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Wm. Stirling Lacon Esq.

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ON LOWERING BOATS AT SEA.

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Vice-Admiral Sir THOMAS HERBERT, K.C.B. in the Chair.

ON LOWERING BOATS AT SEA.

BY WM. STIRLING LACON, ESQ.

The subject of "Lowering Boats at Sea" is one of great importance. Some years ago I brought it before the public, and, in the shape of a Lecture, before the Members of this Institution. At that time I laboured under a double disadvantage, first, because I was an inventor, a species of animal that is generally looked upon, not always with reason, as a great bore; and, secondly, because, although advocating a subject so interesting as that of the "saving of human life," I could not at that time divest myself of the feeling that I might be considered as having a personal, perhaps a selfish, interest in the matter. Having in the meantime waived any plan of my own on the appearance of another and a cheaper one, I trust you will bear with me while I endeavour to explain to you what that other plan is, and that any deficiency on my part will be forgiven, in consideration of the vast importance of the subject.

Mr. Clifford's system has now been several years before the public, and yet there are naval men, who have since commanded ships, who have never seen or heard of it. I feel, therefore, that no apology is due to naval men for thus presenting myself before them; and to any non-naval persons who I may now have the honour of addressing I would observe, that the subject is of equal interest and importance to them; for, in these days of locomotion, who can tell when they may be called upon to be actors in a scene, when the knowledge that a safe and ready method is at hand may stand them in good service, and when, by their presence of mind and good example to others, they may save "that rushing to the boats," which has in so many instances caused such a fearful expenditure of human life?

I purpose therefore to explain to you:
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1st. The dangers attendant upon the old system of lowering boats by the tackles;

2ndly. What was required to obviate these dangers; and,

3rdly. The very admirable method by which Mr. Clifford has worked out the problem.

In order that you may more clearly understand the "dangers" of the old system, it would perhaps be advisable that I should read to you a statement of some facts, and also some extracts of evidence that has at various times been taken on the subject:

On Saturday the 20th of November, 1804, the English fleet under the command of Admiral the Honourable W. Cornwallis lay at anchor in Torbay. As it was late in the year, and the night dark and stormy, orders were given for the fleet to put to sea. Unfortunately, in fishing the anchor of the "Venerable," 74 guns, the fish-hook gave way, and a man was precipitated into the sea. The alarm was immediately given, and one of the cutters was ordered to be lowered. Numbers of the crew rushed aft to carry the orders into effect; but, in the confusion, one of the falls was suddenly let go—the boat fell by the run, filled, and a midshipman and two of the men were drowned. In a few minutes another boat was lowered, which fortunately succeeded in picking up the man who first fell overboard. Owing to this delay, the "Venerable" fell off considerably towards Brixham, and, getting sternway, was unable to weather the Berry Head. Every effort was made to stay her, but the ship refused; and, not having room to wear, she drove on shore at the north part of the Bay, on a spot called Roundem Head, near Paignton. In sixteen hours from the time she first struck, the whole vessel had disappeared under the action of the raging surf, lashed into fury by the violence of the gale. The crew consisted of 590, of whom a few were drowned.

From the loss of the "Kent," by fire, in the Bay of Biscay, on the 1st of March, 1825, when eighty-one individuals perished, an account of which was published by the Religious Tract Society, I have selected the following extract:

Although Captain Cobb had used every precaution to diminish the danger of the boat's descent, by stationing a man with an axe to cut away the tackle from either extremity, should the slightest difficulty occur in unhook'ing it, yet the peril attending the whole operation, which can only be estimated by nautical men, had very nearly proved fatal to its numerous inmates. After one or two unsuccessful attempts to place the little frail bark fairly upon the surface of the water, the command was given to unhook. The tackle at the stern was in consequence immediately cleared; but, the ropes at the bow having got foul, the sailor there found it impossible to obey the order. In vain was the axe applied to the entangled tackle; the moment was inconceivably critical, as the boat, which necessarily followed the motion of the ship, was gradually rising out of the water, and must in another instant have been hanging perpendicularly by the bow, and its helpless passengers launched into the deep, had not a most providential wave suddenly struck and lifted up the stem so as to enable the seaman to release the
tackle. The boat, being thus dexterously cleared from the ship, was seen after a while from the poop battling with the billows.

At midnight on the 7th of April, 1813, the "Solway," when about twenty miles west of Corunna, struck upon a rock. She was backed off, and in twenty-five minutes afterwards she sank while making for the shore. Whilst proceeding towards the land, a general rush was made to the pinnace, which hung at the davits on the starboard side; twenty-five persons got into her, and having seated themselves, cried out to those on board to lower away. Captain Duncan, who evidently foresaw the great danger of lowering a boat at full speed, endeavoured to prevent this; but the confusion was so great on board, and his own attention so entirely devoted to the great object of getting the paddle-box lifeboat afloat and making the shore, that his opposition was of no avail, and the forward tackle snapt by the run, and the bows of the boat dropped into the water. The situation of the poor wretches who had made this their hope of escape was now perilous in the extreme. A cry of "For God's sake, let go the after tackle!" was answered by some of the crew as soon as possible, and the pinnace fell into the water. The ship had still full speed upon her, and now a heavy sea striking the boat, as she floated for an instant, swept every soul into the ocean.

The "Avenger," a steam-frigate, Captain Charles Napier, with an armament of six heavy guns, and a crew of 250 men, sailed from Gibraltar on the 17th of December, 1817. At 9 p.m., on the 20th of December, while running with square yards at the rate of eight or nine knots, she struck upon the Sorelli. The officers in the gun-room were upon the point of retiring to their berths, when they were startled by a sudden jerk; the ship gave a heavy lurch, as if filling, and her whole frame appeared shaken and every beam loosened. The captain then gave the order "out boats;" these were his last words, for he was immediately afterwards washed overboard and drowned. Whilst they were in the act of lowering the cutter, an accident occurred which was nearly proving fatal to all their hopes of preservation; in lowering the boat the foremost fall got jammed, and, the after one going freely, the boat had her stern in the water and her bows in the air. At this moment Dr. Steel threw in his cloak, which fortunately got into the sheave-hole of the after fall and stopped it. Just as the boat touched the water, and before the tackles were unhooked, the ship again struck heavily, and began swinging broadside to the sea, falling over to starboard at the same time, which, from the cutter being the port one, made her crash with great violence against the ship's side. However, by dint of great exertion, the boat was got clear from the tackles and pulled clear from the ship. Of a crew of 250, 216 were drowned.

In the case of the "Amazon," one of the survivors, as reported in the "Times" newspaper, states:

The mail-boat when lowered was immediately swamped, with about twenty-five people in her, all of whom were lost. The pinnace when lowered sheered across the sea before the people in her could unhook the fore tackle (fig. 5); they were thereby washed out, and the boat remained hanging by the bow. While clearing away the second cutter, a sea struck her and raised her off the cranes and unhooked the bow tackle (fig. 6); the fore end immediately fell down, and the people in her (with the exception of two, who hung doubled over the thwarts,) were precipitated into the sea.
Lieut. Grylls, R.N., stated:

The first boat attempted to be lowered was on the port quarter; Lieut. Grylls was himself lowering the after fall, when Captain Symons seized him by the arm and besought him to desist, as he said everybody would be drowned. Lieut. Grylls then called out to the person by the foremost fall, imploring him not to lower, as the ship was going so fast. The person at the foremost fall, by constant and urgent request of the people in the boat, let the fall go, by which means the boat turned over, and, as nearly as could be seen, every one was washed out of her. Seeing this at the moment, Lieut. Grylls attempted to let go the after fall so as to save them, but, the fall being jambed and having fouled, and the boat thus not being clear, her stem hung in the air for the moment until cut adrift by some one, when she turned over, and, seeing the people washed away, Lieut. Grylls turned aside from the appalling sight in horror.
Mr. Neilson, a survivor, states,—

In the meantime the aftermost boat on the port side (I think the mail boat) was lowered down, with probably twenty-five people in her, but the moment she touched the water she swamped, and all hands that were in her drifted astern, all clinging together with dreadful shrieks. The next boat forward (the pinnace) was also lowered full, but by some accident the after tackle alone got unhooked, and she was dragged forward by the fore tackle with such rapidity that the sea swept round her sides and washed every soul out of her. At this time the second cutter had reached the water, when a sea struck the bow, and as the ship rose from the swell of the waves she lifted the boat perpendicularly by the stern tackle, and discharged all the unfortunate inmates but two, who hung shrieking across the thwarts.

Mr. Kilkelly, an Irish gentleman,—

Proceeding immediately to the deck, and going to the side of the vessel, got into a boat, which slid down edgeways, and thus lost all her oars.

William Angus, the second engineer,—

In attempting to lower another boat on the starboard side (the first cutter), the stern fall was let go too quickly, and on dipping into the water the boat was drawn to the side of the ship, and the people thrown into the sea.

Isaac Roberts, boilermaker,—

In lowering her down unfortunately let go the fore tackle, and threw the people, about eighteen or twenty, crew and passengers, into the water.

Michael Fox, fireman,—

Went forward and sung out to a man to clear away the tackle fall, and pass the end into the boat. Through want of skill, or some other cause, instead of giving the end, the man let go altogether, and precipitated the bow of the boat
into the water. In the boat were a great many persons, nearly all of whom were thrown out.

George Webb, able seaman, says,—

Some one let go the bow tackle, and the boat filled. A great many people fell overboard. The chief officer and several others were clearing away the aftermost life-boat. Webb jumped into the stern of her, and got hold of the tackle and lowered her down. Some one else lowered the bow. Before the boat touched the water the after tackle fouled, Webb took out his knife and cut it.

Henry Wright, of Gosport, seaman, says,—

When in the boat, preventing her from being swamped, by trying to clear the fore tackle fall, the block caught his left hand, and took off the tops of his two middle fingers, and smashed his little finger.

Alexander Lang, quartermaster,—

Went to the wheel, but it was fouled by the tackle-fall of the dingy.

George Harding states,—

The tackle fall of the dingy had entangled the rudder.

In the evidence taken on the trial of the officers of the "Orion," lost on the West Coast of Scotland, before the High Court of Justiciary at Edinburgh, D. Walker, seaman, says,—

While lowering the starboard quarter-boat the bows were down in the water, while the other end hung by the tackle, and one or two tumbled out of her; and while the port life-boat was being lowered there were one or two tumbled out of her.

And Robert Wilson, the Clyde pilot, speaking of the larboard life-boat, says,—

"I could not lower the tackle on account of the weight in her."

In the wreck of the "Conqueror," near Boulogne, on the 13th of January, 1842,—

The ladies, children, and servants were handed into the cutter: the water was not a couple of yards off her bottom, but the falls of the tackle had got so entangled with the rest of the cordage upon the poop, that they were not able to lower them. The captain cut the boat from the davits.

The last instance to which I wish to draw your attention is a most melancholy one, and may perhaps be in the recollection of many now present. It occurred on the return of the "Melville" flag-ship from the East Indies, when the gallant son of the admiral was drowned, in his attempt to save the life of a man who had fallen overboard. The circumstance is narrated in a letter, which I am now about to read to you, from Captain A. S. Hammond, R.N. to Lieutenant-Colonel, now General, Willes, R.M. both on board the ship at the time, the one as lieutenant, the other in command of the marines.
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On the occasion of Sir John Gore's son being drowned off the Cape of Good Hope on the 30th of April, 1835, the "Melville," seventy-four guns, on board of which ship the admiral's flag was flying, was lying to, under a main topsail. The courses were being hauled up and topsails lowered on the cap, with yards braced in and secured. A man having fallen overboard from the weather fore-yard arm, Lieut. John Gore, the flag-lieutenant, jumped overboard to save him from the weather quarter boat; and soon afterwards the lee quarter boat was cleared away and lowered, with Lieut. Fitzgerald and ten men in her, at which operation I attended. But in spite of every attention, from the heavy lurching of the ship, and her rolling to windward, a considerable quantity of water was shipped by her; and I am also of opinion the boat was shaken by the blows which she received in striking against the ship's side whilst in the act of lowering.

In consequence of this impression I spoke to the Captain (the present Rear-Admiral Sir Henry Hart, K.C.H.), and asked him if I might be allowed to take the weather quarter cutter, in case of any disaster having happened to the other boat; to which request, after some consideration, he gave his consent, and I jumped into her, quickly followed by numerous volunteers, and a young midy of the name of Heath.

Any amelioration of the old established plan of lowering boats would, in this instance, have been of infinite service; for I have never witnessed a worse occasion for lowering a boat during my experience at sea. From the weight of the men in her, and the constant lurching of the ship, we were nearly thrown out of the boat frequently, and I thought she would have stove in from striking against the muzzles of the main deck guns; and, before we could get the tackles unhooked, the indraught took us under the counter, and we had the nearest escape possible from being swamped by it. Fortunately we managed to get clear of the ship without mishap, and proceeded on our search, which proved, alas! a most fruitless one, as all hands were lost except ourselves.

Don't you recollect (continues the writer) when a man fell overboard from us, just after leaving the Sand Heads, and a quarter boat was lowered, with 1 think!, Crawfurd in her, and the boat's crew, and something happened to the boat's tackle falls in lowering, and the whole of the men were thrown into the water, and they also went astern, together with the swamped boat, ears, bottom boards, &c., floating about? Fortunately no lives were lost, but there might have been.

It would be easy to multiply instances, but the above will suffice to show the dangers attendant upon lowering boats by the tackles. In doing it requires two men in the boat (one at each fall to unhook), and, on board the ship, two men to lower, and two men to clear the falls—no easy matter where the falls are little used, and where, as in the case of the largest merchant steamers, each fall is 22 fathoms, or 132 feet long.* Under any circumstances it requires the greatest unanimity of action on the part of these six men; but how is this to be ensured during periods of excitement and danger.

* The davits of the "Princess Royal" are 45 feet from the water, consequently the falls must be five or six times that length, or at least from 230 to 270 feet long.
and during dark nights? If one of the falls should be lowered too quickly—if one of them should foul or be accidentally let go—then, one end of the boat having reached the water before the other, it is impossible for the men in the boat to unhook at the same time, and an accident must inevitably happen. Or, supposing that all has gone right on board the ship, and that before the boat has reached the water a sea should lift the stern of the boat and unhook the after-tackle, then (as seen in the above instances) the boat would sheer across the sea before the people in her could unhook the fore-tackle, and they would thereby be washed out, and the boat would remain hanging by the bow; or if in the act of lowering a sea should strike the bow and unhook the fore-tackle, then the fore end would immediately fall down, and the people would be precipitated into the sea, and drowned.

Not only is the operation of lowering boats attended with so much difficulty and danger, but it is an extraordinary fact, that it is in direct opposition to any mechanical operation of the like character. It is an acknowledged principle of mechanics, that to raise a weight requires a power; but what is gained in power is lost in time. We see it in the every-day operations of raising a weight, that, when the weight has attained the requisite elevation, the power is disconnected, and a break or other analogous contrivance is substituted, in order to regulate the descent.

Why, therefore, should not the same plan be adopted in the case of weights (i.e. boats) which remain for a lengthened period at the requisite elevation, and which are only required on sudden emergencies? Sailors, themselves, acknowledge the principle, and carry it into effect, as in the case of the anchor.

When the anchor has been elevated by means of the chain to the level of the water, a tackle called the "cat" is used to raise it to the level of the deck; this is the power, and sailors know very well that, if they were to allow the same to remain, the anchor could never be used on sudden emergencies; they, therefore, substitute a single rope (called the cat-head stopper) and remove the tackle. They remove the one tackle from the anchor; why, therefore, should they not remove the two tackles from the boats, which it has been shown in their use require the greatest unanimity of action?
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Many captains of ships have acknowledged the principle even in the case of the boats, for they have unhooked the tackles, and substituted single ropes or pennants; but in so doing they have aggravated the disease, without substituting a remedy: for, it must be apparent to every one, that if, in lowering with the "tackles," there was danger in "a heavy boat going down by the run," that danger must be considerably enhanced where the weight has to be balanced and controlled by a single rope. This was the difficulty to be overcome; and it is the very ingenious method by which Mr. Clifford has succeeded in doing so, that I now purpose to explain to you.

Before proceeding, however, it would be as well that I should say a few words on the subject of "hoisting boats;" for, in the numerous schemes which of late years have appeared before the public, inventors and others have confounded the two operations. The hoisting a boat in a heavy sea is quite as ticklish an operation as that of lowering a boat; and I believe I have the authority of all naval men for propounding the maxim from this place, that no mechanical operation for "hoisting" a boat can ever supersede the use of the tackles. When a boat is to be hoisted up the whole strength of the crew is generally made available—one half of the crew manning one of the falls, the other half the other. The boatswain stands on the hammock nettings, and two men are in the boat to hook on the tackles. Either fall is "gathered in upon" or "slacked up" as circumstances may require, until the boatswain, having watched the appropriate moment, "pipes," the falls are "married," "the men run away with it," and the boat "is up."

It is only when the boat is hoisted up, that Mr. Clifford's system is brought into operation, and the great merit of it appears to me to consist in this, that while he removes the power (i.e. the tackles) he substitutes another power, which, with all the rapidity of lowering with a single rope, enables him by means of one man fully to regulate and control the descent of the boat. He brings a single rope or pennant, the standing part of which is made fast to the end of the davit, through a block of peculiar construction (fig. 1), the rope passing on alternate sides of the three sheaves, which are arranged one over the other; the rope is then carried through a leading-block attached firmly to the keel of the boat (fig. 2), and, the end
being inserted in a roller underneath one of the thwarts, the roller, by means of a smaller rope which had been previously wound round it, is made to revolve, till the whole of the slack pennant is exhausted.

The other pennant is treated simultaneously in the same manner, so that, when both are quite taut and the tackles are removed, the boat is secured, as shown at fig. 3.*

* In all cases the boat's tackles should be hooked to an eye-bolt in the davit-end, and, when the boat has been secured by Mr. Clifford's system, they should be unhooked and stowed away down below, thus effecting great economy in wear and tear, from so much rope being constantly exposed to sun and rain, besides disencumbering the decks of two large coils for each boat.

The boat being now secured, hangs by two single ropes or pennants (the VOL. II. 2 D
In lowering, one man takes the small rope in his hand, which, as he slackens, winds on to the roller as the pennants in the act of lowering unroll; he is enabled thereby to control the descent whatever the weight may be, and however crowded with people; for, not only has he the greatest control over the revolutions of the roller, but the resisting strain is considerably modified by the ropes passing over the sheaves of the block (the nip of the block being in proportion to the weight of the boat and the consequent strain upon the pennants), and, when the boat reaches the water, by letting go the small rope altogether the roller is free to revolve, and the ends of the pennants, not being secured, detach themselves, unreceve, and the boat is clear of the ship.

The block, fig. 1, being attached to the sides of the boat by steadying-lines, and the block itself being the point of suspense at which the boat hangs, as shown in fig. 2, canting is effectually prevented.

An objection has been raised that the pennants, being fitted for smooth water or for a ship on an even keel, if a ship were rolling in a heavy sea, the pennants might unreceve and detach themselves weakest point of Mr. Clifford's system), for either a constant freshening of the nip would be required, or some other additional security; but this might be obviated by a stopper at each davit (similar to the cat-head stopper), which would take the strain off the pennants, and, being easily let go or cast off, would not interfere with the sudden and instantaneous lowering of the boat.
before the boat reaches the water, and, consequently, that the boat might fall into the water from a considerable height; but, to obviate this, it would only be necessary to take care that the pennants are fitted too long instead of too short, because, whatever their length may be, when the boat has reached the water, the roller in the boat being free to revolve, they will unreeve of their own accord as the boat drags away from the ship.

Another improvement introduced by Mr. Clifford is, that the gripes or lashings by which the boat is secured to the ship are made self-releasing. A prong is attached to the ship's side, as at fig. 4, a thimble at one end of the gripe is passed up this, and the lanyard at the other end hauled taut. In lowering there is no necessity to "cast off the gripes," for the thimbles slip down the prongs, and the boat is free.

There is one other subject which, as I am lecturing on the subject of boats, I trust I may be pardoned if I briefly allude to, and that is to the "covering of boats;" for all persons who have witnessed the action of a tropical sun must know, that, to ensure a boat's being at all times serviceable, she must be protected from the rays of the sun. In the navy, I believe, it is the custom to wet the boats every morning and evening, to cover them during the day, and to uncover them at night. In many ships which leave our ports we know that very little attention is given to the matter.* A common practice is

* In illustration of this I may mention that about five years ago I was casually lounging through the Docks at Liverpool. Conversing with one of the sailors.
to cover the boat over all, and to lace the cover underneath. This not only prevents a man getting into the boat, but, as the boat is hanging from the davits, the lacing in such case is difficult to get at; but if the cover is put round the boat and laced above, then not only can a man get into the boat, and from that position let go the lacing, but, in cases of sudden emergency, the cover thus secured might be lowered with the boat, and if the lacing be cut, even when the boat is in the water, the weight of the wet cover would cause it to sink clear of her.

In the evidence taken on the trial of the officers of the "Orion," Captain John Boyd, formerly commanding the Admiral steamer, stated,—

The covers on the boats are laced underneath.

David Croall, the carpenter of the "Orion," stated,—

The "Orion's" boats had covers from the first, and laced under the keel.

John Stewart, seaman, stated,—

It took us ten minutes before we could get the covers off the boats.

belonging to one of the numerous steam-ships, I pointed out to him the improper manner in which the boats were secured, and cautioned him, that inattention to apparently such small particulars might one day cost many lives. Within six months that day did come, and those boats were useless. In the evidence that was afterwards taken on the subject, it was proved that they were carried down with the ship when she sank, and were not disengaged from her till sixteen hours after the accident. Many lives were lost.