he is brought up, the box serves as a platform to receive him, in the first instance, and he may then be drawn along the ladder to the firm part of the ice or the shore.

Those, who have been witnesses of accidents on the ice, have observed, that, from whatever cause, the lower parts of a person, who has broken through, and is hanging on its edges, are drawn under the ice. The force of this indraught always makes it difficult, and, under circumstances of numbness, or fatigue, impossible for the person in danger to raise himself by his own efforts to the surface, on which the ladder might be lying to receive him, I have therefore ordered that, as in the engraving, about four feet of the ladder shall let down on hinges by drawing

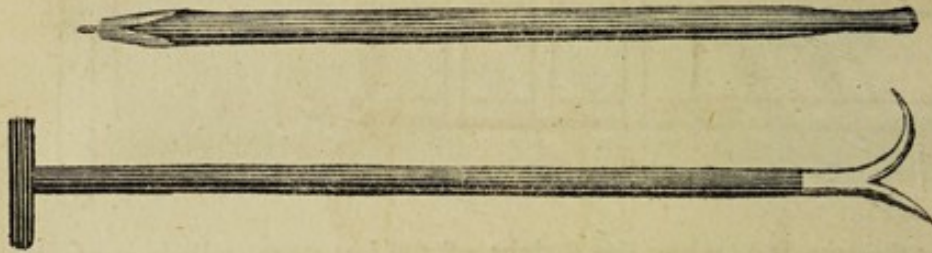


out the iron pin, when the weight of the last stave, which is of iron, instantly makes it fall and hang vertically in the water. When this is let down as close as possible to the person in jeopardy, he may, by a very small effort, get his feet on it, and then either ascend by his own efforts, or greatly facilitate the efforts of another, who may have advanced on the ladders to draw him out.

Still every shape in which the accident might present itself was not prepared against. It may chance, that the ice is too weak or too widely broken to let the point of distress be reached, either by the rope or the ladders, extended to the utmost length at which they could be effective. Here some vehicle, which would pass either as a sledge over the weak ice without breaking it, or as a boat through the water, is required: and it appeared to me, that a boat made of wicker, in the shape represented in the figures beneath, will afford both these kinds of passage.



It is 6 feet long, $2\frac{1}{2}$ feet broad, and its weight, I judge, within 20lbs. Such a boat with two men in it will, from the distribution of the pressure of such a weight, by the means of the breadth of its bottom, on a wider surface, pass without breaking it, over ice much too weak to support a single person, pressing with his weight on a surface no larger than that occupied by his feet. It runs as a sledge on three rollers, placed one in the stem, and two (one on each quarter) in the stern, and may be pushed by one man, with a pole, pointed with iron, like a goad, with considerable speed along the ice.



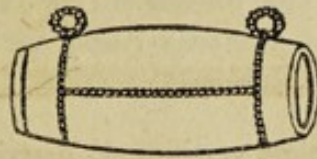
When it is to pass through water, as a boat, the lightness of its materials will support it carrying the weight of two persons, (notwithstanding the ready admission which the water finds through the wicker), and it may be rapidly paddled or rowed. The buoyancy may be increased to any degree likely to be wanted, by fixing to the boat tin boxes so closely soldered as to exclude the water, or by cork placed around the gunwale, or cork shavings enclosed in thin canvas secured within the boat. When it approaches the person needing assistance, the stern is to be turned to him, that his getting in may be facilitated by the ladder which hangs over it.

It seemed to me, even when the ice was not broken to a great extent, that the ladders might be used with still more effect by means of this boat, in giving aid to persons who have fallen through in the manner shown in the plate,



which exhibits the butt end of the ladder resting on the ice, while the other lies on the boat, which is thus kept steady, while it affords a larger area than the ladder, used by itself to the men, who are endeavouring to extricate the unfortunate person, and admits of more disengaged efforts.

Ladders are also readily furnished with a floating platform, by a small cask, (those in which tamarinds are imported are well adapted to this service, from the length of their form) slung in ropes formed into rings on the top to receive the ends of the ladder, in the manner described by the figure.



Some experiments were made with the rope, the drag, and the ladders, in the presence of *three members of the Society of Arts, Mr. Robinson, Mr. Cooper, Mr. Cuthbert*, and myself, which produced in our minds a full conviction of their complete adequacy to their object. In the frost, which soon followed, two men were stationed with them by the canal in St. James's Park. I was prevented from superintending their application myself by a severe illness, but I had soon the gratification of learning the success, which had attended the plan, by the following note from Mr. Robinson.

“DEAR SIR,

Sunday, Jan. 23, 1815.

Your apparatus was in use yesterday at the Canal in St. James's Park, and happily saved a man, who must otherwise have perished. He was eight minutes in the water, but saved to the admiration of the spectators. This occurred a few minutes after I left the spot. The ice is very rotten, and many have been in near the bank. I have two men in attendance at 4s. 6d. a day each. Cuthbert sent me the drag yesterday, which is on the spot. All the other things are taken to the park-keepers every night; and I shall have great pleasure in attending to see that every attention is paid. I trust our little exer-

tions will prevent a recurrence of the melancholy accidents which so frequently happen. Hoping this will find you better, I am,

Dear Sir,

To Capt. Manby,
5, Lyon's Inn, Strand.

Yours very truly,
P. F. ROBINSON."

In my thanks to Mr. Robinson for this welcome communication, I intimated, that it would be desirable to procure certificates of the benefits which had been produced by the apparatus, and I received from him the following note and certificates.

"DEAR SIR,

I enclose certificates, descriptive of sixteen cases. Your apparatus answers admirably, and, I am convinced, will prove by far the best life-preserver upon ice, which has been yet invented, on account of its simplicity. The men, who use it, are sensible of its value, and feel perfect confidence in trusting their persons upon it.

Few years have passed without fatal accidents occurring upon the Canal in St. James's Park; and, however strange it may appear, till now, means of prevention have not been adopted. I am happy in having it in my power to congratulate you upon being the author of these means, which, for the sake of humanity, I trust, will be continued.

A person, living at No. 12, Goldsmith Street, in the city, was taken out of the water yesterday by means of one of your ropes, the *open noose* being thrown over his neck. He must otherwise have been lost. About fifteen people were saved on the Serpentine on Sunday, by the men in attendance. About thirty fell through the ice, but they frequently succeeded in getting out themselves.

I am, dear Sir,

Yours very truly,

P. F. ROBINSON,
215, Piccadilly."

Jan. 26, 1815.

"We hereby certify, that, on Saturday 21st instant, we saved a man who had broken through the ice on the Canal in St. James's Park, and who had been eight minutes in the water, by means of Captain Manby's

new apparatus. He was in a very dangerous place, and would inevitably have been lost, but for this ready assistance.

Signed, THOMAS GRIFFIS,
South Place, Knightsbridge.
THOMAS BAKER,
136, Aldersgate Street."

" We hereby certify, that, on Sunday 22d instant, thirteen people, at different periods of the day, broke through the ice on the Canal in St. James's Park, all of whom were saved by us, using Captain Manby's new apparatus. Two of these cases were attended with extreme danger, and one more particularly so, as the sufferer was immersed ten minutes in a place where we found the water, upon trial, to be fourteen feet in depth.

Signed, THOMAS GRIFFIS.
THOMAS BAKER."

" We hereby certify, that, on Monday 23d instant, two people broke through the ice on the Canal in St. James's Park. In attempting to rescue one, I Thomas Baker also fell into the hole, but was saved, together with the first man, by me Thomas Griffis, by means of Captain Manby's newly invented drag.

We are of opinion that the apparatus, by means of which we have saved sixteen lives during the last three days, is calculated to render the most ready and effectual assistance in all cases of extremity, as we are ready to proceed to any part of a river, however deep the water may be, without fear or hesitation, satisfied, that our own persons are safe upon the air box, which is sufficiently buoyant to support two persons.

Signed THOMAS GRIFFIS.
THOMAS BAKER."

Jan. 25, 1815.

In their catalogue of premia offered for the year 1814, by the Society for the Encouragement of Arts, is the following inducement. " To the person, who shall invent, and produce to the Society a cheap and *portable* drag, or other machine, *superior to those now in use*, for the purpose of taking up, in the best and most expeditious manner, and with the least injury, the bodies of persons who have sunk under water; the *gold medal*, or thirty guineas. The drag, or machine to answer the purpose intended, to be produced to the Society on or before the first Tuesday in March 1815."

The apparatus had now received indubitable test of its merit, and anxious for the recommendation of the Society to the plan, I addressed a letter to the Secretary, containing a description of the different instruments, and the mode of applying them. The drag, in addition to its

relative use, with the other instruments for the purpose of rescuing persons who had fallen through the ice, and sunk, appeared to me, after much consideration, a better implement than any yet in being for the general purpose of promptly raising the bodies of persons that had gone down in deep water, without the danger of wounding them; and I begged, therefore, to submit it by itself to the Society, and become a candidate by it for the above mentioned premium. The Society appointed a committee to report on my project, which I attended, exhibiting the rope recommended by the Royal Humane Society, the portable drag, that had been actually employed in saving the lives of persons at the Canal in St. James's Park, and models of the other instruments. The subject was open to competition till the first Tuesday in March 1815, and the committee adjourned to a period subsequent to that date. When the committee then met, I was withheld by a severe indisposition from attending it. But I was informed by a person of unquestionable honour, and veracity, that much enmity was displayed against me, and that it betrayed some of the committee into great warmth of temper, and irregularity of proceeding. A resolution had nearly passed to bestow the silver medal only, as a reward on me. Some persons, however, of reasoning, and liberal minds, detected the impropriety of bestowing the silver medal as a reward for an instrument, submitted by me as a candidate for the gold medal, with no competitor against me, and while the existence of any previously invented instrument of superior utility was never urged. These persons, to prevent a step so unjust and irrational, prolonged the discussion till eleven o'clock at night, when, by a rule of the Society, all business must be concluded or adjourned.

One of the chairmen of the committee (Mr. Gill) from the benevolent intention of sparing me the chagrin of a rejection, which he knew to be predetermined, recommended me to withdraw the instruments; he stated at the same time, as the cause of the hostility which he so confidently anticipated, that I had offended the committee by presuming to assert, that my plan for relief from shipwreck originated coincidentally in myself; while it was their desire to have it understood, that I had derived it from a prior invention of the late Lieutenant Bell of the Royal Artillery: an invention which was carried into practice, as far as an experiment, on the RIVER THAMES, rewarded by your Society with a donation of fifty guineas, and then never after heard of, till it was raked up and pressed into the service of detraction against me. I shall, before I conclude this address, make some remarks on the merits of this project of Lieutenant Bell, and bring it in comparison with mine: but I must first conclude with the committee. I shall make no observation on that confusion of understanding which could make them feel, that either their credit or interest was involved in maintaining against my disavowal

my obligation to the project of Lieutenant Bell. It is equally needless to say a word on the absurd injustice of visiting me with the effects of an anger, so perversely conceived, when I was before them with a claim quite foreign to the cause of that anger, and of quite different merits. These reflections must occur to every one; and I shall not interrupt my narrative with them. I attended to information and advice from so respectable a quarter, and withdrew the instruments from the judgment of the committee. I was afterwards encouraged and advised by a gentleman (Mr. Hedges), who had witnessed the proceedings, and who, though a stranger, felt for the conduct that had been adopted towards me, and for the reputation of the Society, to submit the instruments again at a general meeting, and I complied with his advice. At this meeting they were also rejected. I should now, but for the most decisive evidence that sixteen persons had already been saved by them, and the opinions of many gentlemen who attended the meeting, and unable to resist that evidence, contended strenuously for their merit, have been ready to conclude, that my continued belief in their utility was the consequence of a kind of parental fondness for my own productions, which made me blind to faults quite obvious to men of judgment who had no such predilection. These facts and opinions, however, would not let me draw such a conclusion till I had been driven from every other motive for their rejection. I could even rather believe (for it is our nature in the gross to adopt wrong opinions, and then stubbornly maintain them, merely because we have adopted them) that extraordinary exertions were used by those who had predetermined to decide against them on the committee, to effect the same decision at the general meeting. A vote by the latter, contrary to that, which, it was no secret, they had predetermined on in the committee, would have involved some sort of reproach on them. It would have been at least a rational motive for maintaining an opinion which they had so irrationally adopted. This motive might have made them active, and thus a majority might have been collected against the subject of discussion. I beg to be distinctly understood, that I make no such charge. How many intermediate causes may be supposed to have influenced the general meeting to reject the instruments! I would only illustrate my difficulty of conviction that a sense of their inutility was the cause of their rejection, in opposition to the above-stated facts and opinions.

With regard to the other instruments, however I may lament the conduct which led to their rejection, and deprived them of that patronage of the Society, which might have given them reputation and encouraged their adoption, I shall neither indulge in reproach or complaint. The offer of them was quite gratuitous on my part, without any encouragement from the Society. I neither expected nor desired any reward for them. It is a loss without injury. But it is otherwise

with the DRAG. The Society, by their advertisement, enter into a contract with the public. The conditions of this contract I have fulfilled, while performance is withheld on their side. I have produced a portable drag, which corresponds with the description in their advertisement of premia for projects; and yet, I am refused both the medal and the thirty guineas proposed as a reward. My claim could be defeated but in two ways; either by a superior instrument in competition, or a superior already in use. It is not even pretended, that either was the case: as to the first, there was no other drag produced; for the second, a drag invented by Doctor Cogan, and rewarded by the gold medal of the Society, (in the year 1806), was indeed carried into the committee room, while the merit of mine was under discussion. But the committee did stop short of hazarding the decision, that this instrument was better than mine. It would really have been more prudent to pronounce an arbitrary rejection, than to have rested their decision on such a preference. Dr. Cogan himself (and the Royal Humane Society in their annual report of 1811, praise him for his candour in the confession), has confessed, that it is unequal to its design; and adds, that the bargemen in all accidents neglect it, and employ the common boat-hook, notwithstanding the great danger of laceration to the body which attends the use of the latter. There was nothing then in competition with me; and it was not resolved, that there was a superior drag already in use. I was therefore entitled to the gold medal, or thirty guineas, if any thing; but this is denied, and a confused attempt to compromise their own injustice, while they defeated my claim, made to carry a vote of the silver medal to me. What else could it be? I reiterate, that there was nothing in competition to the drag; and if it should now be pretended, that Dr. Cogan's was superior, why vote the silver medal? How could that deserve any reward, which was only second in merit to an instrument, the very author of which had abandoned its pretensions?

The very same prejudice that offers opposition to plans, recommended by indubitable evidence of their practical success, will bestow favour where there is no merit to deserve it. Therefore, whatever other feelings were raised in me, I read, without any surprize, in the publication of the Transactions of the Society, during the year 1814, that the silver medal, and ten guineas, had been given for a life buoy, or boat, formed by a grated raft between two cylinders. The bottom is the converse of the top, and lying along each (because when it is dropped overboard it may fall on either) is a mast with a sail furled on it. It is 9 feet long, and the cylinders, if any proportion is preserved in the plate, are $1\frac{1}{2}$ feet in diameter. It weighs nearly 200 cwt. It would consequently be cumbrous in the largest vessels, and not manageable in others. This, when a man falls overboard, is proposed to be flung after him. He is to reach it;

get upon it; raise the mast; set the sail; and, steering himself by a paddle, "to follow the ship with almost equal speed."

To those who have ever witnessed the difficulties of the danger, against which this scheme pretends to provide, no amplification can increase its absurdity. To others, probably a large majority of those, whom I have the honour to address, I will offer a few comments on it.

This boat is proposed for service in storms so violent, that the common boats of the ship cannot be employed without danger of their loss.

In such storms, every one of any maritime experience knows, that the waves are of a mountainous height, and break in foam on their ridges. Great efforts are required in a person who falls overboard to keep his body above water on such an uneven and tumultuous surface; and the foam on the ridges of the waves, wanting density for the support of his weight, every moment passes over him, and obstructs his respiration. Besides, who is ignorant of that redundancy of exertion, the effect of terror, which makes the unfortunate creature conspire with the danger against himself, and accelerates his immersion? Exhausted by his struggles, stupified with terror, and most probably benumbed with cold, how, even if he should reach it, on this raft, to which the roughness of the sea denies one moment of stability, and when the fury of the wind makes it hazardous to erect even his own body, is he to raise the mast, extend the sail, and, steering himself with a paddle, shape a deliberate course after the vessel from which he fell? The person who could argue, from the smooth experiment with this buoy-boat below Monmouth bridge,* to its success in the midst of a tempestuous Atlantic, must have drawn his ideas of a storm at sea from the canvas waves of a theatre. The projector needs to be reminded, that it is not sufficient the buoy should "follow the ship with *almost* "equal speed:" even equal speed is not sufficient: to overtake the pursuer must be swifter than the pursued. In such a storm as the projector supposes, the ship itself, from its greater bulk and elevation above the water, is driven to leeward by the storm much faster than the buoy could follow it, unassisted by a sail, which I have proved could not be set. Or if it could, the violence of the wind would instantly upset a vessel at most but three inches deep in the water, and of a construction directly opposite to that best adapted to resist the pressure of the wind, acting by the mast and sail, as with a lever on the hull. Let the unhappy person overboard, then, reach this buoy; and, unless a boat from the ship now proceed to take him from it, what has he gained but the exchange of a lingering for a speedy death? If a boat from the ship

* See Vol. XXXII, p. 180, of the Transactions of the Society of Arts.

can proceed now, it could at first; and therefore, what is this buoy but a mass of incumbrance, and a complicated uselessness?

Another objection, if any more be needed, to this scheme is, that the size of the cylinders would make it float a great height above the surface; and offer a fulcrum, by which, though not so rapidly as the ship, the wind would drive it to leeward much more rapidly than the best swimmer in such uneven water could follow it. Yet it is gravely proposed by the projector, and gravely entertained by the Society, that on this buoy, which afterwards, like a machine in a pantomime, changes into a sailing boat, a man (when at the expense of all his strength, he has reached it), shall hoist a mast, set a sail, and sit with a paddle leisurely steering himself in the stern under a lofty sail, (as he is represented in a plate) * like Gulliver in his boat on the cistern, wafted along by the fans of the ladies of Brobdignag.

As long as mankind have a propensity to ridicule, attempts will be made to try the extent of the credulity, which could resign itself to such pretensions, and it is not wonderful, that, a short time ago, a person, under the name of Fairbrother, sent to the Society a scheme for adorning with living hair the heads of the most inveterately bald. The process was thus described. The hair was to be drawn by the roots from the head of a young and healthy female, in preference to a male, and inserted by puncture in the scalp, requiring plantation. An unctuous composition was then to be applied; and the patient for a length of time to undergo such a sweating, as no jockey, who had to reduce himself to a given weight, by a given day, ever yet suffered. It joined an offer to produce several persons, who had successfully submitted to the operation; and to exhibit the difference of appearance between heads planted with male and female hair. It will be thought, that no credulity could be caught where so little care had been taken to cover and conceal the ridicule. There cannot be a greater mistake. The proposal was seriously entertained, and a day, which, by a ludicrous coincidence was the 1st of April, fixed for the appearance of the operator with his process and patients before a committee of the Society.

I cite these instances to shew, that there is a disorder in the system, and that the attention of the more liberal members to the temperament of the committees is absolutely necessary to restore the original healthiness of the society. I wish it prosperity, if it deserve it. I am no friend to its existence with a mischievous tendency, which must be the consequence of its abuse, while it has a reputation with the public. On the other hand, if it be conducted with impartiality, it may be of national advantage; and then I deprecate the ridicule which, from a dread of contagion, will bring on it contempt and desertion.

I here conclude my complaint, and I trust that I have made it with as

* See Vol. XXXII, p. 196, of the Transactions of the Society of Arts.

much temper as I am sure I have made it with candour. If it draw the regard of those members, who have the power to reform an institution, which, administered on the principles of its first establishment, cannot fail to be beneficial to the public, I have gained my only object in making it. If, without intending it, and even while I have been endeavouring to avoid it, I have used a style that betrays any irritation or enmity, it is to be imputed to chagrin that there was no provision of the instruments during the recent frosts on St. James's Canal and the Serpentine river. I have reason to believe, there would have been if the Society had encouraged them. It is not from disappointed expectations of any premium for their invention. I feel the keenest regret, that two persons perished last December,* under the very circumstances, in which the instruments had before saved the lives of many; but none at the loss of a reward below regard in its intrinsic value, and of no extrinsic worth, when it has ceased to be a mark of distinction, from having been bestowed without discrimination.

I now beg leave to introduce my remarks on the plan of Lieut. Bell for effecting a communication with a vessel, driven on a lee shore, in comparison with mine. My assertion of independence from all obligation to it, I have stated to be the cause of the displeasure of the committee against me. There is a sordid, and despicable dishonesty in appropriating the labours and ingenuity of another without openly, and gratefully acknowledging the benefit: and nothing but proof was wanted to give generosity, and justice to the indignation of the committee against me: though it flowed in a wrong direction, when they suffered it to warp their judgment on a question quite foreign to its occasion, and confound the merit of his productions with their aversion to the author. I shall endeavour, with a confidence that excludes all anxiety for the event, to shew that their indignation was as unjust as the conduct, into which it hurried them, was unreasonable. I am aware, that, when I had closed my representation of that conduct, I had said all, that, in strictness, should be included in my address to the Society; and that I am in some measure imitating the irrelevancy of the committee. But the public is to judge between Lieut. Bell and me; and it matters very little, what is the medium of appeal to the public. Or, if it did, what more likely to draw its attention than an address to so important and interesting a body as the Society for the Encouragement of Arts? Here, therefore, I shall make a full statement of the question.

In 1803, I was appointed to the charge of the barracks at Yarmouth in Norfolk. I resided near the beach; and, during four years, was too frequently a witness of the loss of vessels, and all their crews, under the aggravation of the shore and safety within a few yards of

* One on the canal in St. James's park, the other on the Serpentine canal.

them. I have often reproached myself since for the ease with which, after such events, I fell into the composure of the opinion, that the calamity, great as it was, would admit no remedy. In the dreadful gale of the 18th February, 1807, on a line of coast of no more than 30 miles, 147 dead bodies were thrown on shore. The horrible extent of the evil in this instance produced that, which the former frequency alone of its occurrence had failed to effect. My feelings would no longer be compromised with: neither the duties of my office, nor any other important pursuits, denied me the leisure; and my mind was incessantly intent on the discovery of a means of relief against the recurrence of such disasters. I wish most earnestly, that I had then possessed the knowledge which is imputed to me, of that method the first invention of which (falsely, as I have since found) is claimed for Lieut. Bell. Perhaps, if I had been aware of it, though impracticable itself, the inverse of it, which is my plan, which after long thought was self suggested, and which has so often succeeded, might have occurred earlier to me. How many lives might I then have saved, that have perished miserably and uselessly; and how willingly for this would I forego the empty merit of invention.

Many months produced uniform disappointment to my attempts. All the modes, by which it was likely a rope might be floated from the distressed vessel to the shore, were considered, many tried, and all rejected. I then entertained the idea of a machine, like the balista of the ancients, for casting a weight with a line attached to it from the shore to the vessel. So small was the distance of many of the shipwrecks, of which I had been a spectator, from the beach, that such a machine would have given a power sufficient for the purpose. But its bulk, and weight, and consequent difficulty of movement from place to place, induced me to abandon it. It was then but little way to the application of a piece of artillery to the projection of a shot with a line fast to it. In principle it was the same. The only difference was between mechanical force, and the force of gunpowder. From this difference I apprehended impracticability, (indeed the difficulties which I encountered from it, almost justified my apprehensions) and I was slow in my recourse to it. Unable, however, to succeed in any other plan; and determined to reject none for its improbability, till I had ascertained its impossibility, I began some discouraging attempts to project a shot with a line fast to it over a vessel from a carronade. I suffered, according to their dispositions, the ridicule, the pity, and contempt of the numerous spectators of my experiments. Having, however, been indulged by the Board of Ordnance with the use of a small howitzer, and mortar; and discovered a medium * of connection between

* See Appendix page 43.

the shot and the line, which did not, as all before had done, break at the discharge, I succeeded in thus gaining communication with my object, and worked a complete change of opinion on my project.

I stop here to observe, that, among the numbers who were witnesses of my experiments, not one suggested, that such a mode of communication was already in existence. If it had been known among them, I should without doubt have heard of it. Those who were my friends, while my attempts were abortive, would have referred me to it, in the probability that I might find in it, what was wanting to success in mine. And, after I had succeeded, the malevolent would not have omitted to urge, that I had been anticipated in, what had cost me so much labour and anxiety, and what I believed with pride had originated with me. Is it at all surprising, that an ignorance, which extended so wide, should also include me? This ignorance was the consequence of the utter oblivion, into which Lieut. Bell's project dropped immediately after its exposition by the Society of Arts. Indeed it was only not still born. I shall shew the reason presently.

Repeated success in trials, during violent gales accompanied with rain, hail, and snow, had now given me confidence in my project; and on the 26th of August, and again on the 10th of September, 1807, I exhibited it before the Suffolk Humane Society, and had the honour to receive from them the following testimony in its favour.

“ The Rev. J. G. Spurgeon, Vice President, in the Chair.

It was unanimously resolved,

That, in the opinion of the Suffolk Humane Society, as well as of many other Gentlemen, who were present, Captain Manby's experiments for effecting a communication between the shore, and a vessel, that may be stranded, by throwing a shot with a rope appended to it, over a vessel (if she be near the land) have completely answered the purpose for which they have been attempted.

That the thanks of the Meeting be given to Captain Manby, for the zeal and exertion he has shewn to promote the object for which the Suffolk Humane Society was instituted.”

I afterwards repeated the experiments at Yarmouth, when a conviction of its adequacy to its end, produced the subjoined certificate from some of the principal of great numbers of witnesses to the success of the attempts.

“ We, the undersigned, having witnessed the experiments made by Captain Manby, for conveying a rope to vessels in distress, think it incumbent upon us to express our conviction in the strongest terms,

that such experiments succeeded to the utmost of our expectations; and we feel a great confidence, that, if his plan of rendering assistance be adopted, it may be the means of happily saving the lives of many seamen, who are wrecked upon the coast.

Edmund K. Lacon, Mayor	B. Douglas, Vice Admiral
W. Fisher, Jun. Deputy Mayor	R. Curry, Capt. H. M. S. Roebuck
W. Danby Palmer, Merchant	Charles Cobb, Capt. Sea Fencibles
Thomas Hurry Merchant	T. Forrest, Capt. Impress Service
Timothy Stewart, Merchant	Richard Turner, Clerk, Minister

Yarmouth, October 2d, 1807.

Still, among all these persons, not one suggested, that the public were already in possession of the means of communication, which I displayed to them; so complete, from a false application of the principle, was the forgetfulness into which Lieut. Bell's and his precursors' scheme had fallen.

These experiments excited much interest. Reports of them were inserted in the provincial papers; they were thence copied into the London journals, and wide publicity was thus given to them.

In the twenty-fifth volume of the *Memoirs of their Transactions*, during the year 1807, published by the Society of Arts, the following advertisement appeared:

“A publicity having been recently given to some experiments off the Eastern Coasts of this Island, for preserving lives in cases of shipwreck, by means of a rope attached to a shell thrown from a mortar; the Society think it incumbent on them to remind the public, that so far back as the year 1792 a bounty of Fifty Guineas was given to Mr. John Bell, then Serjeant, afterwards Lieutenant, of the Royal Regiment of Artillery, for his invention of throwing a rope on shore, by means of a shell from a mortar, on board the vessel in distress; the particulars of which were published in the tenth volume of the Society's *Transactions*, page 204; but a descriptive engraving having been omitted at that time, it is thought expedient to insert it in the present publication, with some further particulars then omitted.”

On reading this advertisement, I procured the volume referred to in it, and then first learned, that the mode of gaining communication by a line carried out by a shot from a mortar had been proposed by Lieut. Bell. I transcribe the description of his experiments from that volume.

“In consequence of a letter received by the Society, from Mr. John Bell, Serjeant of the Royal Regiment of Artillery, application was made to his Grace the Duke of Richmond, Master-General of the Ordnance, requesting his Grace would give directions that proper experiments might be made before a committee of the Society, to ascertain the merit of Mr. Bell's invention; and, his Grace having given directions accord-

ingly, proper trials were made by throwing a loaded shell on shore from a small mortar, fixed in a boat moored in the river (Thames) about 200 yards from the shore. To the shell was attached a rope, one end of which remained on board the boat; and the shell falling about one hundred yards within land, buried itself about eighteen inches in the gravel; when Mr. Bell and another person, on a raft floated by casks properly ballasted, hauled themselves on shore in a few minutes by the before-mentioned rope. These trials having been three times repeated with the desired success, and it appearing that the method proposed by Mr. Bell of throwing a line on shore from a ship in distress, either stranded or in danger of being so, promises to be of infinite advantage in the maritime world, as by means thereof such vessel may obtain relief, any person, when landed, being enabled to secure ropes from the ship; or additional hands may be conveyed thereby from the shore, to assist those on board. And in cases of imminent danger, where all hopes of saving the ship may be lost, Mr. Bell's method offers the most probable means of saving the lives of the crew.

"The Society in consequence voted a bounty of Fifty Guineas to Mr. Bell, he leaving a complete model of his contrivance with the Society, which model is reserved in the Repository."

I shall postpone the exposure of the utter impracticability of this theory, till I have concluded my detail.

A report to the Board of Ordnance, of the result of some experiments which I made in their presence, in a letter from Lieutenant-General Farrington, dated 19th January, 1808, contains this observation:

"This invention was brought forward by the late Lieut. Bell near 14 years since: his idea was to project the rope from the ship to the shore, which is assuredly the method most to be depended upon, as the vessel in that case carries the means with it, and need not rely on any fortuitous assistance from the shore."

There is much speciousness in the system of Lieut. Bell; and this, joined to the natural and amiable influence of an *esprit du corps*, at which I am neither surprised nor displeased, has given birth to the above assertion of preference. I am, indeed, almost sorry to disturb the committee of artillery in the possession of this imagined superiority in the scheme of their brother officer.

The following paragraph is from the report in a letter of Col. Ramsay, dated the 7th of October, 1808, of a committee of field officers of artillery of some farther experiments, which I had the honour to make at Woolwich.

"That the Committee, in giving their opinion on the merits of the invention, think it incumbent on them to notice, that the late Lieut. Bell, of the Royal Artillery, was several years ago presented with a premium by the Society of Arts, for a similar application of ordnance to commu-

nicate from the ship to the shore, and for having also suggested its utility in projecting the rope from the land to vessels in danger of being wrecked, the particulars of which have been republished in the *Society's Transactions for 1807.*"

I cite it merely to remark, that in no part of the publications of the Society of Arts, which relate to Lieut. Bell's project, is it to be found that he suggested the projection of the rope from the *shore* to the ship; but, like General Henniker, he confines himself entirely to a proposition of the attempt from the ship to the shore. I merely correct this error, and make no animadversions on it.

On the night of the 12th of February, 1808, I was called from my bed, during a violent gale, to assist a vessel driven on shore. The day broke, and exhibited a brig within a few yards of the beach. The crew had ascended the rigging, and lashed themselves in it; but the waves were still continually bursting over them. Every common means of gaining communication with them from the shore had been attempted in vain, and, unless it were achieved, their destruction was inevitable. At this juncture the mortar was brought down to the beach, and a line presently thrown over the vessel. By the line a rope was drawn on shore, and a boat hauled off by it, which brought the crew of seven persons in safety to the land.*

I now possessed proof of the practical utility of my plan, and submitted models of it, with the various testimonials of its merit, to the Society for the Encouragement of Arts. I was anxious, that it should receive the approbation of a body, which I was taught to believe had great influence on public opinion. I confess too, I was not without hope, that their approbation would spread my reputation as its author; and that I should not be thought unworthy of the distinctions, which they were in the habit of bestowing on the inventors of useful projects. I was not wholly deceived in my expectations. I received from the Society, as a reward, their gold medal, inscribed "For relief to stranded ships."

On this reference to the Society, and their gift of this medal, I offer two short observations: the first, that if I had been secretly and disingenuously appropriating Lieut. Bell's invention, it is incredible that I should have submitted mine for the approbation of the Society, who were its very patrons; and whose archives were the repository of its models and expositions.

The second; that the Society appear, by the consideration and reward with which they honoured my system, to have admitted that it was an invention of merit different from Lieut. Bell's, or, at least, that it was a meritorious coincidence of invention.

This demeanor of the Society to me, is a virtual disavowal of the

* See Appendix, (A) p. 40.

implied design of the advertisement and republication of the plan of Lieut. Bell in the twenty-fifth volume of their Transactions. If they sanctioned that advertisement, and coincided in opinion with the committee, of which I complain, instead of their approbation and reward, they should, to have avoided inconsistency in the extreme, have held out this language to my application. 'Sir, we already possess, and have rewarded, a project, which you offer as your invention, discovered some years ago by Lieut. Bell of the artillery. We rejoice that your exertions have applied it to the rescue of your fellow-creatures from destruction, and lament that the spirit of our institution, which has for its object the encouragement of arts, commerce, and manufactures, precludes us from bestowing on you those rewards which we hope you will meet elsewhere, for your zealous and active humanity.' I ask common sense, if this would not have been their tone, had the temper which dictated that advertisement, and the more recent conduct of the committee, then prevailed. I am therefore justified in concluding, that as the latter certainly is, the former also was the act but of a few; and that the censure and vigilance, which will prevent a repetition of such a want of candour and justice, will not linger long after my representation of it.

I here give (though some of them anticipate the period to which I have arrived with my narration, that they may appear at one view) the several instances of rescue effected by my system.

- * 7 men from the brig Elizabeth, in my presence, at Yarmouth, 12th of February, 1808.
- * 6 men from the brig Nancy, in my presence at ditto, 15th of December, 1809.
- * 7 from the brig Camilla, in my presence at ditto, 15th of December, 1809.
- * 7 from the Dutch hoy Elizabeth Henrietta, by Mr. James Reeve, at Kessingland, 13th of January, 1810.
- * 6 from a Dutch galliot at Hasborough, 13th of January, 1810.
- * 2 Dutch hoy Vrow Maria, at Horsey, 24th of January, 1810.
- 7 from the Elliot, in my presence, at Yarmouth, reported to the Admiralty, 4th of November, 1810.
- 6 from a brig at the Southham, near Yarmouth, in my presence: the testimonial sent to Mr. Curwen.
- * 7 from a brig, in my presence, at Yarmouth, 5th of January, 1811.
- * 9 from a galliot, in my presence, at Yarmouth, 6th of January, 1811.

* See Appendix (A) (B) (C) (D) (E) (F) (G)

^a 8 from the brig Susan, of Lynn, at Yarmouth, by Mr. John Yaxly.

^a 6 from a brig at Yarmouth, by Mr. John Yaxly.

^a 6 from a Dutch hoy at Horsey, with the Winterton Mortar.

^a 8 from a vessel, at Mundsley, with the Hasborough Mortar.

† 5 men and 2 boys from the brig Venus, at Yarmouth, by Lieut.

Woodger, 20th of January, 1814.

† 5 men, 1 boy, and 1 girl, from the brig Providence, at Winterton, 15th of April, 1815.

† 7 men and 2 women from the brig John, 29th of October, 1815.

† 10 men from the brig Leipsic, at Yarmouth, by Lieut. Woodger, 7th of December, 1815.

Making the number saved during a period of no more than seven years, while the apparatus has been confined to only five points of the county of Norfolk alone, one hundred and twenty-five persons.

The success, which had attended my efforts to the year 1810, attracted the regard of Mr. Curwen, then representative for Carlisle, and he moved the House of Commons for the appointment of a committee to inquire into the merits of the system. The motion was agreed to, and on the committee, which sat, were Admiral Sir Richard Bickerton, Commissioner of the Admiralty, and Captains Lord Newark and Sir P. Parker, of the navy, who examined the models of the apparatus, and the testimonials of its success, with the most patient and scrutinizing attention.

This was not the time for those, who, from whatever motive, supported the claim of priority and superiority in the plan of Lieut. Bell, to be silent, and consequently its pretensions were urged by certain persons, perhaps with rather more eagerness than a mere love of abstract justice will excite or justify. Mr. Curwen, then Chairman of the Committee, resolved to investigate both Lieut. Bell's claim and mine most scrupulously; and, in this determination, he brought down to the committee-room, from the repositories of the Society of Arts, of which he is a vice-president, all the documents, that had any relation to the scheme of Lieut. Bell. There they received from the committee a long, diligent, and impartial examination. What could the friends of Lieut. Bell—what even the most enthusiastic advocates for abstract right, wish for more? The result of this acute and candid inquiry is contained in the following extract from the Report of the Committee to the House, printed by their order, 26th of March, 1810:

“It further appeared to your Committee, that the invention of Mr. Serjeant Bell, in 1791, referred to in the Report from the Board

^a I was absent surveying the Eastern Coast of the kingdom by the orders of Government; and no testimonials were sent me.

† See Appendix (H) (I) (K) (L)

of Ordnance, printed by order of the House in the last Session, though ingenious, has in no instance produced any beneficial advantage: and it appears to this Committee, that it is 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."

It might surely, without preposterousness, have been expected, that this decision would have satisfied doubt and silenced contention; but there are some people in the world, whose object in dispute is neither conviction, nor justice.

On the favourable Report of the Committee I was ordered by the Secretary of State for the Home Department to survey the coasts, with a view to the establishment of the apparatus at the points liable to shipwreck.

This service I performed to a great extent.

In June, 1814, a Committee again sat, and with the printed reports of the survey, which I had made to the Secretary of State, and all the papers, that had been before the former Committee in June, 1809, gave three days to the examination of the merits of the system. With the theory under their view; a description of the disposition of the shores of the kingdom liable to the species of shipwreck, which it was designed to relieve; the opinions of the three Trinity Houses; the judgment of many Naval Officers of great experience; and evidence in detail of the frequent success of its application to its object, the Committee came to the subjoined decision, extracted from their Report to the House.

"Your Committee have had under their attention the Report made to the House on the same subject in 1810, in which it is stated, that *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 favourable point of view; and indisputably prove, that its general adoption would be the means of preserving annually a number of valuable Lives.* In support of this opinion, so expressed, there are a number of the proofs of the merits of Captain Manby's plan: and no doubt is left on the minds of your Committee as to the expediency of measures being taken to give effect, as extensively as possible, to the plan."

On the 20th of June this Report was taken into consideration before a Committee of the whole House. On this occasion Mr. Rose pronounced an eulogy on the system; and declared, that, comparing his conviction of what it must effect, with the circumstances which attended the loss of the Halsewell, not one, if it had been in readiness to

apply to that shipwreck, of the 150 persons, who perished but would have been saved.

It was then, that Mr. Peter Moore, one of the representatives for Coventry, said, that "he had been requested to lay in a claim to the invention for Lieut. Bell; and he had been authorized by a gentleman, who had called him out for the purpose, to term Captain Manby's system a species of piracy." Much more eloquence than Mr. Peter Moore possesses would not compensate for the want of prudence displayed in this speech. It is no justification, that he only followed his instructions. A prudent advocate will protect a client from himself and his attorney, as well as from his adversary, and substitute his own discretion for the effusions of passion and ignorance. But it never occurred to Mr. Peter Moore, that even Lieut. Bell might have been anticipated in the invention; and that he might involve his own client in his impetuous and headlong charge of piracy against me. This, which would have suggested reserve to a wise man, from its great probability, was actually the fact. Some years before Lieut. Bell, General Henniker (as I have since been informed)* had published the very same mode of obtaining communication between a wrecked vessel and the shore.

Mr. Peter Moore had, and could have no other evidence in support of his accusation, than that I was preceded by Lieut. Bell, as Lieut. Bell by General Henniker. The possibility of a coincidence of invention (probable as it was in a design so simple) seems to have been impenetrable to the apprehension of that gentleman. That there are two candidates for the honour of the quadrant, which appeared at the same time in such distant quarters of the globe, that communication was impossible; and that gunpowder was known to the Chinese centuries before the chemical discoveries of a German gave it to Europe, supposes some knowledge of history. Mr. Peter Moore seems to scorn such aids, and trusting too confidently, I think, to the force of mere, native genius, confounds the priority with the cause of events. *Post hoc, ergo propter hoc*. According to Mr. Peter Moore, no man can follow another without pursuing him. Adopting his logic, if I must necessarily have stolen the system from Lieut. Bell, because he preceded me, it is an inevitable consequence, that Lieut. Bell must himself have stolen it from General Henniker.

In spite of the absurdity to which it leads, I will suppose Mr. Peter Moore's reasoning as just as, I have no doubt, he himself, in all sincerity, thought it; and that I *must* have stolen Lieut. Bell's project, merely because it was anterior to mine. Yet what injury had I inflicted either on him or his representatives? Was it ever known that Mr.

* See Appendix, p. 40, for the Annual Report of the Royal Humane Society for 1814, p. 49.

Bell's plan had succeeded, or had even been applied to an instance of actual shipwreck? From its earliest promulgation by the Society of Arts (which might almost be thought to have had a counteractive effect, and have hurried it only more rapidly into its kindred oblivion) till my attempts had acquired notoriety, was even the theory heard of? The works of half of our contemporary poets are not more dead. Who would not imply inutility and abandonment from such a length of disregard? What then, even admitting Mr. P. Moore's logic, is the next conclusion? not that I have stolen my plan from Mr. Bell, but merely taken up what he had stolen from General Henniker, and *waived*. Such are the consequences of an unskilful advocate. His sincere zeal for his client's benefit operates like successful malice, and is the keenest of injuries. I am really anxious to vindicate Lieut. Bell's memory from the crimination of his advocate's complaint. I believe that his project was a coincident invention, and not a disingenuous appropriation of the plan of General Henniker. The character of a good and ingenious man, which survives him, would render a contrary presumption uncharitable, and most probably unjust.

I am sorry that I can do no more. The plan of General Henniker, and Lieut. Bell, not very specious in theory, is incapable of reduction to practice. Both propose that the course of communication shall be from the ship to the shore; this contemplates a provision of the means in every vessel; and is a heavy obstacle at the very threshold.

The number of British vessels alone is twenty thousand. A great many of these employed in trading along the coast (requisite as it is) have no gun. The cause of the present want would operate still more powerfully against the supply of a more expensive piece of artillery and its apparatus. It is difficult to make men provide at their own cost against remote and contingent dangers.

Lieut. Bell anticipates the objection, that the shipwreck may happen on a desolate coast, where there is nobody to secure the rope, when the shell has carried it on shore, by supposing that the shell will bury itself deep enough in the earth to resist retraction from the action of the reflux surf on his raft;* but he has by no means obviated it. What if the coast on which the shell falls be solid rock, or loose sand, what resistance to retraction would be found in the naked shell, or the shell only thus buried?

But the man must be utterly ignorant of the fury of the retreating surf, who can amuse himself with the idea, that the shell, buried to the depth of 18 inches, would withstand the force requisite to draw so bulky a body as this raft to the shore against the violent resorbence of the waves. To the credulity that would give faith to such a proposition, what could be fiction?

* See p. 23.

General Henniker, whose experiments and experience were not limited to the river Thames and the Warren, was aware of the force of this objection.

He substituted for the shot a harpoon, constructed with barbs, that closing on its projection, opposed no resistance to its flight through the air, or passage into the earth; and, spreading on retraction, held it firmly in the ground.

This was far more specious than the scheme of Lieut. Bell. But it is liable in common to the objections of a rocky, or sandy shore; the invincible difficulty of inducing all, among so great a number liable to the danger, to provide the relief; and a still more important objection, which I shall urge presently.

Lieut. Bell declares, in the rash confidence of inexperience, that "he would undertake to land by his method on a lee shore, on any part of the coast, when it might be deemed unsafe for a boat to attempt it."

I can readily believe, that a man who could seriously propose, or believe in the scheme, would attempt to put it in practice: but I should regret it. He would certainly pay his life as a forfeit for his enterprize; and unmixed folly, however great, is never a just subject of penalty.

I come now to the main objection to the plan of General Henniker and Lieut. Bell. It is no less than that at the very moment, when relief was most required, their means could not be brought into use.

The waves, in the violent storms, which drive vessels on a lee shore, dash with such fury over them, that the seamen are forced to ascend the rigging; and lash themselves even there. With every billow that rolls in, the deck and the lower masts are under water. The vessel is generally thrown on one of her sides, and the position of her deck consequently almost vertical. How, now, are the seamen to prepare the mortar for projecting the rope to the shore; how to protect the gunpowder from moisture; how to procure or preserve fire to discharge it; how to lay and keep the rope in that exact order,* which countless experiments have proved to be absolutely necessary to success! I accumulate these obstacles, though each in itself is equally invincible, and makes the attempt to communicate from the ship to the shore equally impossible.

Such is the plan, which we have seen certain judges prefer to that, which has actually rescued many more than a hundred persons from death, otherwise inevitable.

I shall now bring mine in comparison, or rather contrast with it.

Instead of the projection of the line *from the ship* to the shore, *my*

* See Appendix, pages 44, 45, 46, 47.

method is at the very outset the inverse, and projects the line *from the shore* to the ship. Such Logicians as Mr. Peter Moore will urge, that it is very easy to add to an invention, or invert it. They will say, it is impossible to conceive that Lieut. Bell could have failed to suggest the inverse, after his discovery of the obverse. This is but begging the question, and I am not bound to answer it. If I were, I should say, that Lieut. Bell *did not* suggest it. On the contrary, at the distance of many years, he produced the exact plan of Gen. Henniker; and though he lived long afterwards, never either added to it or altered it, impracticable as it was in its proposed state. As to whether he ever would have discovered the inverse mode, every one will feel, without any induction of examples, that men are often never farther off arrival than at the nearest point of their approach to their object, and that obviousness is sometimes the most effectual concealment.

Instead of supposing a supply of the apparatus to every ship, which would require more than twenty thousand, and a sum for their purchase of several hundred thousand pounds, my system, at a small expense, stations the apparatus at intervals of a few miles along the dangerous parts of the coast, where it is ready for application on every emergency on either side. Instead of encumbering *all* with the means to provide against the casualty which is contingent to *each*, but which can be the lot only of *some*, the apparatus is provided at the point of *certain* danger for the *uncertain few*. Thus it guards more effectually with two hundred only against the fatal consequences of shipwreck, than twenty thousand on the plan of Lieut. Bell.

The distraction of terror and derangement, from the violent agitation of the ship (not to repeat the frequent physical obstacles, which I have already urged) must always mix uncertainty with the attempt at communication *from the ship* with the shore. While *on shore* it is made with that precision and deliberation, which always attend a sense of exemption from danger, and afford a moral certainty of success.

By the communication, gained *from the shore* with the ship by the barbed shot, assistance may be given to the crew, when they are lashed in the rigging, that they may not be swept away by the waves, that break over them, or when they are benumbed with cold, or exhausted with fatigue, and unable to assist themselves. This is a situation, in which they are frequently found. Yet the plan proposed by Lieut. Bell neither has, nor pretends to have, any resource for it.

Let the scanty proposition of Lieut. Bell's scheme, in the papers published by the Society of Arts, be compared with the exposition of the system * (the result of the meditation of several years) which I have offered for relief from shipwreck; in which, I trust, every various form

* See Appendix, commencing p. 41.

in which the disaster may present itself, is supposed and provided against.

And, lastly, to the false application of this principle * of communication, by which Lieut. Bell produced nothing but an impracticable theory, never tried in one instance of actual shipwreck, I oppose the incontestible facts of the rescue by my system of 125 lives, that must otherwise have perished miserably.

I have now done. The public will judge whether, as it is insinuated against me by some, and openly charged by others, I have *pirated* the invention of Lieut. Bell. It will judge too, whether I am entitled to less merit, and my system to less importance, because it was already in possession of his project. I wait its decision with submission and confidence.

GEO. W. MANBY.

London, Feb. 1, 1816.

* The principle of communicating with a line carried by a missile body is very old, and lay quite in common to all, who chose to apply it. The story of the sailors who raised one of their companions to the top of the pillar, commonly called Pompey's Pillar, near Alexandria, is well known. There was the principle: and the application of the kite to gain communication from a vessel, wrecked on a lee-shore and the land, is a proposal many years old.

Communication too by means of a rocket, was proposed many years ago. It is, with all the plans which I have examined, equally specious in theory, and incapable of practice. A strong side wind would baffle every attempt to direct it with accuracy to the object. The greatest number of shipwrecks, which I have witnessed, have happened with the wind in an oblique direction with the shore.

APPENDIX.

(A.)

JOHN PROUTING, late Master of the Brigantine Vessel called the Elizabeth, of Plymouth, maketh oath and saith, That he was on board the said Vessel when she was unfortunately stranded on the beach of Great Yarmouth aforesaid, in a violent gale of wind, on Friday the 12th day of February instant.—That a rope from the shore was thrown by a piece of ordnance to the distance of 150 yards over the said Vessel, lodging upon her rigging, at which time no other communication could be obtained ; and by means of which rope so thrown, he solely attributes the safety of himself and crew.—That he could not at that time have used a piece of ordnance, or any ropes on board for effecting a communication with the shore, from the rolling of the said Vessel, and the sea making continual breaches over her ; and that this deponent is fully convinced, that the invention of throwing a rope to a Ship or Vessel stranded on a lee-shore, is of the utmost consequence and importance to a maritime and commercial country, and interesting to the world at large.

JOHN PROUTING.

Sworn before me, at Great Yarmouth,
21st day of February, 1808.

E. K. LACON, Mayor.

(B.)

We, the crew of the brig Nancy, of Sunderland, do hereby certify, that we were on board the said vessel, when she was stranded on the beach of Yarmouth, on Friday morning the 15th of December, 1809, and compelled to secure ourselves in the rigging, to prevent being swept away, the sea running so high over the vessel. And we do further declare and certify, that Captain Manby firing a rope with a hooked shot, securely holding on the wreck, enabled a boat to be hauled from the shore over the surf to our relief, otherwise we must inevitably have perished.

A. P. DIXON, Master.
J. WHITE, Mate.
J. LUCH, Seaman.

R. ROBERTSON.
J. KNIGHT.
T. JARRID.

(C.)

I, THOMAS STODDART, do hereby declare, that I was Master of the brig Camilla, of Sunderland, and in her when stranded on the same morning, and near where the Nancy was driven, and did witness all the circumstances contained in the above certificate; likewise of Captain Manby's, immediately after saving her people, coming to the relief of myself and crew. I do, therefore, in full justice and gratitude, declare, that the invention of thus conveying a rope to shipwrecked mariners on a lee-shore, is of infinite importance to every maritime country; for, if generally known and used on the coasts, it will save thousands of lives, from the conviction of what I witnessed on that day, as the certainty of success will be, when all other efforts are impossible.

THOMAS STODDART,

Master of the Camilla, of Sunderland, stranded on
Yarmouth beach, 15th of December, 1809.

(D.)

Lowestoft, 14th January, 1810.

DEAR SIR,

It is with the greatest satisfaction I write to you, to state, that yesterday your application of throwing a line from a mortar was most successfully put in practice on Kessingland beach. A Dutch vessel, from Rotterdam, was run on shore, she being water-logged; a most tremendous surf breaking over her; seven men on the bowsprit, and one man, the master, on the shrouds. The circumstance being known at this place, Captain Hinton, as well as myself, were applied to for permission to take the gun, which was instantly complied with; Mr. Payne and myself getting the powder, &c. which was lodged in the battery, a coil of rope and two shots, a cart and two horses, with four men, set off as fast as we could drive, followed by Captain Hinton on horseback. When at Pakefield, two expresses met us, to say, that the men would be lost, unless the gun arrived in a short time, as the vessel was breaking up; and the greatest exertions were made, by getting us a fresh horse, by the people on the road. A shout from the people on shore welcomed our arrival; and, in a few minutes, we threw the shot and line over the men, who all, *seven in number*, took the desperate resolution of trusting to this one line all at once, and committed themselves to the water, having previously cut away the shot; but the

last man but one fell over the jib sheet, so that the last two were hanging, and we in the greatest fear of all of them perishing, pulled, and as Providence ordered it, the jib sheet broke, and all the seven were brought safe by the line to the shore: our attention was now turned to the master, who waved most piteously to us to fire again, and we did throw the line over the topsail-yard in good style, but he had not the ability to get up the shrouds: we hauled it on shore, and threw it again close to him, which he looked at without attempting to secure it, and before one minute from the last shot, the bowsprit, main and mizenmast, went, and he was lost, as must the entire crew, had it not been for your apparatus. This was witnessed by several gentlemen, four Lowestoft pilots, all the beachmen of Pakefield, and others. As another vessel was expected on shore, a request was made to leave the gun, &c. at Pakefield. I write in great haste to request another coil of rope, a shot, *particularly a barbed one*, leathers, &c.; several lines, with logs of wood, were veered away by the men, but not one could be reached from the shore, as the drawback prevented creepers being thrown in to reach it; a barbed shot would have been of great service to us.

Yours, most truly,

JAMES REEVE, jun.

TO CAPTAIN MANBY.

(E.)

This is to certify, that on the 13th of January, a Dutch galliot came on Hasbro' beach, and in about one hour the vessel parted, and became a complete wreck. I immediately had recourse to the use of Captain Manby's mortar, and by means of throwing a barbed shot and rope over her, was enabled with a boat to save five seamen and a passenger; one man was drowned, owing to his endeavouring to save himself by swimming on shore.

Given under my hand this 14th of January, 1810.

H. A. DENNIS, Lieutenant,

Hasbro' Signal Station.

(F.)

Yarmouth, January 24, 1810.

This is to certify, that myself and son were providentially rescued from the jaws of death, by the meritorious plan of firing a rope; and I

am fully convinced that no other means whatever could have extricated us from our perilous situation, being wrecked at Horsey in the Vrou Maria ; and beg further to say, that I consider it a duty I owe to the inventors, if necessary to confirm this statement on oath, and shall recommend its adoption on every shore I may hereafter visit.

L. V. IAMPES, K. ZACHARIAS.

(G.)

(COPY.)

Roebuck, Yarmouth Roads, 6th January, 1811.

SIR,

I BEG leave to state to you, for the information of the Lords Commissioners of the Admiralty, that during my attendance on the beach yesterday morning, in assisting for the preservation of his Majesty's gun-brig Attack, a merchant brig was driven on shore at the same place, and her crew, seven in number, were, in my presence, rescued from the rigging of the vessel, and apparent certain destruction, in a most admirable manner, by means of a boat drawn from the shore by a line, that, affixed to a shot, was thrown over the vessel from a mortar, under the personal superintendence of Captain Manby.

And this morning a galliot having also come on shore on the beach, her crew, consisting of four Englishmen and five foreigners, must inevitably have perished, but for the prompt assistance of Captain Manby, with his apparatus ; by whose efforts, and by the same means as those employed yesterday, the whole crew were, in my presence, rescued from their most perilous situation ; one of them, however, is since dead from his sufferings, in consequence of the severity of the weather.

I take the liberty of making this statement to their Lordships, conceiving it my duty, in common justice to Captain Manby, whose personal exertions are always prompt in the cause of humanity, and in the present instances have been so happily efficient.

I have the honour to be,

SIR,

Your most obedient, very humble servant,

R. CURRY,

Captain of his Majesty's ship Roebuck,
doing Port Duty.

JOHN WILSON CROKER, Esq.
Admiralty.

(H)

Signal Station, Yarmouth,
12th March, 1814.

SIR,

I HERE send you a statement of the happy success of the means that you have brought to such perfection, in saving shipwrecked Mariners. On the 20th of January last, about half past six A. M. I was informed that a vessel was on shore at South Ham, in Corton Bay, which place I immediately proceeded to, with the mortar under my charge, about *three miles* from my station, *it then blowing very hard from N.N.E. dead on the shore with drifting snow.* At the time I got to the place it was near high water, and the sea was breaking some height up the cliff, which made it impossible for any boat to render the distressed vessel any assistance: at this time her main and mizen mast was gone, and her boats and spars were washed all off her deck, and her rudder unshipt; and in her rising and falling, the head of the rudder was ripping her stern and decks up all to pieces, and the sea was breaking violently, quite over the vessel; and there was every appearance of her soon going to pieces. If she had parted, there were not the least hopes of the Crew being saved, but by the means I made use of I had the satisfaction, in firing the second shot, from the top of the cliff, of throwing a line over the vessel: I suppose the vessel was full two hundred and thirty yards from the cliff:—to which line, on signs being made to the people to haul a sufficient quantity on board, for the bite to return to the shore, they then made a hawser fast that was fortunately lying abaft. As soon as the people on the cliff had hauled the said hawser on shore, and tort from the vessel, I cut a piece of the hawser off, and made a grummet on the hawser with it, sufficiently large for a man to sit in, to which I made the bite of the line fast: on waving to the people on board, they hauled the grummet along the hawser to the vessel, and one man got into it at a time, and was hauled on shore hanging on the hawser, and the grummet was hauled to the vessel again, by which method, *the whole of the Crew, consisting of Five Men and Two Boys, were saved.* And it is my opinion, that the Mortar is the only means that can give immediate Relief to Shipwrecked Mariners.

CHARLES WOODGER, Lieut. R. N.

(I.)

Somerton, 15th April, 1815.

DEAR MANBY,

This morning a vessel, the Providence of Yarmouth, William Field master, came on shore at Winterton, at low water. The men immediately carried the mortar, &c. to the spot. I am happy to say the second shot succeeded, and the master, four men, a boy, and the master's daughter, were safely brought on shore, while the sea was making a complete breach over the vessel. One poor man was washed overboard before the rope was on board. One shot was lost, and about 18 ounces of powder expended. The distance was upwards of 150 yards. The sea was running so high, that but for the gun all must have perished. I hope this, with the other cases, will satisfy people of the utility of the plan. Your list of lives saved must now be much increased, and too much publicity cannot be given to the instances of success. Will you order a cask of powder for us; we have now only 10 lb.: waste must take place unavoidably at these times, and to want a charge of powder would be truly distressing. Believe me,

Your's, truly,

J. B. HUNTINGTON.

(K.)

On the 29th of October, 1815, while standing on the look-out, saw a hoy riding at anchor off Winterton, near the middle ground, being in a dangerous situation. She there continued till she knocked away her rudder, and made a great deal of water, and at last was obliged to come on shore. On the same day about three o'clock, it then being about half-tide, and the said vessel being laden with coals and water-logged, could not get near the beach. We immediately got down the gun to their assistance, we seeing no possibility of launching, the wind blowing so very hard from the eastward, which made so much surf on the beach. We, whose names are under-mentioned, assisted, and fired a rope on board the vessel, which proved to be the John of London, Capt. Pearson. After they had got the rope they were afraid to trust to it. They made signs for us to get a boat, which we immediately got and hauled off by the rope with the greatest difficulty imaginable. While hanging alongside, the sea broke very heavy, nearly filling our large ferry-boat, while the crew with great difficulty bundled into the boat, consisting of seven hands and two women passengers, which were safely landed from a perilous situation, whilst numbers of spectators were present to witness

the same, who unite with us, and say, had it not been for the gun and our exertions, must all have perished, as the vessel went all to pieces in two hours after they left her :

Charles Popay,
Edward Leech his X mark,
William Goffin his X mark,
Mathew Haylet his X mark,
Thomas Brown his X mark,
Harriet Hods,
Luke Amis his X mark,
Robert Deary.

(L.)

(A COPY.)

WE, the master, mates, and ship's company, of the brig Leipzig, of Hull, do hereby certify, that about one o'clock in the morning of the 7th instant the said brig, in a heavy eastwardly gale, drove on shore on the bar, at the entrance of Yarmouth Haven ; and that from the extreme cold and badness of the weather, the vessel having filled, and the sea constantly breaking over her, which obliged us to take shelter in the maintop, there appeared but very little probability of our lives being saved, it being impossible for a boat to get off. Had it not been for the humane and active exertions of Lieutenant Woodger of the royal navy, who effected a communication with the vessel, by means of a mortar, to which under Divine Providence we owe our lives, for which we return Lieutenant Woodger our most grateful thanks.

*Dated at Gorlestone, near Yarmouth,
the 8th December, 1815.*

John Tindale, Master	
George Marshall, Mate	
Daniel Denny, second ditto	
James Scarlet,	} Ship's Company.
Richard Lee,	
Richard James,	
Fredrick Hebener,	
Francisko Rry,	
Stephen Copler,	
John Brough,	

(L.)

(A COPY.)

This is to certify, that Edward King and his company of men, belonging to Gorlestone, observing a brig on Yarmouth bar, a heavy gale of wind at east-north-east, with the surf making a free passage over her, and after making an attempt with one of their largest boats, with no possibility of saving the lives of the crew of the said brig, immediately sent for Lieutenant Charles Woodger at the Signal Station at Yarmouth, who instantly came down to the pier with a mortar, and conveyed a rope to the said brig, and with his timely attention and exertions the lives of the said crew were saved on the 7th of December, 1815.

(Signed)

Edward King,	Pilot
James Revett,	ditto
Charles Woods,	ditto
Robert King,	ditto
M. Martin and Co.	

Extract from the Annual Report of the Royal Humane Society, for 1814.

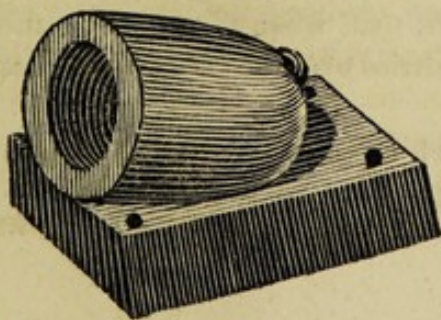
“MANY years ago, a method was suggested by General Hen-
 “ niker, to throw a rope from a ship in distress to the shore; and
 “ Lieutenant Bell, about the year 1791, of throwing a rope or line on
 “ shore, by means of a shell, from on board a vessel at sea; an expe-
 “ riment to exemplify which, was made at Woolwich, in August in
 “ that year.”

OBSERVATIONS

Observations with Directions on the Method brought into use by G. W. MANBY for saving Persons from Vessels stranded on a Lee-Shore.

THE most fatal cases of shipwreck, and, I might add, the most frequent, are those which occur within the distance of from three hundred to sixty yards of the land. In these cases the proximity of the shore seems, to the inexperienced view, to ensure facility of escape to the seamen; but it is as distant and hopeless in effect as if they had struck on a rock in the very midst of the Atlantic Sea: for if they trust themselves from the vessel and attempt to swim on shore, they are either killed by the violence with which they are dashed by the waves against the beach, or drowned while they struggle in vain against the rapid retreat of the surge. It would be endless, and (since none of them succeeded) quite useless, to recount the numerous methods which have been tried at different times to afford assistance to vessels wrecked under these circumstances. To send any medium of communication from the shore to the ship, or the ship to the shore, was found equally difficult; and our journals are full of afflicting accounts of wrecks and the loss of whole crews within but a few yards of the shore and safety. At last the project of throwing over the vessel a line attached to a shot fired from a piece of ordnance was happily suggested; communication with the vessel, which was before surrounded with the highest degree of uncertainty and difficulty, if not impossibility, rendered certain; and humanity relieved from suffering and witnessing the misery of shipwreck under circumstances of such keen aggravation.

Communication by a rope but once achieved, it is easy to send on board by it to the vessel any thing else, that might facilitate the conveyance of the seamen to the land; or indeed, if the shore should afford nothing beyond the mere rope, that once thrown on board, the readiness and ingenuity of the seaman, with the materials which his ship supplies him, will furnish the additional means required to pass him from the vessel to the shore.



The mortars, for the purpose of throwing the shot with the line attached to it, over the wrecked vessel, should be as light as is compatible with the service to be performed by them.

An iron mortar* cast on its bed, and weighing with its bed $2\frac{1}{2}$ cwt. (which may be removed from place to place by two men on a hand-barrow with ease) will project a 24 lb. shot, with an inch and half rope attached to it, 250 yards, or a deep-sea line 320 yards, against the utmost power of the wind.

A mortar of this size is of sufficient power to project a shot carrying out with it a rope strong enough to haul off a boat by from the shore to the vessel; a service of the greatest importance, as it sometimes happens that the crew are so benumbed by cold, or exhausted by fatigue, as to be unable to move a limb in their own assistance.



The shots designed for giving relief are of two kinds. The first, merely for the purpose of gaining communication (like the figure), is made by inserting a jagged bar of iron, with an eye at the top, into a hollow iron sphere, which is then filled with boiling lead; or by the same bar in a solid iron ball, which has had a hole drilled through it for the purpose, taking care that the bar is well clenched at the bottom of the shot.

The second is a shot furnished with barbs for the purpose of catching and securely holding on some part of the rigging or hull of the stranded vessel.



This shot is to be used, when the crews of the distressed vessels, from exhaustion by fatigue, numbness from cold, or from having previously lashed themselves in the rigging to secure themselves from being swept away by the sea, which breaks over the vessel, are deprived of the power of assisting themselves in the slightest degree. The advantage gained by the use of this shot is, that, when the people on the shore haul in the rope which it has carried over the vessel, it catches

* Any iron-founder can run them; and it is hoped that attention will be paid to the quality of the metal used, and the piece be proved before it is delivered. Mr. Pattison of Leith offered to cast them at 1*l.* 10*s.* per cwt.

hold and firmly fixes itself on some part of the rigging or hull; and then a boat may be hauled off to the relief of the crew unable to help themselves. The counter-barbs make it next to impossible that it should slip or give up its hold, while that part of the wreck, on which it has once fastened itself, remains.

To connect the rope to the shot, and prevent it from being burned by the powerful inflammation at the discharge of the mortar, was most essentially necessary; and success the result of almost innumerable experiments. Chains in every variety of form and size broke, and proved, that not only strength, flexibility, and elasticity, but a body at once continuous and entire was required. At length some stout strips of hide, plaited extremely close at the eye, happily effected the object so indispensably wanted.



The hide should be at least so long as to leave two feet beyond the muzzle of the mortar when it is charged with the shot, and should have a loop at its end, that the rope may be fixed to it in a moment. The strips of hide may also be braided in the manner used in making the thongs of whips.

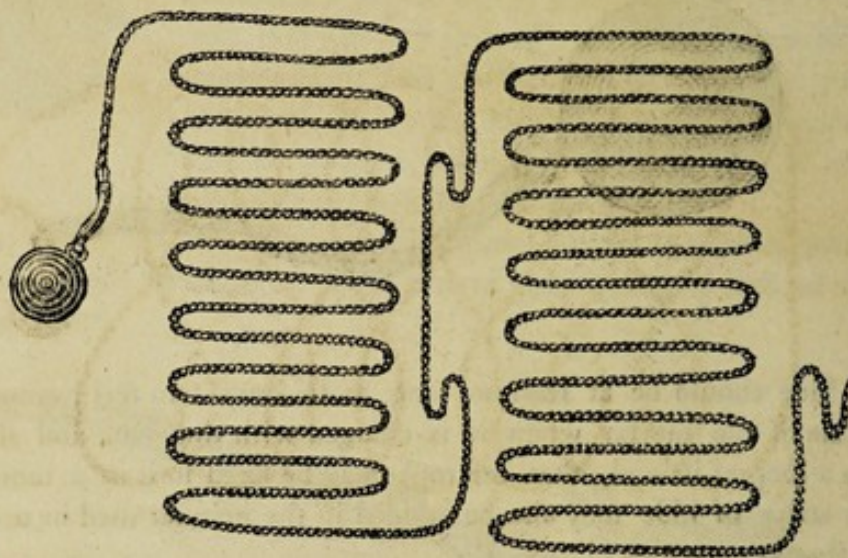
Another method of securing the rope from the flame at the discharge is by enclosing it in a case of leather; but in this mode the greatest care is necessary that the seizings or lashings of the leather to the rope are very firm, and that the end is spliced into the other part of the rope, to prevent the possibility of its drawing through the case should the lashings give way. *

The rope for the service should possess pliancy, strength, and durability. The first is required that it may obey without any obstruction the violent impulse occasioned by velocity of flight in the shot; and so indispensably necessary is this pliancy, that if it be interrupted even by a single kink, the rope will assuredly break.

* This remark has been rendered necessary from the omission in the plate of the barbed shot with the security of the leather case, to represent the end spliced into the other part of the rope.

The necessity of strength is self-evident, and nothing more effectually tends to give it than regularity in the yarns and strands of the rope. Durability, I am persuaded, will be increased by discontinuing the use of vegetable mucilage to render the threads, with which the ropes are made, smooth. This mucilage, when affected with moisture, retains it; fermentation follows, and the rope is mildewed and rots. Rope, however, as well as woollen cloths, may be made to resist the penetration of water by immersion in a solution of equal parts of sugar of lead and alum.

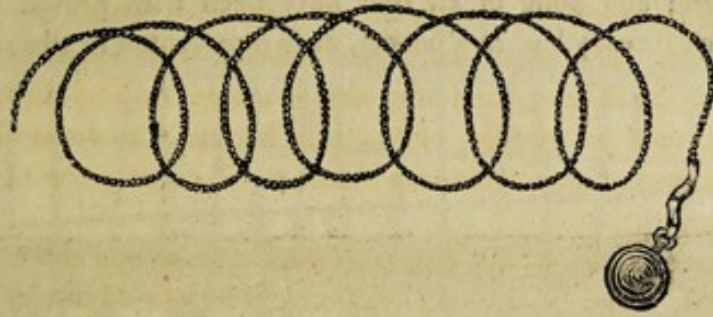
No branch of the service demands more nicety and attention than the mode of laying the rope in readiness to be carried out by the shot. If the beach be even, and free from large stones, it may be thus laid with certainty in compartments.



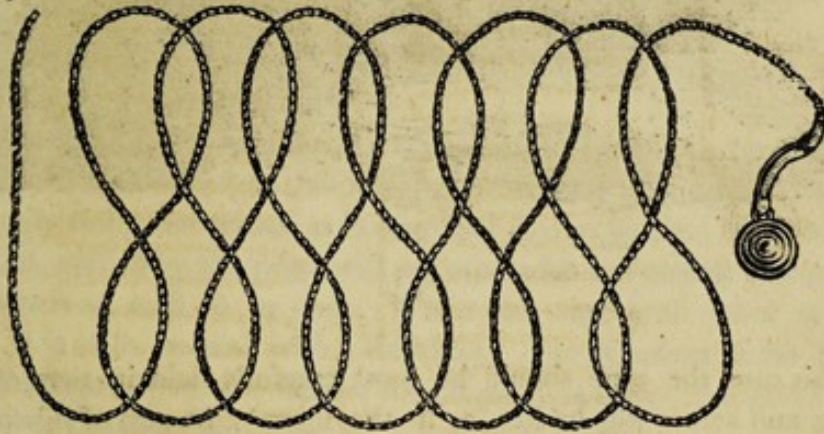
The length of the fakes must not exceed two yards, as the rope, when laid in fakes of greater length, is likely to be broken by the proportionably increased vibration. When the experiment was made with the rope laid in fakes of several yards long, it never failed to break.

The nicest care should also be taken to remove every thing from the beach likely to be an impediment to the free issue of the rope. If, with these precautions, a good and well stretched rope be used, communication will never be missed. This method of laying the rope is so simple, and the parts are so distinct from one another, that the eye, just before firing, can run over it, and at one glance either convince itself that all is right, or detect the error of any one part overlaying another; an error which would most certainly cause the rope to break, and frustrate the attempt to gain communication with the distressed vessel.

The rope may also be coiled in the manner used in the whale-fishery: thus,



or in this method, called chain-faking.

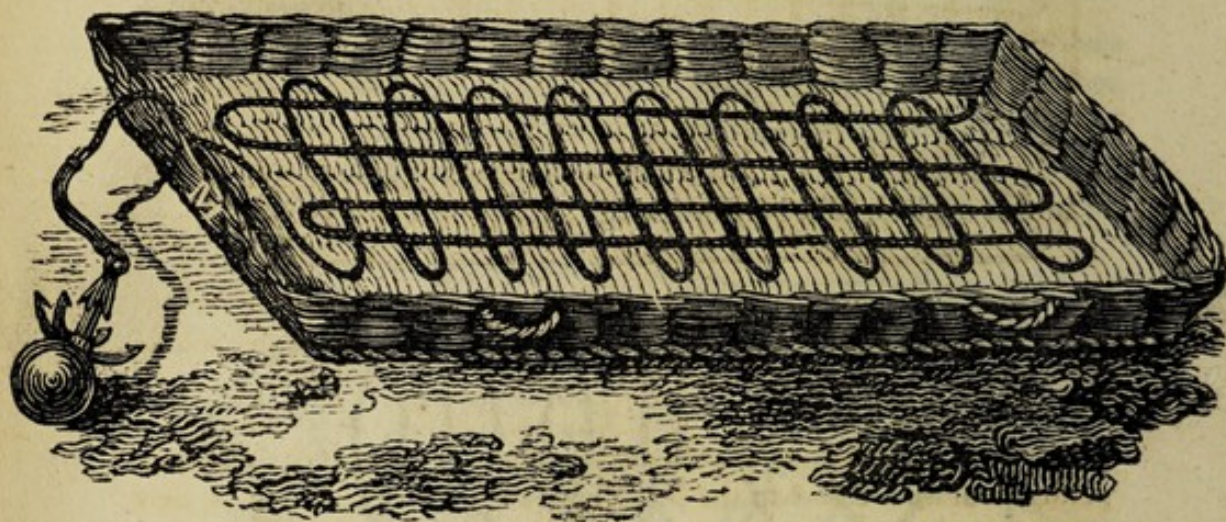


It is however necessary to observe, that the greatest attention and caution are required in laying the rope in conformity to the two latter methods. They are more complex, more easily deranged by the wind (which, from the fakes being raised on each other, is admitted under and lifts them) or other accidents, and any derangement not so easily detected by the eye as in the first method proposed, nor when detected so instantaneously rectified.

If it were not for this greater liability to disorder, the shorter time required to lay the rope in these two latter methods would give it a decided advantage over the first, which is however to be preferred for its certainty.

But as all these methods of laying the rope consume time, and it has repeatedly happened that vessels have gone to pieces very soon after taking the ground, and all on board perished, it was necessary to dis-

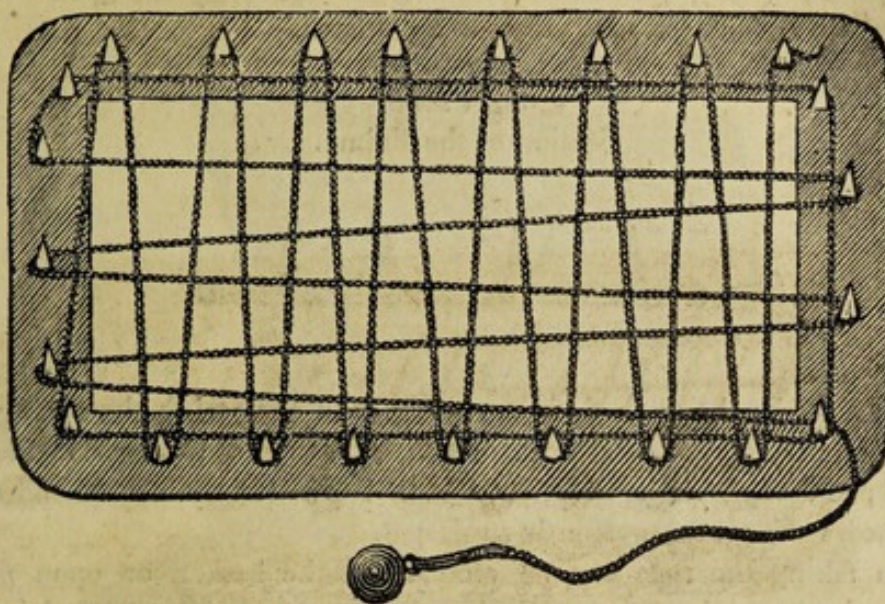
cover such a method of previously arranging the rope, and preserving the arrangement during its removal from place to place, that it could be projected on the very minute of its arrival on the spot where it was required; and none of all that have been tried proved so effectual as having it ready laid in a basket, as is represented in the subjoined cut.



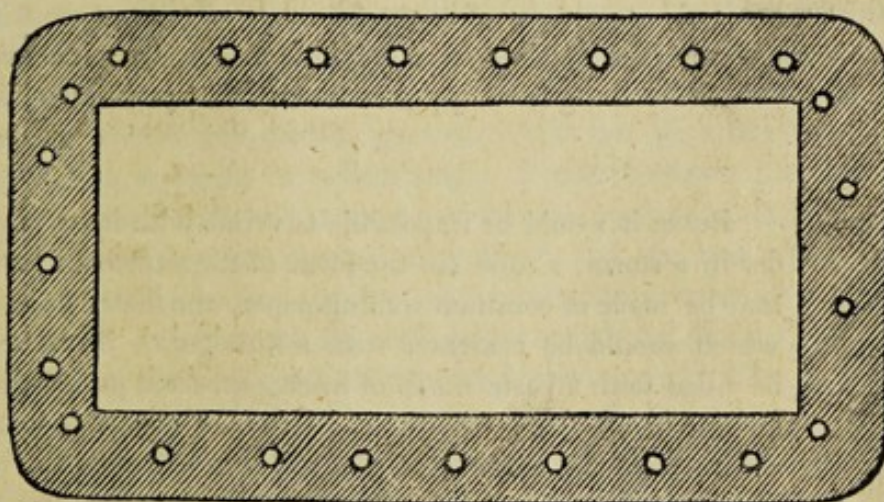
In this case the rope should be most carefully laid in tiers of fakes along and across the basket (as in the figure), no part of it being suffered to overlay any other part on the same line, and level with itself; and when done it should be kept in its position by the pressure of a cover most firmly strapped down on it, otherwise it is likely to be displaced in travelling from place to place. Above all, no mistake must be made in placing the basket; that part of the basket at which the faking ends, and at which, in the above representation, the shot lies, must be towards the sea or vessel; and should, to avoid error, be previously marked: the rope will then follow the shot freely, and without any hazard of entanglement. It is hardly necessary to observe, that there will be many tiers of the rope when thus laid in the basket; or repeat, that the utmost care and correctness are demanded in laying the rope in these tiers, that no failure may happen.

As in winter, from the greater length of the nights, assistance is more likely to be required by night than day, and it might be difficult, if the first attempt to cast the rope over the vessel failed, to lay it again in the dark with due correctness, it was necessary to supply a method, by which it might be laid with as much correctness in the

dark as in the light. This was done by an oblong wooden frame, six feet long and four wide,



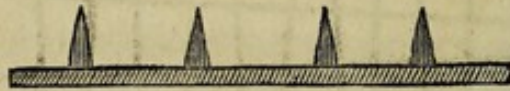
having at equal distances round its edge conical pegs six inches long, tapering from their base * to the point, on which the rope is faked in tiers alternately along and across, as is described in the figure. This faking, the hand, guided by the pegs, will perform with the utmost correctness in darkness as well as by day. When the rope is all faked on the frame, it is to be covered with a lid having correspondent holes (as in the figure beneath) in it to receive the points of the pegs, and secured by lashings or straps on the sides.



* These pegs should be of an inch and a half diameter at the base.

When the apparatus is called into use, nothing is to be done but to invert it, unbuckle or untie the side-fastenings, lift up what was the bottom-part, and the pegs draw out, leaving the rope ready laid upon what before was the lid, but now serves as a platform.

Section of the Frame.



I have considered this mode of arranging, and preserving the arrangement of the rope, a great acquisition. It is the most correct method of all; and of course its adoption, which is particularly recommended, supersedes the modes previously suggested.

In faking the rope on the ground, in the basket, or upon the frame, it should be first stretched out to its utmost length; and it is of the utmost importance that it be not drawn in faster and in greater quantities than the person who is faking it can dispose of it in the fakes, and that, before he lays the fake, he takes out of the rope every inclination that it has to twist or kink; for if it be faked without regard had to take out its inclination to twist or kink, it will most certainly kink on being snatched out by the shot, and as certainly break from the elasticity being destroyed.

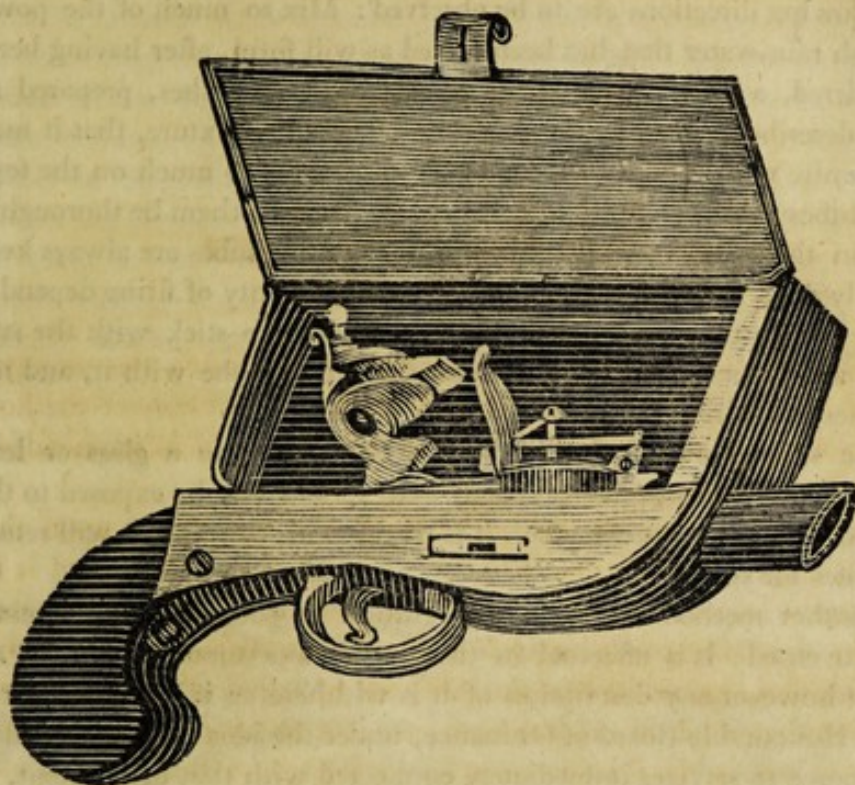
The best mode of guarding against any kinks in the rope is, that one person should turn out all the inclinations of the rope to twist and kink, and give it in to another who is faking it, only exactly in such quantities as he is able to dispose of in the fake.

The greatest care should be taken to keep the mortar dry; it should not be loaded till every thing is ready; then it should be primed and instantly fired.



But as it would be impossible to prime with loose powder in a storm, a tube (in the form of the annexed figure) may be made of common writing paper, the outer edge of which should be cemented with a little gum. This is to be filled with a paste made of finely powdered gunpowder and spirits of wine; when it is half dry, a needle is to be run through the centre of it, and the hole left open. The effect will be, that when the tube is inflamed, a stream of fire will rush with great force down the aperture and perforate the cartridge.

It having been found difficult to keep a match lighted for firing the mortar, on which all depends, I was induced to fit up a pistol thus:



with a tin box over the lock to protect it from the wind and rain or spray; the flame of which, at the discharge, is so dilated, by the barrel being cut transversely at the muzzle, as to require but little exactness in the direction of the aim. Once however the pistol got wet from being washed over by the sea, and the whole crew of a ship nearly perished in consequence. This excited me to inquire whether, by a chemical process, instant and certain ignition might not be produced; and I found that it might in various ways. I state however the following as the most simple and convenient for this particular service: Take equal parts of hyperoxymuriate of potass* and the best refined sugar or sugar-candy, reduce them to an impalpable powder in a perfectly dry mortar, and let them be well mixed together. It may likewise be made by substituting gum olibanum† for the sugar.‡ The application

* Care should be taken not to triturate this volatile salt with much violence, as it will explode by active friction.

† Olibanum attracts moisture in a less degree than sugar, but sugar produces quicker combustion than olibanum.

‡ A greater proportion of potass than of sugar makes it in certain cases keep better and ignite more quickly.

of sulphuric or nitrous acid to this compound will produce immediate ignition.

To prepare the powder for the particular service of firing the mortar, the following directions are to be observed: Mix so much of the powder with rain-water that has been boiled as will form, after having been well stirred, a thick fluid; crack the heads of the tubes, prepared as above described, intended to be primed with this mixture, that it may better unite with the gunpowder in them, and lay so much on the tops of the tubes as will completely cover them; then let them be thoroughly dried in the sun. Care must be taken that the tubes are always kept perfectly dry; for on this the quickness and certainty of firing depend.

To fire the tubes, wet the end of the finger or a stick with the sulphuric acid, touch the composition on the primed tube with it, and instantaneous ignition will follow.

The sulphuric acid should be closely stopped in a glass or lead bottle, kept in an upright position, and should not be exposed to the air, but for the moment when it is used; with this care it will retain its virtues for years.

Another method of producing ignition by percussion has recently been invented: it is effectual in the most tempestuous weather. At present however any description of it is withheld, as it has been offered to the Honourable Board of Ordnance, under the idea that it is of high importance to services immediately connected with that department.

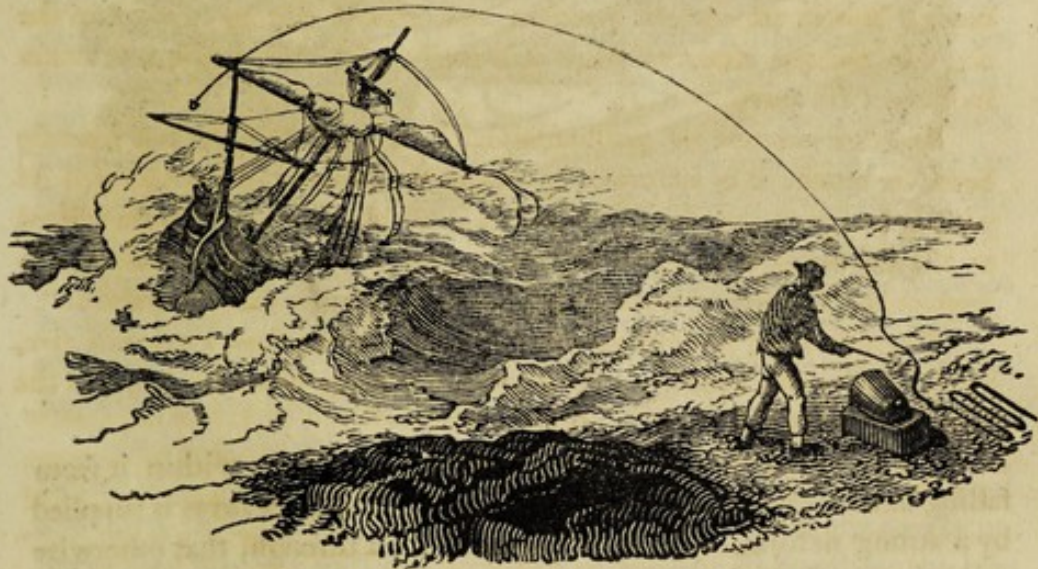
The following proportions of gunpowder of the best kind will give, to the 24 lb. shot fired from the mortar, the range placed opposite in the subjoined table:

<i>Ounces of powder.</i>	<i>Yards of deep sea line.</i>	<i>Yards of 1½ inch rope.</i>
8.....	220.....	180
10.....	270.....	220
12.....	320.....	250

As the mortars are made as light as possible, for the sake of portability, it is not recommended that the last charge with gunpowder of the strongest quality should ever be exceeded.

Having furnished instructions for preparing the apparatus, it is next necessary to direct the mode of applying it to its purpose of gaining communication with a distressed vessel driven on a lee-shore. When the wind blows directly on the shore, the mortar is to be pointed directly at the vessel; any direct opposition from the strength of the wind is to be met and overcome by a proportionate increase in the charge of powder, up to the highest quantity given in the scale. But it may happen that vessels take the ground when the wind blows sidewise along the shore, or the wind may have changed after they have taken the ground, supposing them to have driven with the wind right on the

shore. When this is the case, if the mortar should be fired pointed directly at the object, the rope carried out by the shot would be swept far to leeward of the vessel by the force of the wind, and communication be missed. It is therefore in a side-wind, necessary, in proportion to the strength and obliquity of the wind, to point the mortar to windward of the object; the slack of the rope carried out by the shot will then be borne by the wind so much to leeward as to fall on one part or other of the distressed vessel. In the case of a strong side-wind the lower the elevation (about the angle of 15 degrees) at which the mortar is fired, the less power the wind will have over the rope, and the more certain it will be to fall on the weathermost part of the rigging of the wreck, with which communication is attempted.



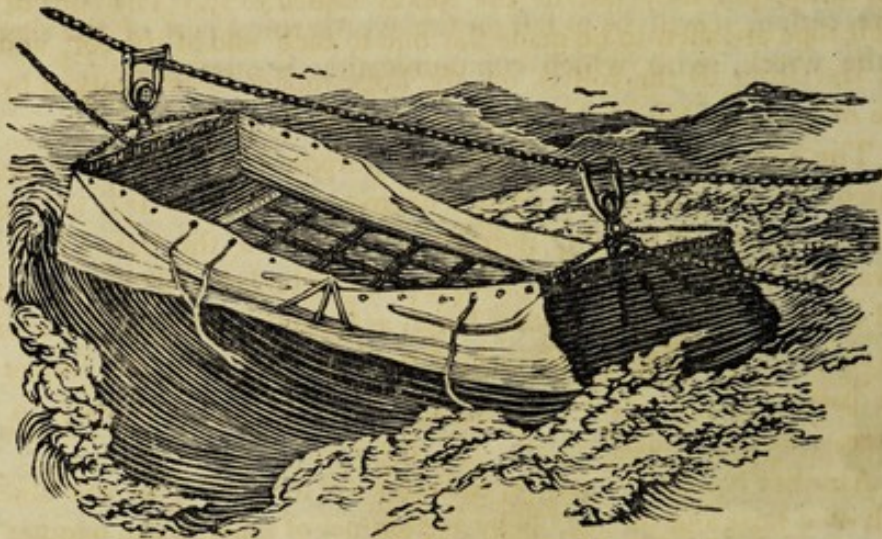
When the rope is thrown on board, the crew, if not extremely exhausted, will at once secure it to some firm part of the wreck, and then a boat* (if a boat be at hand) may be hauled off by it: the boat is kept, by the power given over it by the rope, with its head to the waves and wind; and consequently rises over the surges, free from the danger of being upset.

If the crew, as is sometimes the case, are so benumbed or fatigued as not to be unable to secure the rope themselves, the barbed shot, when

* When circumstances will permit, a boat hauled off by the rope thrown from the mortar is the method most to be relied on as the most prompt and certain mode of relief from a beach.

the rope with which it has been projected over the vessel is drawn in from the shore, will of itself take hold and fix on some part of the rigging or hull of the wreck, and a boat may be hauled off by it, although the crew are so exhausted as not to be able to move a hand towards saving their own lives.

Another mode of bringing the crew on shore, after communication is once gained, is by a basket or cot, as in the subjoined figure.*



It is furnished with lashings, to prevent the person within it from falling or being washed out. The want of a bottom of canvas is supplied by a strong netting, by which the water is let through, that otherwise collecting in it in its passage and repassage between the ship and the shore, would retard or stop it by greatly increasing its weight, and, possibly, drown the person conveyed by it. This mode is peculiarly adapted for bringing on shore helpless women and children, or the sick and wounded.

In employing this cot the following directions are to be minutely observed and practised : First, drive three strong stakes deep into the

* The basket or cot should be made buoyant by cork or kegs of air. But where the coast is extremely rocky, or the beach very rugged, it will be necessary, to protect the person coming to the shore from injury when dashed by the violence of the sea against the side of a cliff or beach ; this will effectually be prevented, as well as the danger of drowning, by a hammock stuffed with cork shavings : buoyant jackets may be made upon this principle at the expense of a very few shillings.

ground, in such a position with regard to one another that they form a triangle, and from a wide base meet close at their heads, which are to be lashed firmly together, and have a gun-tackle purchase made fast to them. As soon as communication has been effected with the distressed vessel, by the rope carried out by the shot from the mortar, the crew will haul on board by it from the shore a large rope, and also a tailed block, rove with a smaller rope, both ends of which are to be kept on shore. When these are made fast on board, the large rope, after it is passed through the roller at each end of the cot, is to have the gun-tackle purchase fast to the stakes lashed to it. The ends of the small rope are then to be made fast one to each end of the cot, and the cot travelling by the rollers on the large rope is to be worked by the bite of it to the ship, and back by the people on shore.*

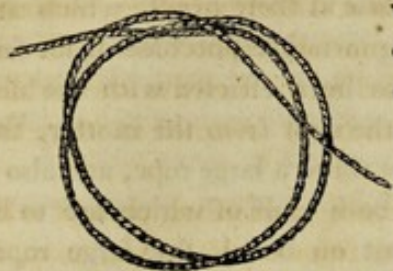
The gun-tackle purchase is for the purpose of keeping the rope, on which the cot runs, at a proper degree of tension. It is to be most carefully attended to, for, if it be slackened, as the vessel rolls out towards the sea, the liability of the rope to be broken will be prevented; and if gathered in, on the other hand, as the ship rolls in again towards the shore, the too great slackness of the rope, which would hinder the free passage of the cot, and plunge it more than is necessary in the water, will be avoided.

Another method of passing the crew to the shore, in the absence both of a boat and the cot, is by a grummet of rope, in the manner described in an extract from the narrative of Lieutenant Woodger of the Royal Navy, on the 20th of January, 1814.

“In firing the second shot from the top of the cliff, I had the satisfaction of throwing the line over the vessel, which was full two hundred and thirty yards from the cliff. On signs being made to the people on board they hauled a sufficient quantity of the line on board for the bite to return to the shore, they then made a hawser fast to it, that was fortunately lying abaft: as soon as the people on the cliff had hauled the said hawser on shore and tort from the vessel, I cut a piece of the hawser off, and made a grummet on the hawser with it, sufficiently large for a man to sit in, to which I made the bite of the line fast: on waving to the people on board, they hauled the grummet along the hawser to the vessel, and one man got into it at a time, and was hauled on shore hanging on the hawser; and the grummet was hauled to the vessel again, by which method the whole of the crew, consisting of five men and two boys, were saved. The vessel immediately afterwards broke up.”

* If there are several persons at hand, the large rope may be hauled tort by them without using the purchase-tackle.

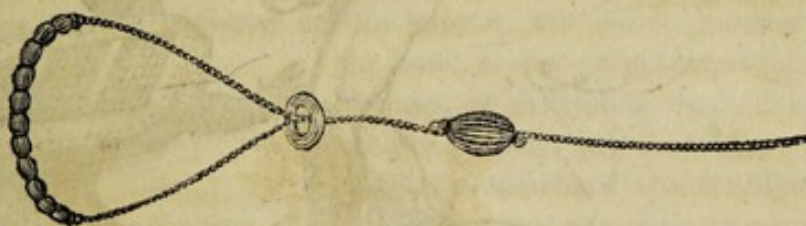
In case of shipwreck, under circumstances of great destitution, in which none of the modes above described can be put in practice, the crew, on receiving the rope thrown on board by the shot from the mortar, will secure it; and then, drawing on board so much as will fully reach from the vessel to the shore, make a clove hitch in it, like the figure; which is to be put over the shoulders and arms of the person to be brought on shore, and drawn taut, close under the arm-pits; care being taken to fix the knot on the breast-bone, as described in the annexed design.



Terrible as this alternative may appear, its success may be relied on. NINE FOREIGNERS have been saved by it in cases of extraordinary peril on the coast of Norfolk; and recently, the MASTER, FOUR SEAMEN, a BOY, and the MASTER'S DAUGHTER, were brought in safety to the shore by it, at Winterton, in the same county, just before the vessel went to pieces.

The attempt to swim on shore, without some such aid, is almost certain destruction to the strongest and most skilful swimmer, although he be furnished with corks or other buoyant substances; for if he venture, he will most probably either be killed by the violence with which he is dashed by the waves against the beach, or drowned in struggling against the regurgitation of the surge.

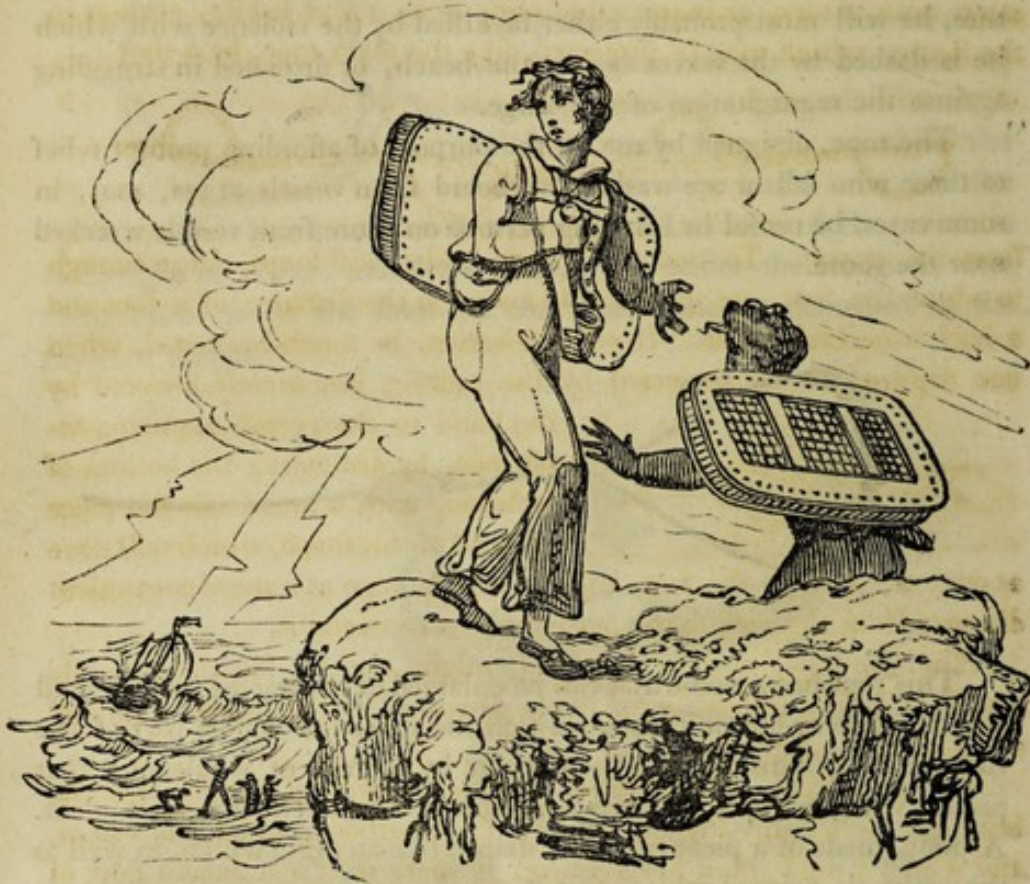
The rope, designed by me for the purpose of affording prompt relief to those who fall or are washed overboard from vessels at sea, may, in some cases, be useful in bringing persons on shore from vessels wrecked near the shore.



This rope has a noose that can be enlarged or contracted by the small wooden slide or button through which the spliced or double part of the rope passes. This noose is kept open by a piece of whalebone that passes, with the rope, through a number of corks which keep it afloat. A buoy, made of a piece of wood, shaped like an egg, (which, as well as the corks, is painted white, that it may be better seen in the dark), is fixed on the rope, that when grasped by a person in danger is prevented by it from slipping through his hands, as might happen with a common rope. By this buoy too he can support himself while he is putting the noose over his head and arm; having done which, he can secure himself in it by pulling the slide or button to him, and may be drawn to the ship, and up the ship's side, without any injury; the corks performing the additional service of protecting him from being galled by the rope.

A mortar, so small as to be with its apparatus very light and portable, will afford the great benefit of hastening the moment of communication in cases where the vessel in distress is stranded at a considerable distance from the depôt of the larger mortar and apparatus, (which cannot be moved with so much expedition) and is every minute in danger of going to pieces. If any of the crew be at all able to assist themselves, they may draw on board to them, by the log-line that is projected to them from this small mortar, a rope strong enough to perform all the subsequent process requisite to their escape. This mortar may be dispatched with its apparatus by a man on foot, as was shewn before a committee of the House of Commons on the 14th of May, 1814.

The engraving beneath represents the man as he was equipped with the small mortar and every appendage to it.



He had slung at his back, in the manner of a knapsack, a frame with conical pegs, (as before described, but of proportionably reduced size) on which two hundred yards of log-line were wound, a two-pounder mortar in a socket hanging by a leather strap across his shoulder, and a box, belted round his waist, containing gunpowder in cartridges, prepared tubes, a bottle of sulphuric acid for firing them; and pieces of primed port-fire, and slow-match. The whole weighed not more than 32 lbs. The mortar, charged with two ounces of powder, was fired, and projected the shot with the log-line attached to it upwards of 120 yards.



The powers of a small mortar may, however, be considerably increased by an additional weight given to the shot by the shape here represented. This shot has been used with much success. It has been ascertained, by experiment, that the range of the mortar with it is considerably more than a spherical shot of the same calibre.

When it is made to fit the mortar as closely as possible, a great increase of velocity is gained, by the decrease of what is called the windage; and when it is wedged in, the range will be greater still. This conse-

quently adds to the recoil, and care should be taken not to stand behind the mortar.

The best method of rescuing persons from vessels wrecked under a steep promontory, or inaccessible cliff, is by a rope ladder, such as in the figure, which may be projected, like the plain rope, by a shot



from the mortar. To make this rope ladder, stiff loops, large enough to admit the foot, are spliced into a rope at the distance of a foot and a half from each other. It may, however, be much improved, when not required to be projected by the mortar, but merely lowered by



the hand to the person requiring assistance, by distending the bottom of each loop with a broad and flat piece of wood of this shape, which will serve

at once as a rest for the foot, and to keep the rope at a more convenient distance from the rock to the person who is to ascend it.

The life-rope, already described, might also be found eminently useful in giving assistance to vessels driven in storms under high and steep parts of the coast.

It often occurs, when a vessel can no longer keep the sea, that she bears up, as her only chance of safety, for a harbour, which she makes, and which would afford her a refuge, if there were a sufficient flow of tide at its entrance; but, unfortunately, not finding depth of water enough for her draught, she grounds on the bar, and offers not the least distressing species of shipwreck.

Although boats can readily go from the harbour with the ebb tide, yet they are not able to approach the distressed vessel, from want of resistance to the blade of the oar amidst the broken water of the breakers that surround her; and, near as they may approach to the vessel, assistance is as far off as ever.

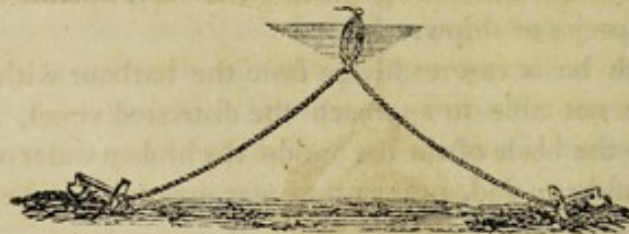
My attention was consequently drawn to the construction of a small piece of ordnance to be fixed in the bows of boats, with a crate by its side, containing a line to be carried over the vessel by the shot projected from the mortar. In proceeding on this service, the mortar should be loaded and primed ready for instantaneous application, and, together with the crate, should be covered with a cloth or tarpaulin, that the ammunition may not be wetted by the spray of the sea in the one, or the line displaced in the other. The man who steers will watch the moment when the boat is stem on with the object, and give the word to the person attending in the bow for that purpose, who will instantly fire the mortar. Communication thus gained, the boat may be hauled by the rope to the vessel, and the crew saved.

The occurrence of shipwreck, at a distance from the land, which, unhappily, I have but too often witnessed, made it evident that great benefit would result from the discovery of a plan, by which a boat might at any time be gotten off from a flat beach with facility and certainty to the relief of the sufferers. The importance of the design was still more deeply impressed on me, by the endless relations which



I heard of such instances of shipwreck, from persons resident on the different parts of the coast, that had happened, year after year, to the destruction of immense property, and, what is far more lamentable, the loss of great numbers of most useful lives.

I look back on no part of my various designs and efforts for stopping the waste of human life, by maritime accidents, with more satisfaction (nor do I consider any of greater importance) than my successful attempts to devise a plan of relief from shipwreck under such horrible circumstances. For this purpose, two mooring anchors, at least 60



yards from each other, are to be laid out parallel with the shore, some distance beyond the point at which the waves break in surf. These are to be connected by about forty fathoms of strong rope or hawser, the slack of which is to be suspended by a buoy fixed on the centre, as in the plate.

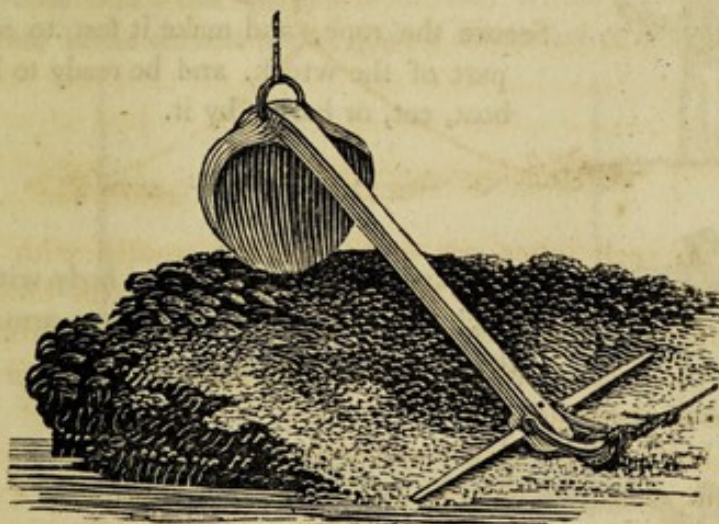
The buoy should be of sufficient size and power to keep the rope always suspended, as well to prevent it from being chafed on the bottom, where the bottom is rocky, as from being bedded in sand, where the coast is sandy. The liability is so great in the latter case, that the experiment of having a hawser constantly out, made fast to an anchor in the offing, was unsuccessful, the rope, when its service was required, having been inextricably buried in sand.

In laying out this apparatus the exact depth at high water of the place where it is to be fixed, should be ascertained; and the slack of the rope between the anchors so proportioned, that the buoy may appear above water at that point of the tide, and yet be unable from want of more rope to rise any higher; otherwise, on dropping with the falling tide, it will let the rope too much on the bottom.

For rendering this apparatus conducive to getting off a boat from a flat shore in a storm, when attempts by the mere power of the oars would be fruitless, bring the mortar to the beach, with the rope with the barbed shot (described above) attached to it laid ready in the basket, or oblong wooden frame. The barbed shot is to be projected over the rope joining the anchors from the mortar, laid at as low an elevation as is consistent with a sufficient range; for the lower the elevation, the less will be the parabola or curve, described by the flight of the shot, and, consequently, the less slack rope carried out.

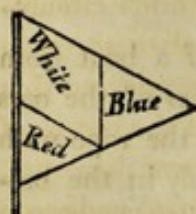
The moment the shot has fallen, begin to haul in the slack of the rope with great quickness, to prevent the effect produced on it by a rapid tide. The slack gathered in, let the rope be drawn gently towards the shore, that the barbed shot may catch and fasten itself on the rope between the anchors. When it has effected this, it will bear the force necessary to haul off a boat through the surf into water deep enough to admit of an effective use of the oars.

As cast-iron anchors will serve equally well for this purpose, and are much cheaper than those of hammered iron, I recommend that such should be adopted. I submit a representation of one weighing $1\frac{1}{2}$ cwt. which the Honourable Navy Board permitted me to get cast at the expense of the government for making the experiments.



When, from the loss of masts, or the fury of the wind under which no sail can be carried, or from having parted from her anchors during the gale, a ship is observed driving on shore, the point at which she grounds may make the difference of life or death to the crew. It

is, in such a case, of the last importance that some signal by those on shore should be made to the people in the vessel, by which they may be instructed to run aground at that point where greater depth of water, and other favourable circumstances, diminish the evil, and offer more probabilities of escape. The most simple signals for this purpose are



gestures of the human body; but a more conspicuous method is by a triangular flag of three colours (as in the figure), which, I propose, should be an appendage to the apparatus at every one of its stations. The appearance of this flag, fixed directly against the least dangerous part of the shore, would at once give hopes

to the crew, inspirit them to exertion, and point out to them the spot to which they are to endeavour to direct their vessel. Other signals may be made by different gestures of a man, who should place himself directly before the staff of the flag; such as the following, which the possession of these instructions both by those who are in charge of the signal stations, &c. and the masters of ships will make mutually understood.



Look out for the rope.



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



Make fast the rope round your body with a clove hitch, draw it close under your arms, and let the knot be upon your breast-bone.



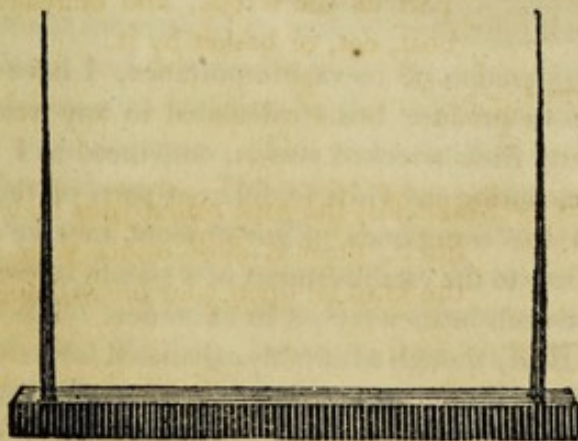
Prepare to jump overboard, and take care to clear the wreck.

Similar gestures by the people on board the vessel may serve as signals of reply that they are ready.

As shipwrecks frequently happen in nights, so dark, that it is impossible to discern the spot at which the unfortunate vessel lies, and consequently to take aim with the mortar; while the waves that break over her have driven the crew for refuge to the tops, or other circumstances preclude them from having any light by which their situation may be ascertained by those on shore; I should have considered that my plan left much to be desired, if I had not provided the means of enabling, in the darkest night, first, those on shore to discover the vessel, and take aim with the mortar; and, secondly, those on board to discern the course of the shot and rope, and the part of the vessel on which the latter lodges.



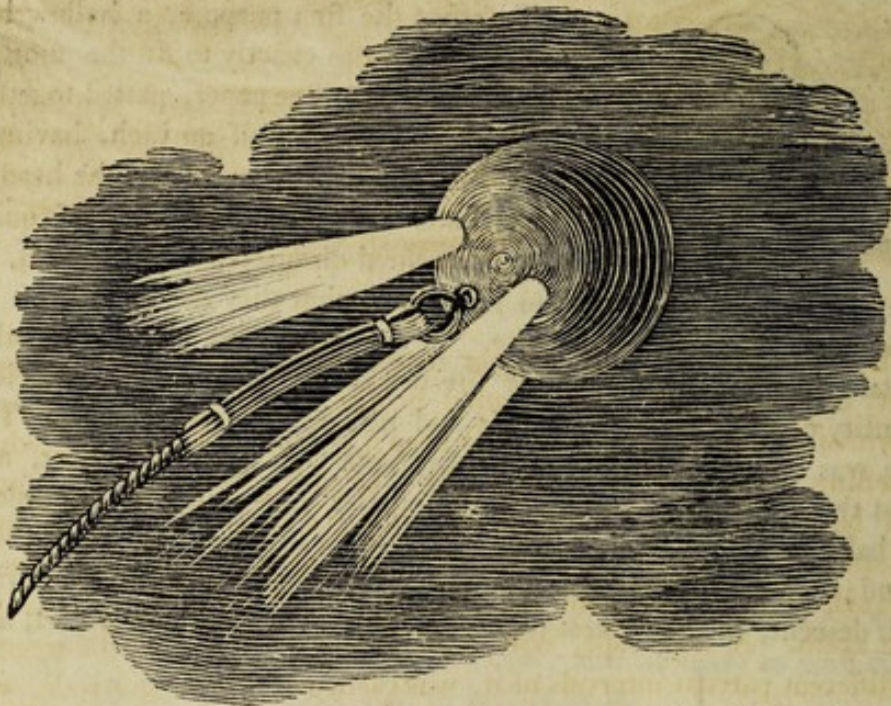
To effect the first purpose, a hollow ball (of such a size as exactly to fit the mortar) was made of cartridge paper, pasted together to the thickness of half an inch, having a hole at the top to receive a fuze, the head of which was drilled, and strands of quick match, at equal distances, inserted in it, so carefully as to make it next to impossible that they should fall out by accident and miss firing the fuze. It was filled with about fifty balls, containing what the makers of fire-works call stars, and a sufficient quantity of gunpowder to burst it and inflame the balls of stars. The fuze was so graduated as to communicate with the gunpowder, and burst the paper shell at the height of 300 yards. On its explosion, the balls of stars were scattered, and spread a brilliant light a great way round; and for nearly the space of a minute, which transpired during their descent, in the darkest night, gave a clear view of the object, and



afforded leisure to place a frame (like the figure) in exact line with the vessel, by which the aim of the mortar is then to be directed. This frame is made of a piece of wood 4 feet long, 9 inches wide, and 3 inches deep, (so heavy as to give a requisite degree of steadiness from its own

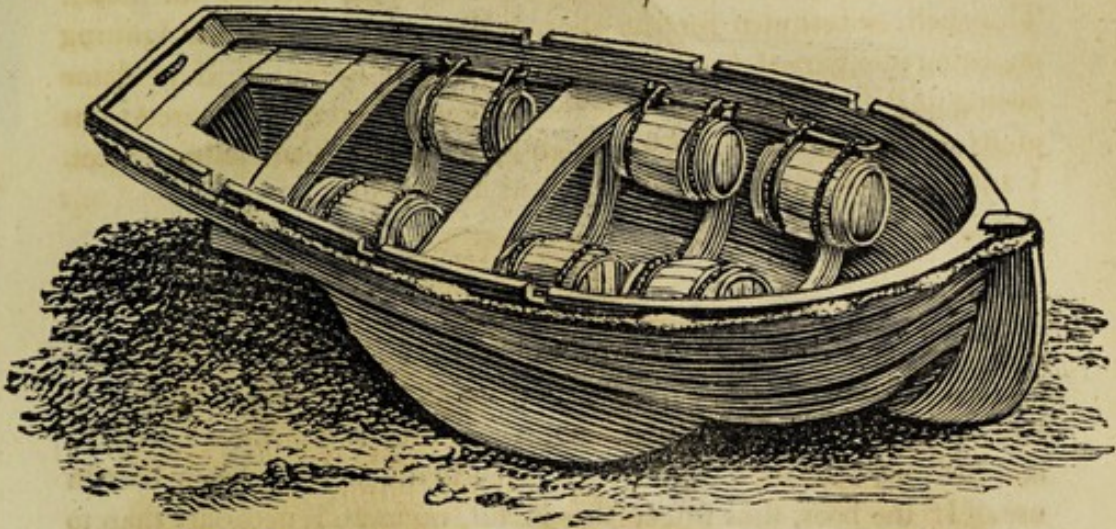
weight), with a slender stick at each end, in a right line with one another, painted white, that they may be more discernible in the dark.

To accomplish the object of enabling the crew to mark the course of the rope, and the place where it falls, a shell, with four holes in it on the side which has the eye, is to be provided. This is filled with a composition which, in burning, sheds a keen glare of light, and a fuze, prepared in the same manner with the fuze of the paper shell which I have already just described, is to be fixed in each of the holes. This shell, substituted for the shot, is fixed to the rope, and igniting on being discharged from the mortar, pours a torrent of vivid flame during its flight from each of the four holes, and gives the clearest sight of its course, the rope it draws with it, and every surrounding object. I subjoin a representation of this shell in its flight.



From a consideration of its vast importance, I have devoted much of my attention to produce boats calculated in any weather to rescue lives and property from wrecked vessels, convinced as I was, from my own experience, during my visits to different parts of the coast, (when honoured with the commands of government to take a survey of the coast, with a view to the establishment of a system of escape from shipwreck), that no such boats were yet in existence. The boat, generally called the Life Boat, though admirably calculated for particular services, is so large and cumbrous, that it is at times very difficult to convey it to the point of danger; and its unwieldy size exposes it so much to the force of the winds and waves, that to get it off from a flat beach in a storm is utterly impracticable. It differs also much in its construction from that particular form of boat which obtains in different maritime districts, to which, it is well known, those who use it are stubbornly

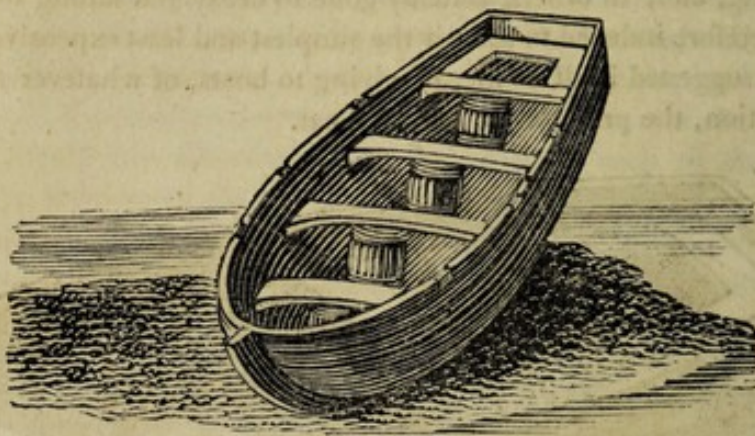
attached, and in which alone they possess skill and feel confidence. These and other causes have not only thrown the life boat into disuse, but have produced such a neglect of it, that, in some places, I found it decaying, and, in others, actually gone to decay and falling to pieces. I am therefore induced to submit the simplest and least expensive mode, that has suggested itself to me, of giving to boats, of whatever size and construction, the principle of the life boat.



To effect this (as in the manner represented in the engraving above) empty casks were lashed and secured in the boat to give it buoyancy, notwithstanding immersion; and to keep it in an upright position, while launching from a flat shore, or while beaching again, it was fitted with billage boards of equal depth with the keel. A piece of iron or lead was let into or made fast to the outside of the keel, which operated, if by any accident the boat was upset, to bring it instantly right again. A stout rope, with what is called a mouse by the riggers, on different parts at intervals of it, was carried round the gunwale, the stem, and the stern, and protected it from the ship's side, while lowering or when driven with violence by the waves against the vessel to which it went with assistance. The casks for this service should be strong and perfectly staunch. Those which have contained oil are to be preferred, for saturated with that fluid, there is less reason to fear the admission of water, from the contractions of the staves by the heat of a warm climate.* It will be prudent to have them every year repainted or smeared with tar. Finding, however, from trial, that the number of casks, employed in this method, gave more buoyancy than was needed, and that as two gallons of air are enough to support a man's body,

* Casks for this purpose, that are nine gallons in measure, may be purchased at three shillings each.

one cask, vertically placed (as in the cut below) under each thwart of the boat, would render it unimmergible, and that it was a more simple



and less expensive mode than the former, I gave it a decided preference. After this plan, it is but to place an empty cask beneath each thwart in an upright position, and secure it by two pins on each side, and the properties of a life boat are given to the most common boat in use. If the boat, thus fitted, should fill, no more is necessary than to pull the plug out, and the boat, rising from its less specific gravity, will let all the water through at the plug-hole; an injury, consequently, to its bottom, while on service, will be attended neither with danger nor inconvenience.

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