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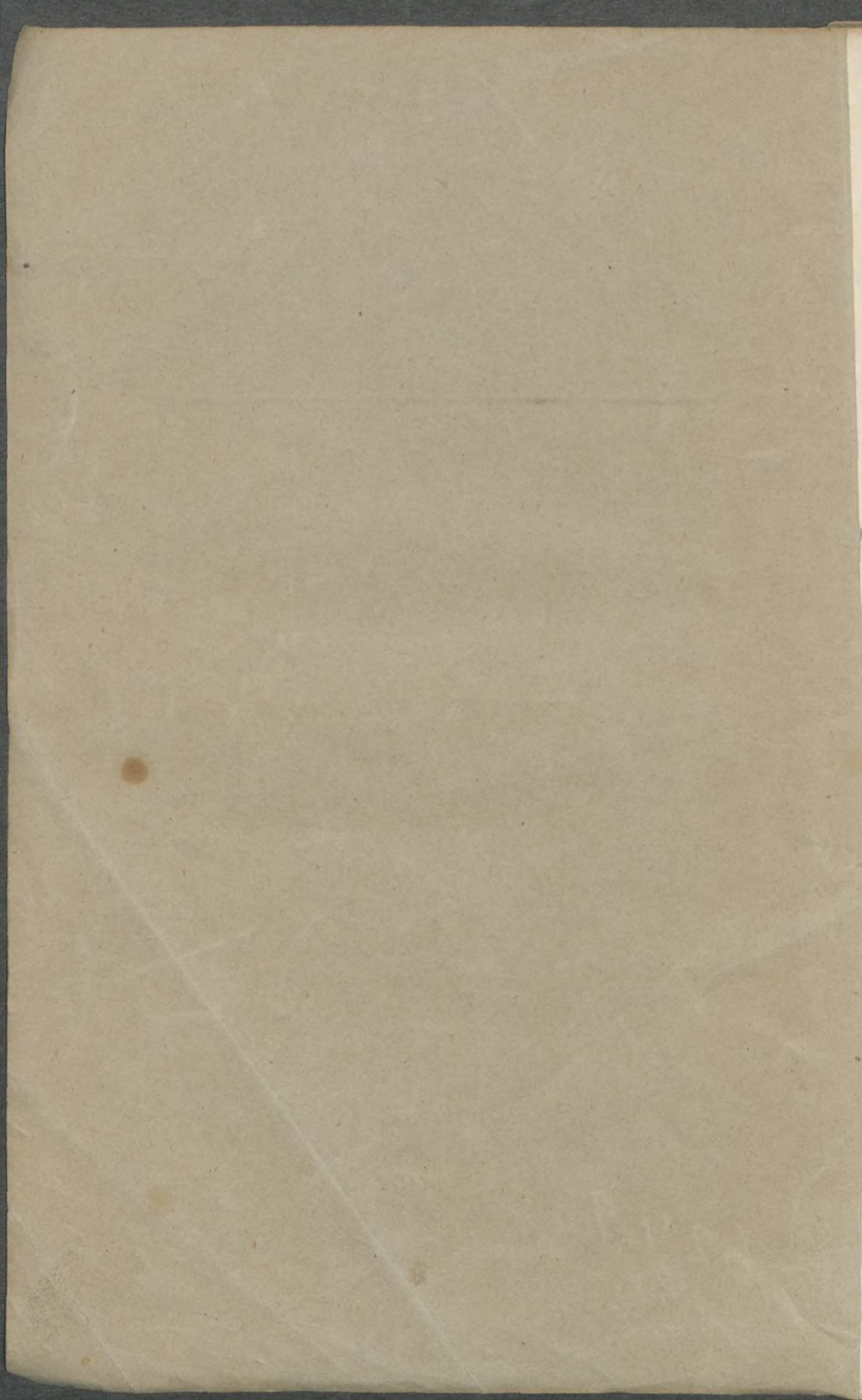
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A

LECTURE, OR ESSAY,

ON THE

MOST EFFICACIOUS MEANS

OF

PRESERVING THE LIVES OF SHIPWRECKED SAILORS,

AND THE

PREVENTION OF SHIPWRECK.

DELIVERED AT BRIGHTON,

FOR THE

BENEFIT OF THE SUSSEX COUNTY HOSPITAL,

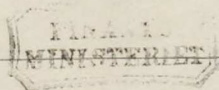
On the 23rd of October, 1813;

BY GEORGE WILLIAM MANBY,

CANDIDATE FOR THE PRIZE MEDAL,

In pursuance of the Will of Dr. FOTHERGILL, proved in the Prerogative Court, 24th December, 1813. 'To the Royal Humane Society of London 500*l*., the interest of which is to produce an Annual or Triennial Medal for the best Essay or Discovery on the following subjects:—

- 1st. On the Prevention of Shipwreck;
- 2d. On the Preservation of Shipwrecked Mariners.'



LONDON:

PRINTED BY WILLIAM CLOWES, STAMFORD STREET.

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LONDON:
Printed by WILLIAM CLOWES,
Stamford-street.

TO
HIS MOST EXCELLENT MAJESTY
KING WILLIAM THE FOURTH,
§c., §c., §c.

WHOSE LONG ASSOCIATION WITH BRITISH SEAMEN HAS MADE HIM BEST
TO APPRECIATE THE MERITS AND IMPORTANCE OF THIS
MOST VALUABLE BRANCH OF THE
COMMUNITY, AND WHOSE GENEROUS AND NOBLE HEART IS EVER
OPEN TO THE WELFARE AND HAPPINESS OF EVERY
DESCRIPTION OF HIS SUBJECTS;

THIS LECTURE,
ON THE MOST EFFICACIOUS MODE OF AVERTING THE DANGER OF
SHIPWRECK, AND OF SAVING THE LIVES OF THOSE
UNFORTUNATELY EXPOSED TO IT,

IS MOST HUMBLY DEDICATED
BY HIS DUTIFUL SUBJECT AND SERVANT,

GEORGE WILLIAM MANBY.

A D D R E S S.

My anxiety to promulgate the result of twenty-three years' labour to mitigate the distresses so often attendant on storms, proceeds from other views than the mere demonstrating that peculiar method which has originated in England, and is not only established generally on the coast of this kingdom, but on the shores of foreign countries, and stamped with my name as its author, for effecting communication with vessels stranded on a lee-shore, in the most violent gales of wind: also, the means of enabling life-boats, or other boats, to be forced through the most raging surf by people from the shore to the assistance of vessels in distress at a distance from the land, which I have likewise had the happiness of producing, and bringing into use. As to the former object, I am proud and thankful to be able to say that success has already attended my plan in seventy-six cases; and with regard to the utility of the latter, in my mind, scarcely less important service, I am most highly gratified, because it has overcome a difficulty attendant on a flat shore that had hitherto defied the greatest exertions, and has proved able to effect with certainty and facility the forcing boats through the most raging surf, thereby not only saving the LIVES of persons who otherwise must inevitably have perished, but also the VESSELS and their CARGOES.

Pleasing as these considerations are, I will not deny that I have still more personal, and consequently more interested motives in laying these subjects before the public. I feel that the thread of my existence is already far worn, and I am therefore desirous, before it is entirely broken, solemnly to declare, in the presence of this distinguished meeting and my country, and to afford every proof in my power for the truth of the fact, that the invention, as well as the promulgation of the plans in question, originated wholly with myself. A declaration so bordering upon egotism will, I hope, be excused from the attacks made to wrest

from me the honour of the invention. I only rejoice to find, that among my numerous opponents no one has ever been so hardy as to deny me the credit of bringing the plan for saving shipwrecked sailors into use: that, in short, of the 549 individuals who already owe their lives to it, every one would have been lost if it had not been for the perseverance, energy, and exertion on my part, which pointed out to the nation the means of saving our fellow-countrymen, and roused a slumbering population to come actively forward in the great cause of humanity, and establish institutions for such object. But feeling that my veracity is at stake, and feeling the necessity, as I before observed, to establish my pretensions; from being told, first that Mr. Winn, then Lieutenant Bell, and many more, are entitled to the merit of the suggestion, I consider myself called upon thus boldly and unhesitatingly to claim my own, and not to subject myself, either while I live or after my death, to the despicable suspicion of dishonourable fraud. God forbid that I should rob any man of a tittle of his merits, and those of Mr. Winn and Lieutenant Bell I am among the first to admit: both of them preceded me in point of time, but I borrowed from neither. Mr. Winn was a worthy seaman at Yarmouth seventy years ago: his plan was ingenious, but not feasible; it was altogether different from mine, as it related only to vessels driven close to the shore. He wished, further, every ship to be provided with a rope studded with corks at set distances throughout its whole length, and a buoy at the end. This rope was to be thrown overboard from the stranded vessel, and when it floated near the shore, the persons there assembled were to secure it by means of hooks to be cast by hand, and thus form a communication.

To illustrate his plan, he caused an engraving of it to be published; but the impracticability of it soon consigned it to oblivion, and the print is now only to be found in the portfolios of the curious.

A somewhat similar plan was attempted from a ship-of-war (*Otter*), in Yarmouth Roads, about the year 1740, (as stated in the *Gentleman's Magazine*) by means of a paper kite, with a view of being applied for the preservation of shipwrecked mariners; most sincerely I wish that such an ingenious plan could have been effective, or that the means of saving human life should be as numerous and efficacious as the warmest philanthropist can desire; but, on the other hand, there is no shoal so perilous, nor against which we ought to guard with so much unceasing care and caution, as that

of fallacious experiment; the meteor which leads the unwary traveller into a bog is not half so dangerous, because its effects are more limited in their operation, and by no means equally fatal in their consequences.

Lieutenant Bell was a man whose name will hold a high rank as long as inventive talent is appreciated: I well remember him, when I was a cadet in the Royal Military Academy at Woolwich, upwards of half a century ago, and his ingenuity even then, at my early age, I beheld with admiration and delight: he certainly hit upon the same idea as myself, of forming a communication between the stranded vessel and the shore, by means of a rope projected from a piece of ordnance. But, with regard to him, the difference of the plan submitted by that officer, and that brought into use by myself, is the difference that is found often to exist between a specious theoretical idea, and a confirmed practical truth: I can, however, safely aver, that I never heard of his invention till I had done the self-same thing myself; and there was this essential difference between us:—That his idea was always confined to firing from the ship, which is in itself impracticable in a violent storm, from the following circumstances: the waves dash with such fury over vessels driven on a lee-shore, that the seamen are often forced to ascend the rigging, and lash themselves even there; with every billow that rolls in, the deck is under water; the vessel is generally thrown on one of her sides, and the position of the deck consequently almost vertical; all these circumstances present insurmountable obstacles to the men on board preparing the mortar for projecting the rope to the shore, protecting the gunpowder from moisture, preserving fire to discharge the mortar; lastly, laying or keeping the rope in that exact order, so absolutely necessary to success. I shall therefore conclude this subject by observing, that no attempt was ever made to carry this project into effect; although the plan was published by the Society for the Encouragement of Arts, &c. in their Transactions for 1791, detailing the granting a reward for an experiment made on the river Thames.

Before I proceed further, I shall first state some casualties of shipwreck on the coast, where the plans in question have originated. It is on record, that on a dreadful night in the year 1692, upwards of two hundred vessels were driven on shore on the coast of Norfolk, and more than 1000 persons perished; many other instances are also upon record,

when some hundreds of lives have shared the same fate in one gale. In the memorable New Year's storm of 1779, I have had it related to me by those who witnessed the fact, that forty-one vessels were wrecked on the sands near Yarmouth, and almost all on board perished. Many other old inhabitants of that part of the coast have likewise testified to me, from their own recollection, and from what had been handed to them by general tradition, that never, from the earliest period of navigation, had a single winter passed without exhibiting the appalling havoc of storm in a great loss of lives from stranded vessels, previous to the production of the plan that arose from the following circumstances.

During four winters after my appointment to the charge of the Barracks at Yarmouth in 1803, I resided near the beach, and was witness each year to the loss of vessels and their crews while within a few yards of the shore and safety. But in the dreadful gale of February 18, 1807, I beheld, when his Majesty's gun-brig *Snipe* was stranded, no less than sixty-seven persons perish, within fifty yards of the shore, from the impossibility of getting any communication by a rope or line with the vessel, though every attempt was made for several hours to rescue them by the methods then in use, and Mr. Winn's was among those tried. On the close of that mournful event, I vowed, if Providence spared my life, I would apply myself to discover some means by which not only the sufferers might have been rescued, but similar occurrences prevented in future. Many months produced uniform disappointment in my attempts; all the modes by which a rope might possibly be conveyed from the distressed vessel to the shore were tried, and all were rejected, on finding that nothing, having a line to it, however buoyant, would come to the beach, from the sweep of the sea taking the bite or stack of the line. I then entertained the idea of casting a weight, with a line attached to it, from the shore to the vessel, either by mechanical force, or that of gunpowder, and I attempted the projecting of a shot with a chain from a carronade; but finding chains invariably to break from the want of a proper and immediate connecting medium, and that stout rope, although saturated in antiphlogistic substances, was consumed, and thus defeated my efforts in innumerable experiments, I began to despair of success. At last, procuring a piece of ordnance (a royal mortar) better adapted to the purpose, I hit upon an incombustible medium of connexion

between the shot and line (platted ox-hide), which did not, as all ropes before had done, burn at the discharge, and thus succeeded in effecting the object for communication.

From that time not a single life has been lost on that part of the coast, where many, as before stated, had annually perished. I should observe, the important fact has also been confirmed to me, that, since its adoption, crews have felt confidence in their safety, and do not, as formerly, cut and run to the shore for self-preservation in violent gales of wind; and I can add with truth, not only from what has been related to me by persons on board vessels in cases of great danger, but from what has come under my own observation, that many vessels with valuable cargoes have been saved entirely by the confidence with which the plan has inspired the crews.

To leave this proem, I shall now turn to the subject upon which I have more especially the honour of addressing you.

The preservation of human life is certainly the most interesting pursuit that can engage the attention of man, and if anything can possibly give greater importance to such an object, I may be allowed to say, that it becomes a matter of increased consideration in this country, when the point in view is to relieve our fellow-creatures from death in its most appalling form, arrayed in all the horrors of conflicting elements.

The rescuing of mariners from shipwreck, without weighing its importance in the scale of humanity, imperiously claims our attention, as having peculiar reference to the mariners of Britain, who are the bulwarks of her strength, and the protectors of her glory; whose ardent spirit, daring intrepidity, and contempt of death and danger, have so often hurled back upon her foes their boasted menaces, and advanced our naval FAME above that of every nation now existing. Let us not be unmindful how many blessings have been insured to us by them, and that it is through their energies that our commerce has been increased to an extent unprecedented both in the annals of our own country, and of other rich and mighty nations.

The task I have undertaken is one extremely difficult to explain by language merely; I shall, therefore, in order to point out the means employed for averting the perilous cases referred to in this Lecture, and to make the uses of the apparatus clearly understood, and more generally available, elucidate my system by submitting to your inspection models explanatory of each part of the service; and, as I proceed, will

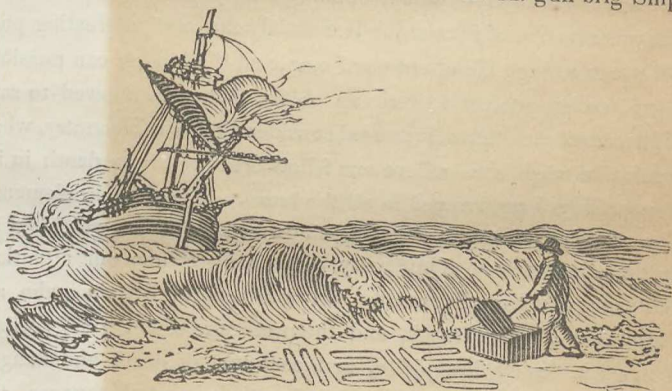
endeavour to illustrate their application and use, as in actual cases of difficulty and danger.

Having now closed my address, I shall proceed to the immediate object of the Lecture, and shall divide my subject under the two following heads:—

FIRST, the construction of apparatus for effecting communication with vessels stranded on a lee-shore, with directions for their uses in preserving the lives of the people on board during the LIGHT of day, and also the extreme DARKNESS of night.

SECONDLY, the apparatus requisite, and method of its application, for affording assistance in the most violent storms to vessels in distress at a distance from land, as well for the PRESERVATION of LIFE and PROPERTY, as the PREVENTION of SHIPWRECK.

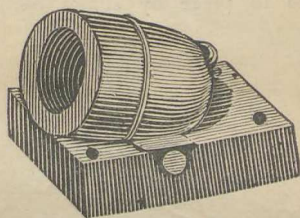
A vessel stranded is one driven on shore, like the one here shown; and bears a resemblance to the situation of H. M. gun-brig Snipe,



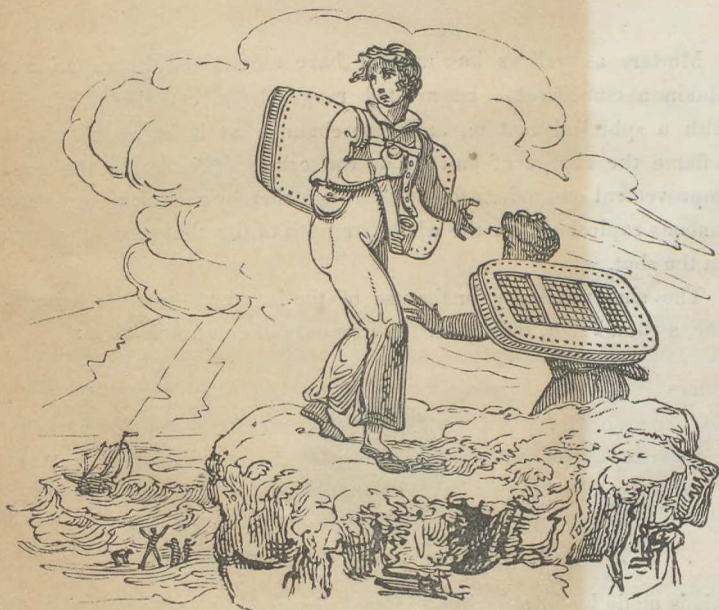
which will serve also to show the difficulty of giving assistance in a violent storm by manual exertion to throw a rope by hand against a furious wind; it will point out at the same time the impracticability of forcing a boat by the power of oars over a high raging sea, and the impossibility of applying the mode of relief from the ship to the shore. It may be proper, before I proceed further, to state, a rope projected over a vessel, and falling on the rigging, is termed 'communication;' and I shall now endeavour, by a progressive explanation of my plan, and the illustration by models, to point out the means that have been successfully employed to effect this important object.

The pieces of ordnance required for this service should be as light in their construction as the purposes for which they are intended will

admit of—at the same time of sufficient power. However, portability must be considered the very first essential in this service; a brass $5\frac{1}{2}$ -inch mortar, will project a 24-pounder shot with a $1\frac{1}{2}$ -inch rope attached to it, the distance of 200 yards and upwards against the most powerful wind; the mortar on its wooden bed weighs about 3 cwt., may be carried on a hand-barrow by two persons, with ease. A mortar of this description will give an adequate power to haul off a boat to a stranded vessel, when the crew are unable to assist themselves. The application of a small and very portable mortar of this kind

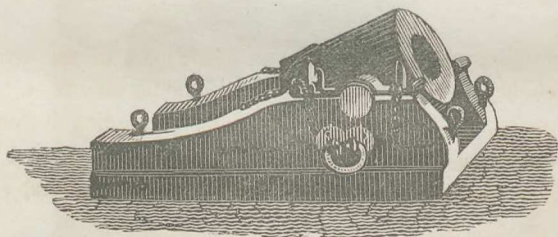


offers considerable advantages, by facilitating communication when the stranded vessel is in momentary danger of going to pieces, and parti-



cularly when the crew are enabled by their health and strength to profit by the cord that is projected to the wreck, for by a cord a rope may be conveyed, and by that rope a hawser or cable; it may also be expeditiously dispatched by a man on foot having a frame containing a log or lead line coiled for immediate application slung as a knapsack, with a small mortar in a socket across his shoulder, and a pouch belted round his waist, containing ammunition, &c

A howitzer with its carriage as here shown has been much approved for the service, and, even when of large construction, is conveniently removed from place to place by slings, similar to those used by brewers.



Mortars as well as howitzers, I have ascertained by experiment, obtain a considerable augmented range, by a cylindrical chamber with a spherical bottom, and ante-chamber at its extreme base, to inflame the charge of powder at the centre, (similar to the great improvement on modern fowling-pieces,) thereby producing an instantaneous explosion; for the whole strength of the charge to act at once on the shot.

The shot necessary for the use of the larger mortars are two; the one, a round shot, merely for the purposes of communication:



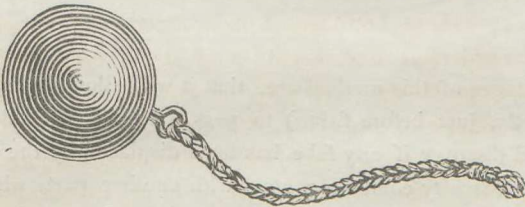
this is made by introducing a jagged piece of iron, with an eye at the

top, into a hollow sphere, securing it with boiling lead, or by drilling a hole through a solid ball, and passing through it an iron with an eye at the top, taking care it is well riveted at the bottom; the other, a barbed shot,



intended to give relief by hooking in some part of the wreck, and securely holding to whatever it affixes, for hauling off a boat.

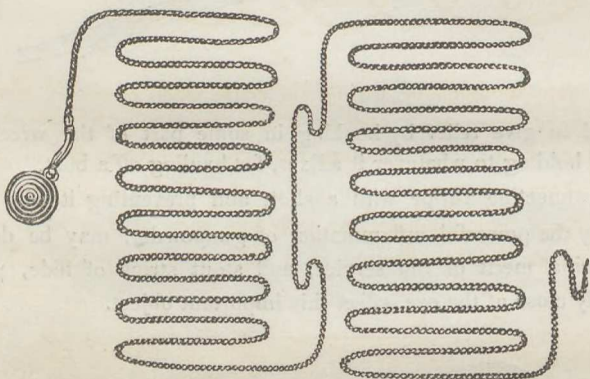
The connecting a rope with a shot, and preventing it from being burnt by the powerful inflammation of gunpowder, may be deemed the principal merit of the service, and stout strips of hide, plaited extremely close at the eye, effect this important object.



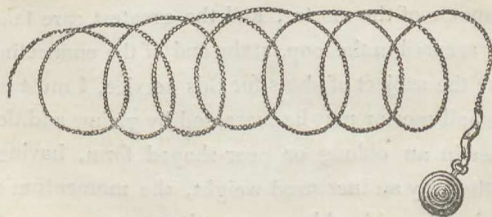
The hide should be kept pliant by moisture, and be at least two feet beyond the muzzle of the mortar, and the greatest care taken that the rope is firmly secured in the loop, at the end of the connecting medium. Before I leave the subject of shots for this service, I must observe, the powers of a small mortar may be increased by giving additional weight to a shot either in an oblong or pear-shaped form, having found by experiment, that, by an increased weight, the momentum of the shot over the line does considerably augment its range.

The rope for the service should possess *PLIANCY*, *strength*, and *durability*. The first is required that it may obey, without obstruc-

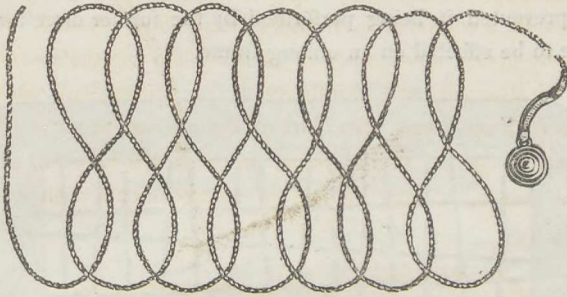
tion, the violent impulse occasioned by velocity of flight in the shot; and so indispensably necessary is this pliancy, that if it be interrupted even by a single kink, from its being *hard* twisted, the rope will assuredly break, even when of considerable circumference; the necessity of strength and durability is so self-evident, that it is needless to treat on them. No part of the service requires so much attention as the laying of the rope; if the beach be even, and free from large stones, it may be laid in compartments with certainty, thus:



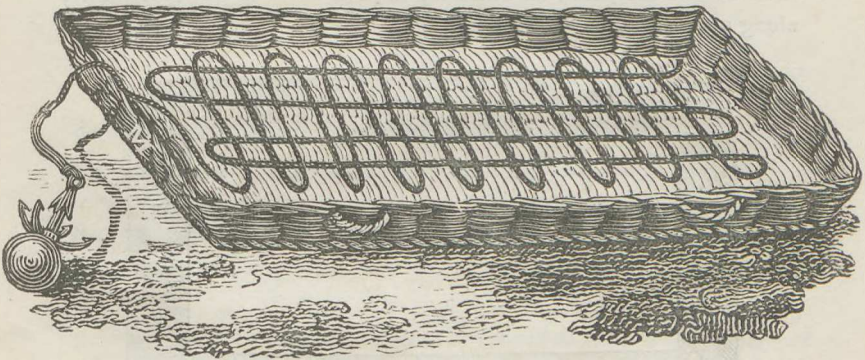
The advantages of this method are, that it will allow the eye rapidly (yet correctly, just before firing) to pass over the different compartments, and discover if any fake has been displaced by the storm, or has by any casualty come in contact with another part, which would at once defeat the effect by breaking the rope. It may also be coiled in the manner used in the whale-fishery, thus:



and in this method, termed chain-faking.



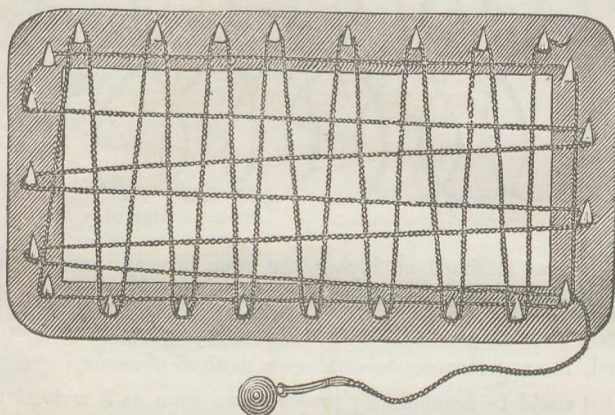
As all these methods of laying the rope occupy time to place it with the care necessary; and as it has repeatedly happened that vessels, very soon after grounding, have gone to pieces, and all hands perished, it was necessary to produce a method of arranging the rope, so that it could be immediately projected as soon as it arrived at the spot. None proves so effectual as a rope brought ready laid in a basket,



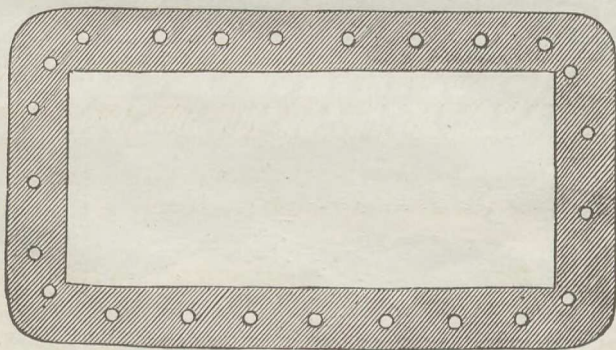
and that none is so SIMPLE, PORTABLE, of such SMALL EXPENSE, and so EFFECTUAL, the testimony of repeated practice has confirmed. One or more ropes may be laid on the same basket over each other.

As the need of assistance in winter is so much more likely to be required in the NIGHT than day, from its greater length at that season, and supposing the first attempt to throw the rope from the basket over the vessel should fail, difficulties might occur, from the want of LIGHT

to relay the rope with correctness ; it became therefore necessary to render it practicable in the dark, particularly where rugged or uneven ground prevented it being performed by the former directions : it is therefore to be effected on an oblong frame,



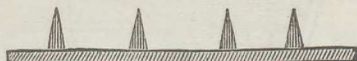
having, at equal distances round its edge, conical pegs, tapering from their base to the point, on which the rope is faked in tiers, alternately along and across, as shown here.



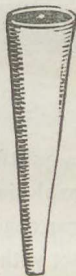
This faking, the hand, guided by the pegs, will perform with the utmost correctness, in darkness as well as by day. The rope being all faked on the frame, and covered with a lid, having corresponding holes in it to receive the points of the pegs, and secured by lashings or straps on the sides, when this apparatus is called into use, nothing is required but to insert it, unbuckle or untie the side fasten-

ing, lift up what was the bottom part, and draw out the pegs, leaving the rope ready laid on what before was the lid, but which then serves as a platform.

SECTION OF THE FRAME.



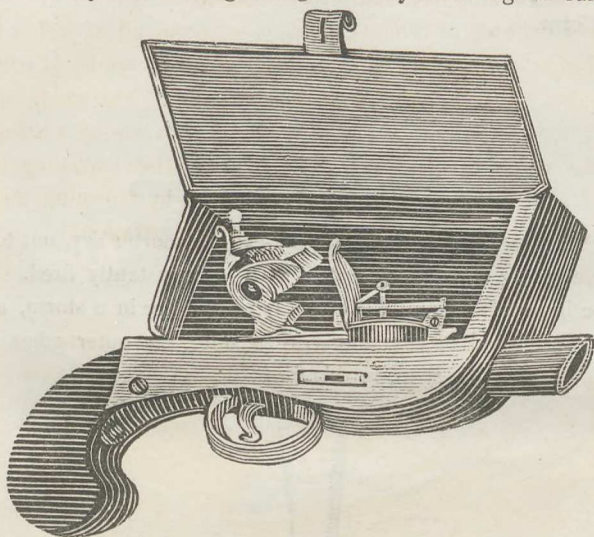
The greatest care must be taken to keep the mortar dry, not to load it till everything is ready, and it is then to be instantly fired. As it would be impossible to prime it with loose powder in a storm, a tube may be constructed of common writing-paper, the outer edge being cemented with a little gum, in this form,



being filled with finely-powdered or mealed gunpowder, made into a paste with spirits of wine; and when in a drying state, if a needle is thrust through the centre, and the hole it makes left open, when inflamed, a stream of fire (from the atmospheric air) will rush with great force down the aperture, and explode gunpowder at a considerable distance.

Great difficulties having been experienced to keep a match lighted to fire the mortar, (on which all depends,) a pistol was fitted up with a tin box over the lock, to protect it from the wind and rain, 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. Two occurrences of this sort induced me to inquire whether, by a chemical process, instant and certain ignition might not be produced, to prevent similar accidents: one was occasioned by my pistol getting wet, from the sea washing over it, and

the whole crew of a vessel nearly perished in consequence ; and the other, from my match being extinguished by the deluge of rain falling

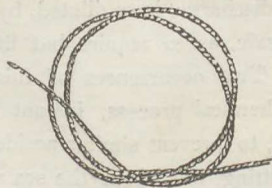


at the time, and consequently a portfire could not be lighted. To prevent future disappointments, explosion is to be effected by a mixture of oxymuriatic of potash and sugar candy, which produces immediate inflammation on coming in contact with sulphuric acid.

It is next necessary to explain the application of the various apparatus to the purposes of gaining communication with a distressed vessel driven on a lee-shore, and for the rescue of the crew.

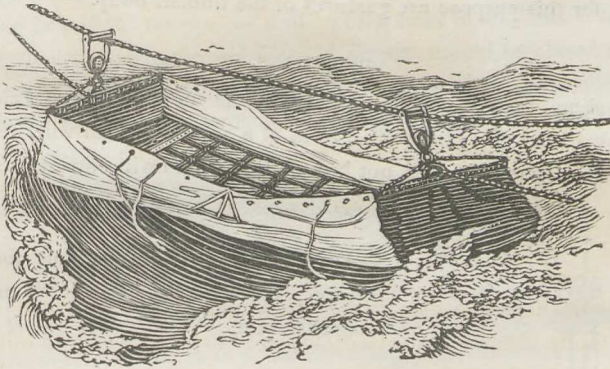
When the rope is thrown on board, the crew, if not extremely exhausted, will at once secure it to some part of the wreck ; and, indeed, it is almost unnecessary to offer anything else than a rope, as the inventive genius of a sailor would, in most cases, supply every other deficiency.

The securing of a person in a clove hatch thus,



appears a dreadful alternative, but its success has been confirmed in saving upwards of fifty men and several women.

The other methods of bringing persons to shore, all of which have succeeded after communication has been effected, are by a cot, for timid females, children, sick, wounded, or infirm. The whole of the bottom of the cot is cut out, and replaced with strong netting, to prevent the water from collecting in it; for, when travelling backwards and forwards, it might endanger the lives by drowning, and, by adding much weight, would retard or destroy its operation.



The use of a hammock stuffed with cork is for protecting persons from injury when dashed among rocks or upon stony beaches.



The girdle is intended for persons on board, who, from fear or agitation, are deprived of confidence of being brought to the shore in safety by a clove hatch. It is filled with cork parings, in the form here represented, and is found effectually to prevent the wearer from all danger or possibility of drowning.



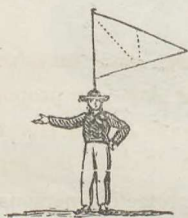
The snatch block with a sling is for bringing the people in safety from the stranded vessel, and will be hereafter exemplified.



Before I exhibit the application of these means of preservation, I must point out the code of signals I have devised between the shore and the ship for a mutual understanding, as the raging storm precludes all possibility of oral communication; and the most simple signals for this purpose are gestures of the human body.

DIRECTIONS.

The signal man or person in charge of the mortar will stand clear of the crowd, and place himself in front of a small flag, and will, according to the service required, put himself in the following attitudes:—



No. 1.—Are you ready—or look out for the rope; we are preparing to launch a boat to you.



No. 2.—Secure the rope; bend a warp or hawser to it, for us to draw it on shore for the boat—or for us to send you a stout rope, to be made fast to some firm part of the wreck, that we may haul off a boat for bringing you in safety to the shore.



No. 3.—Haul away—to receive a stout rope, snatch block with traveller, for working a cot, hammock, or sling.



No. 4.—Haul on board sufficient of the line to ensure a continued communication for you to inclose yourselves in a clove hatch—take care, in jumping overboard, to clear the wreck.

SIGNALS IN REPLY FROM THE SHIP.

No. 1.—A man in some conspicuous situation will wave his arm three times horizontally or across him to denote *Yes*, or ready: if he has a hat, let him take it in the hand he waves.

No. 2.—Three times up and down to answer *No*, or not ready.

To render these *human* signals distinguishable in the dark, as a preparative, a blue light should be fired; then let the signal man have a lantern in each hand; and substitute for the flag a large well-lighted lantern at the head of the staff. This lantern should have loops on the outside behind, to receive the staff; at the back of the lantern within, a highly-polished reflector, or pieces of mirror, should be placed opposite the lens; thick glass, cut to angular points in front, is an excellent lens, and will diffuse a light sufficient to make the operations on the shore distinguishable to those on board the stranded vessel.

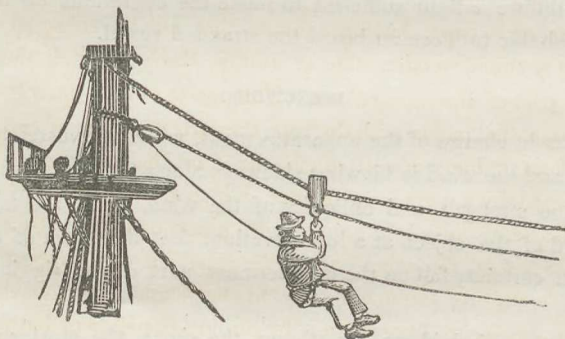
DIRECTIONS.

Persons in charge of the apparatus must, when the vessel takes the ground, and the wind is blowing sideways along the shore, in proportion to the strength and obliquity of the wind, point the mortar to windward of the object at a low elevation, that the slack of the rope may with certainty fall on the weathermost part of the rigging of the wreck.

When the wind blows directly on the shore, the mortar is to be pointed at the vessel; the signal being made, it is immediately fired, and communication is gained.



On the rope being thrown on board, the crew, who are generally assembled on the tops to prevent themselves from being swept away, will secure it, and 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; the crew will then make fast the end of the large rope below the cap, and secure the tailed block under the large rope.—After the service is performed, the people on shore will pass the end of the large rope through the rollers at each end of a hammock, cot, or slit of a snatch block with a sling attached to it, as may be required, and they will keep it in a proper degree of tension: the ends of the small rope being made fast to the snatch block, it is worked to the ship, and back by the people on shore; or from the ship's tops, in the following manner:—



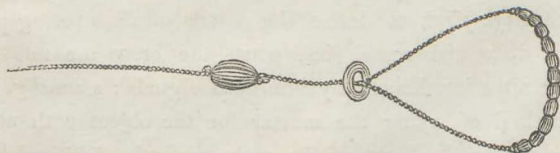
The sling is large enough to hold a man, who will, on getting into it, pull down the slide or button, secure himself in, and, safely lashing himself by the waist to the upper part of the sling, prevent the possibility of falling out; on his being landed, it will return to the vessel, until every person is brought from the wreck, as here represented. The application is precisely the same either for the cot or hammock.

The projection of a rope by the force of gunpowder may be applied to other important services; that of communicating with persons, and effecting their escape from lofty buildings ON FIRE—a subject that will soon be submitted to the public; also facilitating the movement of troops across a country intersected by rivers, the passing of rapid streams, &c.: on the latter subject, I have recently received the following information from Canada, which I will give verbatim;—‘ After all

attempts had failed to construct a bridge over the falls of Chandian Ottawa river, as no boat could live near it, **LIEUTENANT-COLONEL BY**, of the Royal Engineers, ingeniously applied **MANBY'S** plan, and fired a small rope over the rocky island, by which chains and strong iron cables were dragged over with crabs, and on them he succeeded in raising a beautiful wooden frame bridge.'

A LIFE ROPE FOR AFFORDING PROMPT RELIEF TO PERSONS WHO MAY HAVE FALLEN OR BEEN WASHED OVERBOARD.

It consists of a rope, having a noose that can be enlarged or contracted by a 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 upon it of cork fixed on the rope makes it easily to be grasped by a person in danger, which prevents it from slipping through his hands, as might happen with a common rope. By this buoy (when resisted at the other end of the rope) 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; thus secured, he 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.



In offering this production to your notice, I feel more than common gratification, from the persuasion of the incalculable benefit that must arise from this very simple application. I am led to this remark from the opinion of the numerous professional persons who have seen it; most of them declaring, in the course of their service, that they have seen when it would have saved innumerable lives; likewise from a testimonial

that appears in the annual report of the Royal Humane Society for the year 1814, in consequence of its having been exhibited to that institution.

‘That the committee of that Society cannot too warmly recommend it, from the great good derived from its use in preventing the drowning of a *great number* of individuals by it last winter on the Thames and Serpentine rivers.’

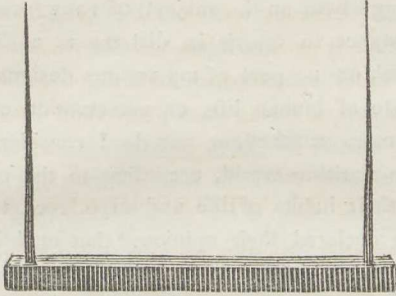
In addition to this pleasing testimonial, I have by me several certificates of the great many persons it has been the means of rescuing from inevitable death; and it appears that since its production not a winter has passed without several owing their preservation to it.

DIRECTIONS TO BE APPLIED DURING THE DARK.

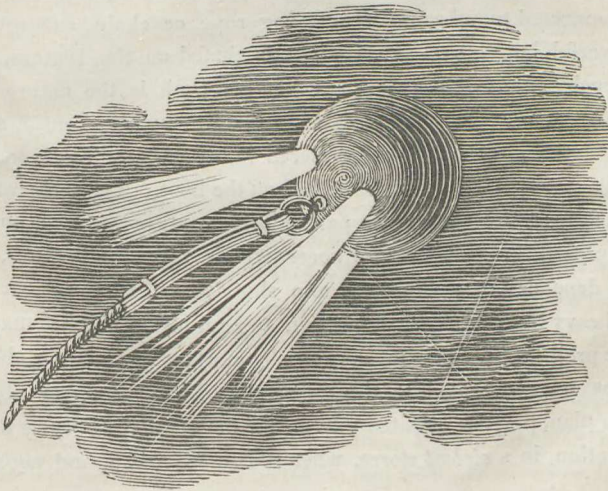
With regard to effecting communications with stranded vessels in the dark, having found it impossible to discern the situation of the unfortunate vessel, I was induced to try the means I shall here describe, in consequence of the loss of a Swedish brig, which came on shore in a dark and dismal night, on the 5th of January, 1809, at Happisburgh, and was reported to me in the following words:— ‘Many attempts had in vain been made for seven dreadful hours, to effect the communication with a round shot, but its flight could not be observed, either by the persons on shore, or those on board, nor was it accomplished until the dawn of day favoured the intention; the vessel having, however, during this long and awful time, been much strained, just as the cot was reaching her she went to pieces, and all on board perished.’

To provide a remedy for such future evils, three requisites were found necessary: *first*, to devise the means of discovering precisely where the distressed vessel lies, when the crew are not able to make their situation known by luminous signals: *secondly*, to produce a method of laying the mortar for the object with accuracy: *thirdly*, to render the flight of the rope perfectly distinguishable to those who project it, and to the crew on board the vessel, so that they cannot fail of seeing on what part of the rigging it 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; it was filled with balls of a composition which the makers of fireworks call stars. The fuze, firmly and closely fixed in a hole in the upper part of this ball, was so graduated as to commu-

minate with the gunpowder in the ball, for bursting it, and inflaming the stars at the height of 300 yards. On its explosion the stars spread a brilliant light, during a space of time sufficient for gaining a clear view of the object, and afforded leisure for a frame with two upright sticks (painted white, to render them the more discernible in



the dark) to be placed in exact line with the vessel, by which the aim of the mortar on being brought behind the frame can be directed with accuracy. A shell affixed to the rope, having holes in it to receive fuzes, is filled with the fiercest and most glaring composition, which, when inflamed, at the discharge displays so splendid an illumination of the rope, that its flight cannot be mistaken, and the crew are able to secure it, and to see on which part of the rigging it falls.



PREVENTION OF SHIPWRECK.

Having concluded my observations on the *preservation* of shipwrecked mariners when driven on a lee shore, I shall now proceed to offer practical suggestions on the subject of PREVENTION of shipwreck by affording assistance to vessels in distress at a *distance from the land*. I look back on no part of my various designs and efforts for stopping the waste of human life, or preservation of property from shipwreck, with more satisfaction; nor do I consider any of greater importance to the maritime world, according to the opinions of men best able, from their habits of life and experience, to judge of their utility, who have declared their opinion, 'that enabling boats to go from a *flat beach*, in violent gales of wind, to the assistance of vessels in distress, would greatly tend to diminish the immense losses the shipping interest have hitherto suffered.'

I should observe, that if an anchor is laid out, with a stout rope attached to it, from the shore, for the purpose of hauling off a boat, the rope is imbedded in the sand; this I have repeatedly seen tried, and the result was found to be invariably useless, from the cause just named. Mooring anchors have been resorted to in different ways, being sometimes placed at about eighty yards distance from each other parallel with the shore, as far as the range of a mortar will allow, and connected together with a strong rope or chain, suspended by a powerful buoy, to prevent it being chafed on the bottom, should it be rocky or imbedded in the sand, when such is the nature of the ground. On a grappling shot being thrown over the centre, and the slack of the projected rope gathered in, the grapplings catch, and afford a power for the people to haul off the boat. This plan was well adapted to some situations, particularly to steep shores; but some more powerful agency became necessary for very *flat* beaches, as its utility depended upon the range of a shot, which, when attached to a stout heavy rope, of strength sufficient to haul off a boat, I found could not be projected a sufficient distance by mortars that are portable, and such as are distributed to the different stations. Another objection to this plan, practice pointed out as an insuperable difficulty to such application, in a *violent storm*, when of course a high and raging surf

is running : further, the crew being necessarily at the head of the boat, for hauling it, the bow is consequently depressed in the sea, and is thereby prevented rising to the waves, and must assuredly fill ; besides the unsteadiness of their situation renders the power of four men on board the boat scarcely equal to one on shore—with many other important considerations. I was consequently urged to bring into practice a more efficient plan, from the following reflections.

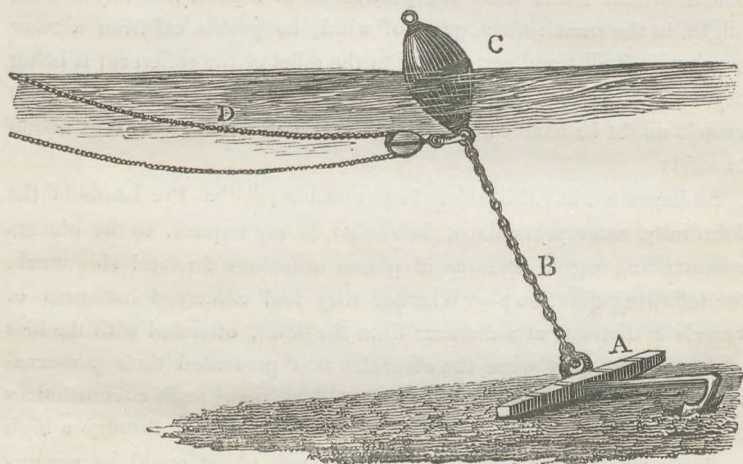
The fact of the occurrence of shipwreck at a distance from land, which unfortunately too often happens, makes it evident, that great benefit would result from the production of a plan, whereby a boat might, in the most violent gales of wind, be gotten off from a *FLAT* beach with facility and certainty as to the relief of the sufferers ; it being beyond a doubt, that, by the timely aid of pilots and beachmen, such vessels might be enabled to keep the sea, and reach their destination in safety.

So important has this object been considered, that the Lords of the Admiralty, some years since, forwarded, at my request, to the officers commanding signal stations at places notorious for fatal shipwreck, the following question :—‘ Whether they had witnessed instances of vessels in distress, at a distance from the land, attended with the loss of lives ; and what were the obstacles that prevented their preservation ? ’ The replies generally were—‘ That many such circumstances had occurred, from the impossibility of forcing a boat through a high raging surf to their relief ; but that, if such object could be accomplished, and boats be enabled to go off promptly to their assistance, not only the *LIVES* on board, but probably the *VESSELS* themselves, as well as the *CARGOES*, would have been saved.’

Without touching upon the impracticability of forcing a boat, by the power of oars, over a high surf, or stating the difficulties, amounting almost to an impossibility, of effecting the object by the people on board, I shall offer a method, on a principle adopted for various purposes, and applied by me to bringing people from stranded vessels, as well as what I have seen for passing a floating bridge from one side of a canal to the other. I therefore submit it, from its great simplicity, being found adequate to the purposes, and from the small expense attending it, in the hope it may lead to its adoption wherever boats are kept, on the conviction that it will materially tend to the *preservation* of *LIVES*, the *prevention* of *SHIPWRECK*, the saving from *destruction* an

immense value of property, and thereby be importantly beneficial to the commercial interests of the country, and to the maritime world.

At a distance from the shore, far beyond where the waves break into heavy surf, an anchor, connected to a chain, is laid out, and the chain suspended by a buoy : below the buoy a large block or roller (confined by a shackle, to prevent its twisting) is fixed to a ring in the upper link of the chain, and a warp reeved through the block, both ends of which, being kept on shore, are made fast to some elevated station, as a jetty head, lofty posts, or dolphins.



A. Mooring anchor, of about 3 cwt.

B. Chain, of half-inch diameter, of sufficient length to allow for the flow of tide.

C. Buoy, of ample power to keep the chain nearly in an upright position ; yet that will not lift the anchor stock from the ground.

D. Warp, of adequate strength for hauling off a large boat.

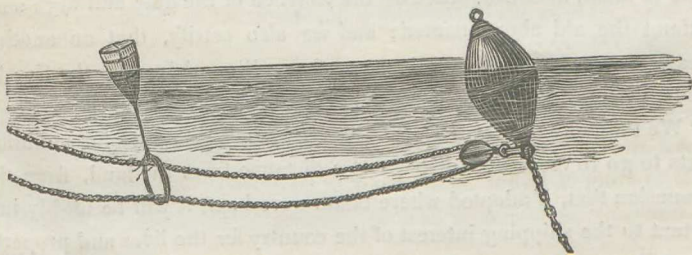
N. B.—The block to be well bound with iron, and the swallow of it large enough to admit of splices in the warp, freely to pass through it.

In applying the means, both ends of the warp are spliced together, making what seamen term a round rope or messenger, one part being made fast to the bow of the boat (the weather one, should the wind be not right ahead), and passed on to the boat's quarter, where it is also

to be made fast; and great attention given, that BOTH may, when required, be *instantly* cast off.

This being arranged, and the people on shore observing a favourable opportunity, they will haul the boat through the surf, and sheer it, should there be a great sweep of the sea, by the rope made fast to the quarter; thus a service can be performed, by comparatively few hands, that could not be effected by any number of people in the boat, from the want of steadiness of position at that time; besides, the men on board are quiet during this process, and do not impede the boat rising to a sea, and further, prevent its filling, which probably would be the case in their attempting to haul themselves off. Thus, as soon as they find the dangers of the surf are passed, they would cast off, up sail, and stand away to the object requiring assistance.

The advantages of the plan are, that no shore however FLAT, and no surf however NUMEROUS or DISTANT, can prevent this application, which is particularly adapted to the shores of France and Holland, that are represented so peculiarly flat, and consequently the surfs so extensively distant, as to defy the possibility of going to the preservation either of life or property; for should the distance be great, warps may be spliced together to produce the aid required,



in the latter case, by passing the warp through a circular or oval ring, at a proper distance, to a small buoy, and there lashed by a clove hitch to one part of the rope; the other part resting on the lower part of the ring, will prevent the warp endangering boats coming to the shore, either from being imbedded in the sand, or chafed by foul ground at the bottom, as here shown.

In using it, the part of the rope to which the ring is made fast is hauled to the shore, and when brought in, the lashing to the small buoy is cast off, and the warp ready for being applied as described.

I shall be excused, I trust, for adding, that this plan has received the approbation of all to whom it has been submitted, and some have declared that it has *overcome difficulties* hitherto considered insurmountable; in proof of which I subjoin the opinions of experienced persons, in a certificate of the crew of the Yarmouth Life-Boat, who, having practically demonstrated its utility, can well appreciate its importance. Their unbiassed testimonial in its favour, makes it incumbent on me to introduce it to your attention, in the hope that this may lead to its universal adoption.

‘We, the undersigned crew of the Yarmouth Life-Boat, having examined the plan submitted by Captain Manby, in a simplified form, by forcing the above boat from the shore, through a heavy surf, in violent gales, by means of a warp suspended by a buoy attached to a heavy anchor, are perfectly satisfied that the plan is fully adequate to the purpose intended.

‘And as we have experienced the result of such a plan, by its enabling us to go readily from the shore in one of our largest beach boats to the assistance of a foreign vessel, brought into these roads in great distress, that was making signals for urgent necessity, being without stores, fuel, or provisions: we do hereby certify, that we could not possibly have gone to them, in consequence of the violence of the gale and high surf, without the aid above named; and we also certify, that on another occasion we went to the assistance of a collier, driven on the Scroby sands, when all attempts by other boats had failed.

‘We therefore cannot too strongly recommend the plan for enabling boats to go to vessels in distress at a distance from the land, from the persuasion that, if adopted where boats were kept, it will be highly important to the shipping interest of the country for the lives and property that will assuredly be saved by it.’

In addition to this testimony, I must subjoin another communication from the late Commander of the Life-Boat, addressed to me.

‘Sir,

Jetty House, March 3rd, 1830.

‘I beg leave to state, that your method of forcing a boat from a flat beach by persons on shore, enabled my company and myself, on the 3d of February last, to go off with thirteen hands to the assistance of the James and Theresa brig, of London, that was making signals of

distress, and which we found, on getting on board, to have six feet water in her hold, one pump broken, and the other choked, and with her chain-cable unshackled; and that, without the assistance given by us, the vessel would have certainly been wrecked. I have further to inform you, that I stated to the adjudicators (who awarded us 140*l.* for the service) it would have been impossible by any other means to have launched our boat, but by the warp brought into use by you for getting off the life-boat.

‘JOHN DENNY, late Commander of the Yarmouth Life-Boat.’

I must further observe, the plan, in reference to Yarmouth, from its peculiar situation, (being probably the most dangerous part of the British shore of the North Sea,) renders it of the first consideration to that place; as it will entirely remove in future the many interruptions that occurred (when it was a great naval station) between the ships of war in the roads and the shore, in violent, and often long gales of wind. Its value on several other occasions cannot be calculated on, in securing with promptness the landing or sending off messengers charged with despatches; the disembarking of the mails or passengers from packets, when they cannot make Harwich, in tempestuous, adverse weather, with many services importantly connected with the affairs of state, and beneficial to the commercial interests of the country.

*for illustration
see the last page.*

ON LIFE AND OTHER BOATS.

I shall next call your attention to some observations on life and other boats, and submit designs for giving the effectual property of life-boats to the boats ordinarily used upon the beach, in different parts of the kingdom, with the view of general, as well as universal, adoption of efficient life-boats.

From considerations of their vast importance in affording assistance to distressed vessels, either in the rescue of life or property from shipwreck, great attention has consequently been devoted to the subject of life-boats; and various descriptions of them have been invented from time to time, which, from some peculiarity in structure, or other property, the projectors have too fondly imagined to be worthy of the name of life-boats. My design is not to enter into their peculiarities of structure, but briefly to submit remarks on boats, resulting from long practical experience and much observation.

The difficult and dangerous services requiring the use of a life-boat are two: the one for assistance to stranded vessels, when the case of distress is not far from the shore, and the aid of oars only necessary; the other, when the relief required is at a distance from the land, and can be effected only by a powerful boat under canvas.

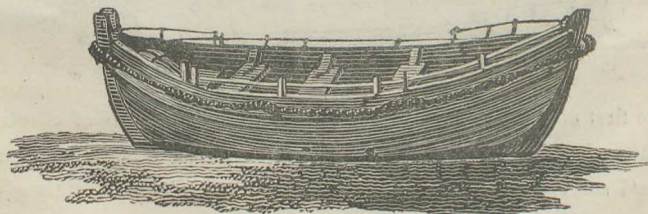
The indispensable qualities of a boat to be employed in services of imminent danger, as a life-boat, are buoyancy in construction, power to resist upsetting, and prevent sinking, although filled with water: in addition to these properties, those required for the rescue of persons at a distance from the shore, it is indispensable for them to go well to windward. I will commence with the boat known by the name of GREAT-HEAD'S LIFE-BOAT, similar to the one supplied to Cromer: it is excellent at the entrance of a harbour, and for going out with the receding tide to a vessel on a bar, as at Sunderland, where there is no difficulty in launching, nor much propelling power required, or the aid of canvas necessary; but from a flat shore it is entirely unfit, from its unwieldy size and weight rendering it so difficult to be conveyed to a point of danger; added to this, its lofty stem exposes it so much to the force of the wind and waves, as to make it utterly impracticable to force it through a high surf. It differs also from the form of boats peculiar to all the coast I have seen, which is of the first importance for a life-boat, that is, to resemble in structure as much as possible those which the PILOTS and BEACHMEN are accustomed to, and have great confidence in, not only because it is necessary to humour the prejudices of men whose services are required, but because whatever is calculated to stimulate and draw forth their exertions, at the same time tends to increase their confidence, and must in proportion increase the chance of saving life from shipwreck.

The next description of boats to which I call your attention, are those supplied to some stations on the coast of Norfolk (as Winterton, &c.) They are extremely well adapted, after communication is gained, to be hauled off by the rope, for saving the people from a stranded vessel, but never were any (with the exception of GREAT-HEAD'S) more unadapted to the stations where they are placed—that of going to the assistance of vessels in distress, that may have struck upon a *distant shoal*, particularly that extensive one called Happisburgh Sand, opposite to those stations, about the distance of nine miles

from the land ; a shoal on which more fatal occurrences of shipwreck have taken place, than any perhaps in the world, and which it would be impossible for such boats to reach in a *violent storm*, with the wind *blowing DEAD* upon the shore, either by the power of oars, or under canvas.

I have ever been most fully persuaded, that nothing would tend more to the interests of navigation than giving the properties of preservation to local boats, and thus entirely supersede the necessity of expensive life-boats : in proof of which, at the meetings of the Norfolk Association, I opposed their furnishing the boats just adverted to, from their great expense, their inadaptation to the service required of them, and also from well knowing the fact of a strong prejudice prevailing amongst boatmen against life-boats, particularly if not of a similar construction with those they use, knowing they consider such construction only effective in tempestuous weather. My earnest recommendation was, to give the effectual properties of preservation, in a simple manner, to local boats ; by which means danger would be greatly diminished, and the coast supplied with effective boats at a comparatively small expense, and their funds reserved to reward the exertions of their crews.

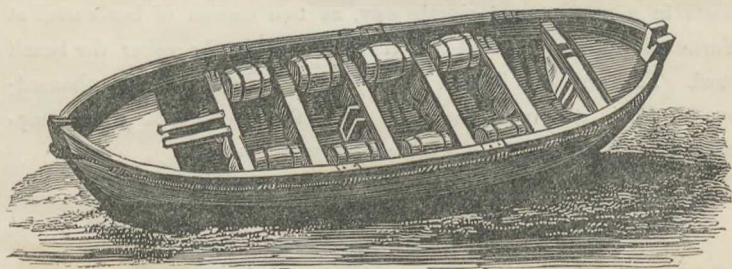
Having attentively examined the construction of boats on all the coasts visited by me, I never yet have seen any that so nearly possess the properties required, or are calculated to be rendered effective life-boats in a prompt and simple way, as two classes of boats used at Yarmouth ; the one called the beach ferry-boat, the other the beach yawl. The ferry-boat is used to weigh lost anchors, and other hazardous service in stormy weather, and unites the property of great buoyancy to the least liability of danger from upsetting.



To render this boat an effective life-boat, it is only required, by giving to the inside an air-tight deck (about one foot from the floor) firmly fixed, to confine small air-tight casks (like those used by the herring

fishers, termed bowls) placed vertically, so that, should the boat's bottom be stoved, the buoyancy is still preserved; on the other hand, should the sea break over, and even fill her, the water, being confined to the centre, may be immediately discharged, by taking out the plugs of the tubes that go from the deck through the bottom. A platform raised at each end for shipwrecked men and the boat steerer, who are prevented being washed out, by a rope distended by stanchions that go from the stem to the stern, and a rope running fore and aft on each side of the thwarts or seats secures the rowers: likewise a stout rope surrounding the outside, just below the gunwale, prevents the upper part of the boat from being stoved, when driven with force against a vessel, pier, &c.

The yawl is a boat alike sharp at each end; therefore is capable of being moved either way advanced. In such the beachmen of this coast have the fullest confidence; they handle them with pleasure, they have used them from their infancy, they know their adaptation to what is required; nay, so far does this feeling exist, that I have been told by active and intelligent beachmen, that they would prefer their own boats for any service, however hazardous, to life-boats, could their own but be got in safety from this flat beach over the surf, and be protected against the danger attending broken water, in which their being immersed would be necessarily attended with the loss of their lives.



The first of these objects I have happily had the means of effecting, and have just exhibited to you my plans for forcing boats with *facility* and *certainly* over a surf: the next desiderata are efficiently given by means of air-tight casks, as shown by the above. Even ships' boats might also with great advantage be provided with them; and if, when at sea, the boats hanging from the quarters or sterns of vessels were fitted up in this manner, many a LIFE would certainly be saved.

To resist upsetting, and to prevent sinking, casks may be lashed

horizontally within the gunwale, or placed vertically under the thwarts; those in the former position will enable the boat to regain its former gravitation, when filled with water, from the lee side being depressed by the violence of the wind, or when thrown out of its proper position by the force of the waves; while, on the other hand, the vertical casks will give a powerful degree of buoyancy, for the boat to relieve itself by its less specific gravity, on the plug-holes at the bottom being opened. I need scarcely add, that it is indispensable that the casks employed for such a service should be strong and staunch; and those that had previously contained oil are, from being saturated with that fluid, the less liable to contract. Another very important point connected with the subject, and equally essential, is to guard against the possibility of a boat being stoved, when driven violently by the waves against the side of a vessel: to prevent this, nothing can be better than a stout rope, secured round the external gunwale, with projections at intervals to break the force of the blow.

Of the Yarmouth Life-Boat I must speak feelingly, first, with pride, secondly, with regret, as, in the construction and fitting up of it, I was indulged with the direction. In its construction, the most reputed boat on the beach, combining the qualities of going well to windward, of having a fine bow to meet a sea, being rapid under sail, and answering the helm quickly, was selected by me as a pattern: below is a correct representation of the boat I mean:



And I have only to remark, that it has been proved practically to possess all the properties required, or that I could wish for, and was found to answer the intended design completely. I should further add, that its crew had the fullest confidence in it, they being perfectly satisfied, by experience, of what has hitherto been considered an impossibility, namely, that in the most tempestuous sea, and when FULL OF WATER, this boat is MANAGEABLE, goes well to WINDWARD, and answers the helm READILY.

These latter properties are attained by displacing the water at the ends, within the boat, by copper tanks, and giving the great balancing quality of its iron keel to the centre of the boat, by its curvature. The boat is furnished with a short gun, placed in the main tabernacle (as the mainmast is not required in a violent gale), for throwing a line on board the wreck, when it is stranded on a shoal, or a bar beyond the reach of a shot with a line to it from the shore; for in such situations it would be surrounded by broken water, rendering it extremely difficult, and often impossible, that a boat should approach it without great risk of being destroyed by the masts or yards, from the violent rolling of the vessel. Cases of this kind have occurred, and crews have perished, from the want of such means of communication.

Before the subject of this boat is dismissed, I must claim your indulgence for a slight digression, feeling it may be important to my name when I am in my grave.

On the design for forming an association in my native county (Norfolk) for preserving lives from shipwreck, the noble Lord Suffolk did me the honour to send me a written request to attend at Norwich on that occasion. On such Institution being founded, the General Meeting determined that a Life-Boat should be furnished to Yarmouth. The opinions of the most experienced and practical beachmen were taken, 'for what service a Life-Boat at that place would be most important and useful;' their unanimous opinion was, 'going to vessels driven on the cross sand (five miles from the shore) in violent gales blowing dead on the land—consequently a service that could only be performed by a boat possessing superior sailing qualities, and preserving those qualities when full of water; requisites also of the greatest importance in going to save crews on board of vessels, driven from their anchors on the Scroby, by tremendous gales

blowing from the land; for, without such properties, the men taken from the wreck would probably perish before they could be brought to the shore.'

The qualities of this boat have been tried, her adaptation to her design proved, her superior sailing qualities confirmed in beating the Lowestoff Life-Boat on going to windward nearly three-quarters of a mile in a run of less than three miles: yet this boat was allowed to lay for several months exposed to the injuries of weather, and depredation, and is now sold to be broken up, and another directed to be built on the model of the Lowestoff boat.

I have not stated these circumstances entirely from feelings of wrong done to myself, but to point out to the subscribers to the Norfolk Association with what facility injury to their funds may be effected from interested motives and private prejudices—also how the object of a patriotic and benevolent institution may be perverted—in the earnest hope that some members of that institution will examine 'The Exposition of Facts' deposited by me in the Norfolk and Norwich Museum, to record the reasons that compelled me to withdraw myself from the above-named Association; and prevent so noble and charitable an institution falling into decay, by placing its management solely in the hands of persons whose rank and character are beyond suspicion.

With these remarks I not only close my lecture, but, I trust, put the finishing stroke to the plan for preserving the LIVES of persons on board of vessels stranded on a lee shore; and the PREVENTION of shipwreck, by affording assistance to vessels in distress, at a distance from the land. I have devoted upwards of twenty-three years of laborious and anxious existence to the producing and perfecting this plan; and I hope I may venture to flatter myself, that the success which has attended my endeavours, confirming their utility, will procure for me the approbation of my KING and my COUNTRY; not only from its being generally interesting to humanity, but highly important to this nation, as mainly contributing to its strength, its security, and its commercial prosperity: further, from its having received the most honourable testimonials from the sovereigns of FRANCE, THE NETHERLANDS, DENMARK, and SWEDEN.

To the Almighty Disposer of events I acknowledge with the deepest

gratitude my infinite obligations, that HE has been graciously pleased, not only to preserve my existence, but has permitted me to live till I have seen the system generally established, and many lives saved by the means which, through His mercy, I have been the humble instrument of perfecting.





