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Eveuing Meeting.

Monday, February 3rd, 1873.

ADMIRAL GEORGE ELLIOT, in the Chair.

NAMES of MEMBERS who joined the Institution between the 28th January and the 3rd February, 1873.

LIFE.

Perey, Lord Algernon, M.A., Lieut. Grenadier Guards.

ANNUAL.

Braddock, Lionel F., Capt. 1st Surrey Artillery Volunteers.	Anderson, J., Lieut. London Scottish Rifle Volunteers.
Falwasser, Ernest B., Ensign 22nd Middlesex Rifle Volunteers.	Archer, R. H., Lieut. R.N.
Trench, Fredk., Capt. 20th Hussars, F.R.G.S.	Harris George, Captain R.E.
Legge, Hon. Henry C., Lieut. Coldstream Guards.	Cookesley, E. M., Capt. late 22nd Regt. Verity, C. F., Capt. 2nd Middlesex Rifle Volunteers.
Browne, W. H., Lieut. Bengal Staff Corps.	Bingham, R., Lieut. R.N.
	Crommelin, W. A., Colonel R.E.

LOWERING BOATS AT SEA.

By W. STIRLING LACON, Esq.

IN consequence of the accident involving loss of life which happened to the boats of Her Majesty's ship "Ariadne," in 1872, the subject was taken up in the House of Commons, and after debate, and strong expression of opinion by various Members, on the motion of Mr. Bouverie, the question was referred to the Lords Commissioners of the Admiralty, who "decided to appoint a Committee to inquire into the "question of the supply of life-boats to the Navy, the best lowering "apparatus adapted to the special services which men-of-war have to "perform, and generally into the best means of saving life at sea, "always bearing in mind the special character of Her Majesty's ships." The scope of the enquiry being thus limited (although two out of seven members of the Committee were appointed from the Merchant Service), the Committee reported upon the three plans which have been in use, or tried in Her Majesty's Navy—namely, Clifford's, Kynaston's, and the ordinary service plan. With regard to Clifford's, the report says, "Many failures, due to the apparatus, have occurred in lowering boats so fitted, and the Committee are therefore unable to recommend its adoption in Her Majesty's Navy." With regard to Kynaston's, the report says, "Though

“there are some instances recorded in which they have not acted satisfactorily, still they so nearly meet the conditions required, that the Committee feel justified in recommending their further supply to Her Majesty’s ships. At the same time they are unable to recommend their use being made compulsory on Officers who are unwilling to adopt them.” And as to the ordinary service plan, the report says, “The evidence does not record *the loss of a single life to Her Majesty’s Service attributable to this fitting*,* although the witnesses examined must have referred to an experience of many hundred instances of its use at sea. It possesses the advantage of simplicity, and enjoys the entire confidence of many experienced Officers, whose judgment is supported by the large success which has attended its use—a fact confirmed by the evidence; the Committee are therefore of opinion that this is the most satisfactory mode extant of lowering boats at sea.” And further, “The Committee cannot recommend any of the inventions for lowering boats at sea by mechanical means, which have been brought before them.”

Having twice lectured at this Institution on this question, and having for the last twenty years endeavoured to direct public attention to the subject, I appeared, and gave evidence before this Committee. But a gallant Admiral writes to me, “Your evidence is so given in the Blue Book, that it is impossible to make out what you mean.” And it is so. I saw (I think I may say so) that there was but little disposition to accept the information which I was desirous of putting before the Committee, and the drawings which I was requested to send in, were not published with the others, but were handed over to the Admiralty, when the Committee broke up. The Admiralty have since deposited them in this Institution at my request.

I was desirous of recording information that might be useful to the public generally, but I was told “that the Committee wished to confine themselves to the Navy.” But I could have given information that might be useful to the Navy, had I been so permitted. The report of the Committee says, that “the last accident appears to have been in 1835, to Her Majesty’s ship ‘Melville,’ off the Cape of Good Hope, in bad weather, when both cutters *were lowered successfully* by common tackles for the rescue of an Officer and man overboard.” But the following stands recorded in the *Journal* of this Institution:—Before the delivery of my lecture here on June 9th, 1858, I wrote to General Willes for the particulars of this melancholy case, he having been on board at the time, and he enclosed to me the following letter from Captain A. S. Hammond, R.N.:—“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,’ 74 guns, on board of which ship the Admiral’s flag was flying, was lying to, under a maintop-sail. 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 foreyard-arm, Lieutenant 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,

* The italics are mine.—W. S. L.

“ with Lieutenant 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 that the boat was shaken by the blows which she received in striking against the ship’s side in the act of lowering. In consequence of this impression, I spoke to the Captain (the present Rear-Admiral Sir Henry Hart, K.C.B.), 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 he gave his consent, and I jumped into her, quickly followed by numerous volunteers, and a young middy of the name of Heath.”

Gentlemen, I must here be allowed to pause. I also was a midshipman in those days, and I dined on board the “Melville” at Saugor, and sat at the same table with Lieutenant Gore, and probably saw many of the unfortunate men who were drowned; the other middy was the present gallant Admiral Sir Leopold Heath, the Senior Naval Officer of the Abyssinian Expedition.

The letter goes on to say—

“ Any amelioration of the 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 been 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, I think, Crayford 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, oars, bottom boards, &c., floating about. Fortunately no lives were lost, but there might have been.”

I quote again from the Journal of this Institution:—

“ 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 suc-

“ceeded in picking up the man who first fell overboard. Owing to this delay, the ‘Venerable’ fell off considerably towards Brixham, and getting stern way, 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.”

Again,—

“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, 1847. 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, 246 were drowned.”

The report of the Committee states “the evidence is remarkable for establishing the fact that comparatively few accidents involving loss of life have occurred in Her Majesty’s Navy to boats lowered at sea.” How far this report may be satisfactory to the House of Commons, by whom the inquiry was instigated, remains to be seen. I can only regret that two of the Members of the Committee were unavoidably absent the day I gave my evidence, namely, the Duke of Edinburgh and Sir James Anderson. Of His Royal Highness it would be presumption in me to speak; but the man who conducted the brilliant enterprise of picking up the Atlantic cable, an exploit worthy of the genius of a great maritime country, is not the man to shelve any question that might be useful to the profession of which he is so distinguished a member.

Before passing on, I must be permitted to give opinions and facts other than those appertaining to the Navy, with regard to a system, an amelioration of which the House of Commons has expressed itself so

desirous of obtaining. The following is recorded by the Religious Tract Society, after the loss of the "Kent" by fire in the Bay of Biscay:—

"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 unhooking 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 stern, so as to enable the seaman to release the tackle."

In the case of the Royal Mail steamship "Amazon," one of the survivors 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; 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. 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."

Lieutenant Grylls, R.N., stated:—

"The first boat attempted to be lowered was on the port quarter. Lieutenant 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. Lieutenant 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, Lieutenant 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 stern hung in the air for the moment, until cut adrift by some one, when she turned over, and, seeing the people washed away, Lieutenant Grylls turned aside from the appalling sight in horror."

Mr. Neilson 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 foretackle 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."

William Angus says:—

"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 stated:—

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

George Webb says:—

"The Chief Officer, and several others, were clearing away the after-most lifeboat. He jumped into 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, and he took out his knife and cut it."

Henry Wright 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;" and Alexander Lang, quartermaster, says "that he went to the wheel, but it was fouled by the tackle fall of the dingy."

It was a terrible visitation; this ship on fire, in a dark night, gale of wind, and tempestuous sea, *tearing along at full speed*, without their being able to stop her, and dragging her miserable crew to destruction, and among them the accomplished author of "The Crescent and the Cross;" but "the Committee entertain grave doubts whether, however admirable the lowering and disengaging apparatus may be, it is wise to man and lower a boat in any considerable sea, *while the ship is rapidly advancing through the water.*"* But time and tide will wait for no man, nor will the progress of events stand still in order to keep pace with the minds of the Committee. No man in his senses would lower a boat at *full speed*, if it could be avoided; but if a boat can be lowered safely at *full speed*, it is evident that she could be lowered safely under other circumstances. Other cases might be quoted, such as the loss of the "Orion" on a fine summer's evening, off the coast of Scotland, where, "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 lifeboat was being lowered, there were one or two tumbled out of her." Or, in the

* The italics are mine.—W. S. L.

wreck of the "Conqueror," near Boulogne, where "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 on the poop, that they were not able to lower them. The Captain cut the boats from the davits."

When I had the honour of conducting the Crown Prince of Prussia over this Institution, he did not seem to be so much impressed with the arms or models, as with this theatre. He said, "Ah, there is the value of your Institution." It is a fortunate thing for this country that there is some place where such things as I have detailed may be made known. That such things are of the deepest interest to the great steamship companies and the travelling public, I will quote from the lately published work of an American gentleman, "Around the World by Dr. Prime." He says, speaking of the Pacific Mail Steam Company's ship "Japan," 4,351 tons, between San Francisco and Japan and China:—

"The ship carries thirteen large lifeboats, all ready for launching, each one capable of floating some fifty persons or more; but it adds very little, to my sense of security, to see this array of lifeboats. In those sudden emergencies, which constitute the chief dangers of the sea, it is seldom that they are successfully launched, or prove of any essential service to the mass of the passengers."

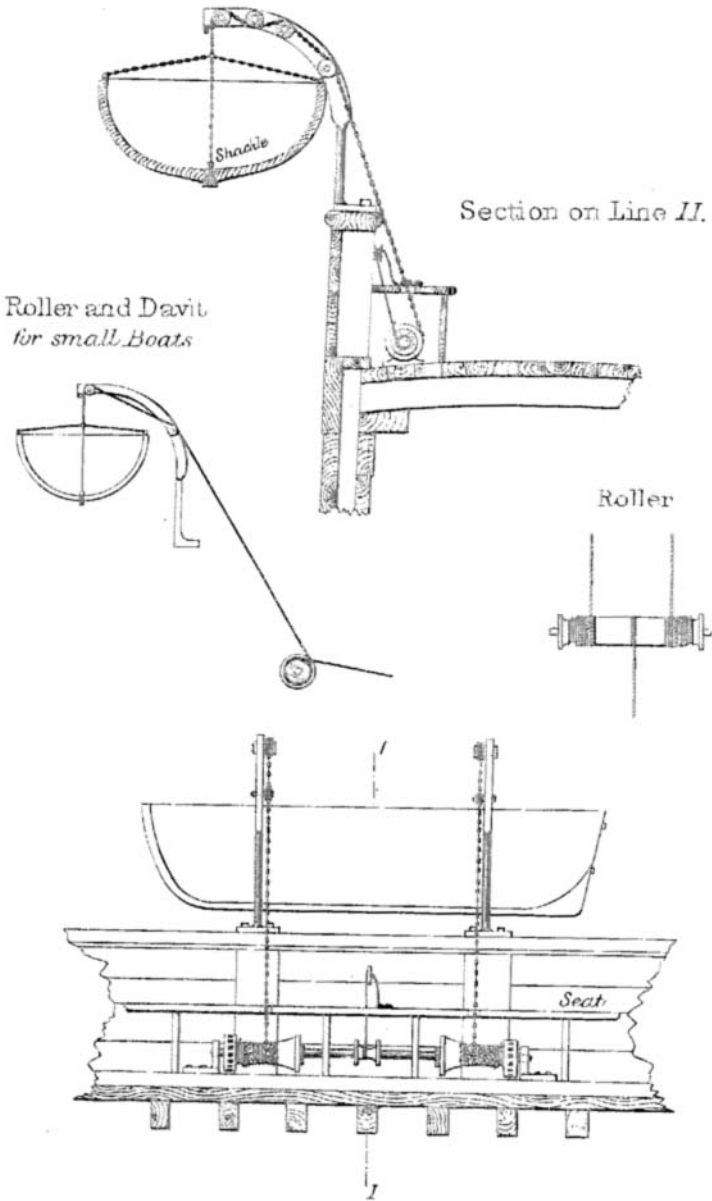
The evidence I have adduced, and the labours of men who for years past have endeavoured to procure an amelioration of the present system (a list of those who have deposited their plans in this Institution is given at the end of this paper) are sufficient proof of the dangers attending "this ordinary service plan." In using these tackles, 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 (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). Under any circumstances it requires the greatest unanimity of action on the part of these six men; but how is this to be insured during periods of excitement and danger, 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 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 be precipitated into the sea and drowned. Not only is this 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 and capstan 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 or chain (called the cathead 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? Many Captains of ships have acknowledged the principle, even in the case of boats, for they have unhooked the tackles and substituted single ropes or pennants; but in doing so, 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 of 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.

(I see many landmen present; I must tell them that sailors are very funny fellows, and have a language of their own. They first cat the anchor, and then they fish it; still Jack is a character we should do well to cultivate, for England may rue the day when she turns her sailors into stokers and pokers.)

Through the press I have stated as follows:—"A screw steamship shall be fitted with four boats on either side of her, and I will undertake, with one man stationed at each boat, to put all of them, full or empty, safely and securely into the water, within one minute of the order being given to lower, *the ship going at full speed.*" If this is no mere theory or vain boasting, then it will be seen how valuable such an instantaneous system must be in these days of monster ironclads, which, if they do go down, will probably, like the "Captain," go down like a stone, or to the light armour-clad ship, which may be sunk by a shot from one of the monster guns now adopted.

Twenty years ago, the plan which follows was fitted to two of the South Eastern Company's steamers at Folkestone, and in the presence of several thousand people, I, accompanied each time by four men, was lowered six times, *the ship going at full speed*, or at the rate of $12\frac{1}{2}$ knots an hour. A certificate, signed by Admiral Sir Edward Tucker, Admiral Hathorn, and twelve other nautical men, testifying to the perfect success of the experiments, was forwarded at the time to the Admiralty; but although, according to the Committee's report, "they have had



"access to and have examined all the records existing at the Admiralty since the commencement of 1852, which bear on the questions referred to them," they have not considered a plan where such results have been obtained worthy of any other fate than being stowed away at the Admiralty, to be out of sight and out of mind.

I will now describe the plan, of which the engraving on the opposite page is a representation.

The Boat.

Eye-bolts are driven through the keel, at the bow and stern, and are clinched. The position of these two eye-bolts will determine the distance apart of the two davits, and the two outer drums to be hereafter mentioned. If the boats are intended to be swung inboard, the eye-bolts must be near the bow and stern of the boat; if not, then they may be nearer towards the centre of the boat.

The Chains or Rope Pennants.

At one end of each rope pennant or chain is a shackle to attach them to the two eyebolts. Just above the thwarts two smaller chains lead from the main chains, and are attached or hooked to each gunwale to prevent the boat from canting, and at the other end of each chain or pennant is spliced on a length of about 25 feet of lead line with an eye at either end.

The Davits.

At the outer end of each davit is an eye-bolt for hooking on the tackles, and in the davits three sheaves, one over or before the other. (If on experiment three sheaves should not be found to be sufficient to control the descent of the heaviest boat, then five, or the pulleys or sheaves must be placed closer together.)

The Roller or Drums.

On board the ship is a roller, or three drums attached to each other by an iron bar. To the centre drum, and round which it is coiled, is attached a rope. On one end of each of the outer drums is a groove for receiving the small lines before-mentioned, and a pin on which the eye at the end of each line is to be placed.

When the boat has been hoisted up by the tackles, the ends of the lead lines are passed over and under the sheaves alternately in the davits, and brought inboard and placed over the pins on the drums. By gently pulling upon the centre rope, the drums are made to revolve, the lead lines are coiled in the grooves for their reception, and the chains or pennants packed upon the two outer drums. When the whole has been hove in and set taut, the centre rope is belayed round a belaying pin or cleat, the tackles are unhooked, and the boat is stowed.

The roller or drums may now be boxed in, or, as was done in the case of the South Eastern Company's steamship "Princess Clementine," covered over with a seat for the passengers. It is worthy of remark that one pair of tackles would be sufficient for all the boats, and these may be kept below, free from the influence of the weather.

In the drawings, the two outer drums are capstan-headed; this is not necessary for lowering, but on board the "Princess Clementine," two men hoisted up the boat by means of handspikes without the intervention of tackles.

Care must be taken that the chains or pennants shall be too long, rather than too short, making plenty of allowance for the light and deep draught of a merchant ship.

Lowering.

One man at the centre rope lowers, and, being on board the ship, can watch the opportune moment to drop the boat into the water. If the boat is lying quietly alongside, the chains or pennants are lowered into the boat by means of the lead lines. If the ship has way on her, the boat will drag away the chains, and they will fall harmlessly into the water. They can now be drawn into the boat, where they will act as ballast; or if the boat is going away for any length of time, they can be unshackled and left on board the ship. In merchant ships, where the boats hang from the davits for a lengthened period, the use of chains instead of ropes would avoid the necessity of freshening the nip.

I regret that time will not enable me to allude to the various plans which have been brought forward from time to time for "lowering boats at sea," showing at least how much it is a want that is felt by the public; but as my opinion was asked by the Committee with regard to Clifford's and Kynaston's, I may say that, twelve years ago, I brought forward Clifford's plan in this Institution, because I was desirous that the public should have some amelioration of the present most dangerous system; but there are these disadvantages attending Clifford's system, the man lowering being in the boat cannot see what he is doing, and very likely lets go into the trough of the sea at the very moment when he should not do so, and the boat itself must be disabled by the heavy roller which is in her. Kynaston's plan does not do away with the very objectionable method of lowering by the tackles, although a Lieutenant told me that he would not use the tackles. I asked him what he meant? He said he should wait till the ship rolled, and then drop the boat on to a sea from the davits. Whether the lifeboat of Her Majesty's ship "Serapis" had her bottom knocked in by this method, I am unable to say.

With regard to the "Challenger," her boat was fitted with Mr. Hill's plan, and Neptune did for them what the smart Lieutenant proposed to do with Kynaston's,—a sea struck the bottom of the boat, and disengaged her, whereby she was lost to the "Challenger," and to Her Majesty's service. Admiral Richards has written to me that this was through no fault of the system, and I believe the inventor claims it, as showing the merit of his plan.

The following plans for lowering boats at sea have been deposited in this Institution, where they may at any time be consulted by persons desirous of obtaining information on the subject:—

Lacon's (1852)..	Journal of the Institution, pamphlet and plan.
Clifford's (1857)..	Journal of the Institution, pamphlet and model.
Kynaston's ..	Pamphlet.
Russell's ..	Model.
Simpson's ..	Model.
Kilner's ..	Model.
Hill's ..	Journal.

Gentlemen, you must form your own conclusions from what you have seen and heard. What I wish further to put before you, points the moral of my tale.

The following is taken from the Journal of this Institution, August, 1866; it is an extra number, devoted entirely to "The Loss of Life at Sea," in order that the attention of the authorities and of the public might be directed towards it. In February, 1853, the *Times*, in a leading article, says:—"As the 'Queen Victoria' was lying in the 'Liverpool Docks last July a gentleman, competent to observe such matters," (and when I mention that he is a member of the Council of this Institution I think it will entitle him to a favourable consideration at your hands), "noticed that her boats were indeed sound and spacious, but that they were enveloped in strong canvas, painted black, and actually laced below the bottom of the boat, while the machinery for lowering them was so defective as to be virtually unserviceable. So absolute indeed was the default of any proper precautions against sudden accident, that the observer called one of the seamen to him and pointed out the circumstances, and remarked that the day might come when this inattention to apparently small particulars might cost many lives. That day did come (within six months), and the lives have been sacrificed accordingly." "The morning was fine and the water smooth. The two life-boats, which ought to have saved so many, appear to have gone down with the vessel." (They were not disengaged from her till sixteen hours after the accident.) "The result is that the lives of fifty-nine persons, including the unfortunate Captain, have been sacrificed."

Of the recent terrible calamity (I refer to the loss of the "Northfleet"), I wish to say but few words. The heart of the country has been profoundly stirred, and no words of mine could paint the horrors on the deck of that ill-fated ship during that awful night. But I must point out to you that the ship was lying at anchor, surrounded by other vessels, and the shore-lights at hand; the water was comparatively smooth, and an interval of three-quarters of an hour intervened between the time of the collision and her going down; but of all her boats two only were available, and of these two, one was stove in, and the other cut from the davits; yet this ship was fresh from Board of Trade inspection, the Emigration Commissioners having very recently been superseded by the Board of Trade.

You have seen how this plan which I have submitted to you was treated at the Admiralty. The Emigration Commissioners refused to

see it. I offered to submit it to the Board of Trade, or to any persons to be deputed by them; they also declined even to look at it. My only object is to make it available for the benefit of the public.

Captain WELLS, R.N.: I should like, Sir, to offer a few remarks upon this lecture which has been an interesting one, and to which we have all, I am sure, listened with a great deal of attention. But at the same time certain remarks were made about the Committee which, to a great extent were, I think, undeserved. The naval members of that Committee are most distinguished Officers and thoroughly known and appreciated by the whole of the Service, and I need not say that the two mercantile Officers are equally distinguished in their relative positions. We have seen Mr. Stirling Lacon's model, and no doubt it works very quickly as a model. But the objections which I have to offer to the contrivance are these. In the first place, if the pennants were worked with chains instead of ropes, I for one should decline to go in the boat at all. In the next place, if the vessel was going through the water (when we know the length of that pennant must be at least 40 feet, the poop of a line-of-battle ship being some 26 feet above the water, must allow for the length of the davit), I have some doubt in my own mind when the boat was shoved away from the side of the ship, if we should not have the end of the pennant in the screw-well. Another remark I have to offer is this. It is proposed to have a number of sheaves in the head of the davit to take the nip of the pennant. Now, although the objection to the chain is quite established in my mind, still, having it rope would be also objectionable, inasmuch as rope is liable to swell; and in the next place, we know what a dead nip is, and the great objection which all naval Officers have made to Clifford's apparatus is, that very dead nip, and the single pennant. I have seen Clifford's apparatus and Kynaston's, as well as the old fashioned plan we have in the Service. I have constantly tried them, and I have been lowered both by Kynaston's and Clifford's apparatus myself, and on one, if not two or three occasions, with Clifford's apparatus after rainy weather; the rope having been made of softened hemp, was found to have swelled tremendously. On the other hand, the objection to the Kynaston's plan is the manner of freeing, which the man has to do in the boat, and as I have seen myself, the boat has been suddenly freed six feet above the water. This invention of course would free itself from the davits, provided it rendered, which I think somewhat doubtful, at all times; however, if it is rope, and does render, some of the boat's crew would have possibly a very severe blow, not to mention the fouling of the oars. The model works very well and very prettily, but whether the plan would work with a heavy line-of-battle ship's or one of the iron-clad's cutters and 14 men in it, is, I think, somewhat doubtful; at least I should like to see it verified before I would allow it. I think the objections which I have raised to the plan have some weight. It certainly has all the faults but one of that of Clifford, and I think it has an extra one of its own, which to my mind would be impossible to overcome.

Colonel STRANGE: May I ask whether this plan has been tried in the Royal Navy?

Captain WELLS: It has not to my knowledge.

Captain BALFOUR, R.N.: I feel diffident about saying anything, but I hardly understand that principle of lowering, whether it is in the way of Clifford's or not; but from what I understand, those pennants are rove in the boat, and they are brought on board and require a certain degree of manipulation, and that one man in the boat cannot let go the apparatus at once. I do not know whether I am right?

Mr. STIRLING LACON: It is let go on board the ship, and not in the boat at all.

Captain BALFOUR: The principle to be desired is, that the boat should be relieved when she touches the water. In Clifford's plan I think you cannot relieve the boat till she sheers. I do not know much about Kynaston's plan, but it has a quantity of gear, and you do not relieve the boat at once. I have a plan of my own, which I am sorry I cannot bring forward in the short time allowed to me to-night. That plan is, that directly the boat touches the water, she is relieved without all that supernumerary gear, with the old tackle and fall, and without any gear but what

is contained in the bottom of the boat. I hope I shall be able to bring the whole thing before you very shortly.

Captain FREMANTLE, R.N.: One thing, I think, has been made exceedingly clear, namely, that it is easier to destroy than to construct. I have seen Clifford's and Kynaston's, and we have now had Mr. Stirling Lacon's plan described to us; at the same time I am not at all inclined to give up the idea of obtaining something very superior to the present Service plan. I quite agree with Mr. Stirling Lacon in what he said as to the question of lowering, but I think he rather understated the case. He said for instance, we must have two men in the boat, two men lowering the falls, and two men seeing the falls clear, and that makes six men. Now everybody is perfectly aware that at least there must be a seventh to secure anything like safe lowering, and that is the most important of all, the Officer or man who sees to the boat being lowered, who is looking over the side and says, "Hold on the after fall," and so on. Under those circumstances I think we certainly should not stop short of some system which is superior to that, and I venture to think Mr. Stirling Lacon is also perfectly right in the view which he takes, which is that something better for lowering must be had than the boat's falls. I think that is a *sine quâ non*. I think, amongst the dangers and accidents which have happened in lowering boats, the most fertile of those dangers is the jamming of one of the falls. I think it is quite unnecessary for me to mention that, to an Officer who can give such a good opinion on the subject as no doubt you will yourself, Sir (referring to the Chairman). That is then one thing which we must guard against. Viewed from that stand point, I must confess the praise which has been lavished upon Kynaston's is, to my judgment, rather undeserved. If the fall jams, Kynaston's is a failure; therefore, if it be a necessity that we should have something which does not lower by the falls, why we must put Kynaston's out of court. Then we come to arrangements such as Clifford's and Mr. Stirling Lacon's. Now I am afraid Mr. Lacon's was pretty well cut up, to use the common expression, by Captain Wells. Captain Wells mentioned several objections, but an additional one occurs to me, and that is, that in unreeling the small lead-line which has to pass round several sheaves, the probability is the small lead-line will jamb between the sheave and the davit, and if that is the case, it strikes me we shall have the boat broadside on and capsized. I have paid some little attention to a good many of the boat-lowering apparatus, and there is no doubt, as has been stated, that the soft Manilla rope used in Clifford's will occasionally swell and jamb. All of us who are sailors must at least recollect certain occasions on which this has taken place; I can recall one or two in my own experience, and other Officers will no doubt be able to recall cases of the kind. Another objection is, that the pennants are only of a certain length, which is supposed to be sufficient to allow the boat to reach the water. No doubt if a vessel gets stranded high and dry, and you want to lower a boat by Clifford's plan, you will find perhaps the boat will be a considerable distance above the water, and Clifford's apparatus will be more or less a failure. But I do think the objection made to lowering by Clifford's plan because it has to be done by one man in the boat, has been made rather too much of. I think the instances of lowering by Clifford's have been most successful as a general rule, where the pennants have been properly looked after, and have not been allowed to swell, and where consequently they have not jammed, and this can easily be ensured against, I fancy, by keeping the boats always hung by the tackles with merely a slip which can be knocked off the instant you have got into the boat. Under those circumstances, no strain being on the pennants, if they are looked to frequently, they will not swell or jamb. The boat can then be lowered with perfect safety, and I venture to say, though there are objections to it, yet on the whole with due deference to the opinion of the Committee on boat-lowering, that Clifford's arrangement has proved itself to be the most perfect of all those that have hitherto been tried. At the same time, I am very glad that Mr. Stirling Lacon has brought this before the "public," as he is pleased to call us, and I hope it will continue to be ventilated, and that we shall have something which is a great deal more perfect than anything which has hitherto been placed before us.

Mr. HENWOOD: I should like to ask Mr. Lacon if he can explain in what way Hill's lowering apparatus failed? From what I remember of the plan when Mr. Hill read his paper here, I can see no possible way by which the boat could be disengaged,

unless it was disengaged by the man in the boat. As regards the fall jamming, if one fall jams, the other jams also by the arrangement of the falls, by a system of rollers inside the bulwarks of the ship, so that one end of the boat will not be lowered without the other is lowered, but if there is a kink in one fall, that will stop both going; they both run or they both jamb.

Captain COLOMB, R.N.: Sir, whenever I hear of a new invention, and the probability of its success or non-success, the first question I ask myself is, "How much more trouble is it going to give?" because I have observed generally that inventions which are new and successful, generally get rid of some existing trouble—they supersede something. Usually when they do not supersede anything, but add an extra trouble, I find the invention does not go down very well. Objections have been made to Clifford's apparatus, for instance, which are no doubt sound and good as far as they go, but I have always taken that the real objection to it was, this extra trouble. I should imagine that the same objection would lie against Mr. Stirling Lacon's plan; there is a certain amount of hooking and unhooking of the falls, a certain reeving and unreeving of the pennants, all things which occupy time and give trouble, and we have a great deal too much trouble, and not too much time usually on board ships, especially on board merchant ships. I have always thought with respect to boat-lowering apparatus, that a really good one must possess three qualities: 1st, the boat must be lowered square by one man; 2nd, the same apparatus which is used to lower must also be used to hoist up; and 3rd, the water, and nothing but the water, should disengage the boat. So soon as we get those three qualities combined in a boat-lowering apparatus, we shall have what we want. I can only say that I have not seen as yet more than two of these three qualities in any boat-lowering apparatus. We have here in Mr. Stirling Lacon's plan the one man lowering the boat; so far I should say that is good. But the water does not detach the boat; on the contrary, the boat may be lowered half way down, may be met by a sea, and dashed against the ship's side with slack tackles, it being impossible to disengage her. She may then come down with a jerk, as we know will happen, and men may be thrown out by that jerk. In Clifford's, in the same way you had precisely the same defect, but of course Mr. Stirling Lacon's, so far as it goes, is better than Clifford's, inasmuch as the work of the one man is done inside the ship, instead of in the boat, which all admit to be an advantage. Both Clifford's and Mr. Stirling Lacon's enjoy the advantage of the boat coming down square, which is a very important matter. Now Kynaston's plan does not enjoy that advantage of coming down square. It does not detach on reaching the water, but it is very nearly the same thing, because it can be detached at any moment, which is not the case with either of the other two. But Kynaston's, as Captain Fremantle has very properly remarked, possesses that very great disadvantage, that there is the chance of jamming the falls, and one fall being lowered and the other held on. Those are three plans before us. If I am right in supposing that the three qualities I have mentioned are those necessary for a perfect boat-lowering apparatus, it is quite clear that neither of those three plans are perfect, and I presume that until we get a perfect plan, no committee that ever sat would recommend the doing away of that which, however inefficient it may be, has been in use for such a number of years.

Mr. GUMPEL: No one can question the noble object Mr. Stirling Lacon has in view in bringing forward this plan, but still I must confess that it has its deficiencies, though perhaps in minor points. One point which has been overlooked is this, that as soon as the boat reaches the water, it sheers off, and brings these chains into a position in which they do not fairly run over the sheaves; a kink, or anything of that kind might occur, and a stoppage take place in the sheave, or davit. These things are likely to happen with this apparatus, and that is only one of many other objections which can be raised against it. The last speaker mentioned three requisites for any boat-lowering apparatus, the first being to have one man to lower from inboard. Now this can be done with common falls, by means of a simple apparatus, one man can at the same time see the boat, and, by means of a lever, allow the boat to go down on an even keel at any speed, and at any moment he may choose. I can show that at any time, and if permitted will bring the whole thing before this Institution. The second requisite was that the boat should be disengaged as soon as she reaches the water. This, too, can be done; a certain form of hook can be attached to the

existing block, and be made so as to disengage itself as soon as the boat is completely waterborne, not like Hill's, which is not always disengaged when the boat reaches the water, since there are cases in which the strain is constantly kept on the hook, even after the boat is afloat, and the hook cannot disengage. The only way it does disengage is when the wave strikes the boat, and suddenly disengages the slings from the hooks. I say that is the only way in which it can be done, and it is admitted by people who have tried it, that when a boat is lowered in smooth water, with good way on the ship, as soon as the boat reaches the water, the strain is kept on the hook, and the hook does not disengage. All this can be avoided by a very simple contrivance. The boat, as she becomes waterborne, disengages herself, and the hook can be so constructed that when the boat hangs on the falls, it requires the pull of the weight of the boat to disengage it, or you may make it so that the pull of half the weight of the boat will disengage it. She does not disengage until she is completely waterborne. I am prepared to show this. Now comes a third point, that of using the same tackle for raising the boat. This also can be done, it is simply a question of cost. To the arrangement which I have devised for lowering the boat, a small windlass could be attached, enabling, according to the weight of the boat, one or several men to hoist her.

Mr. HILL: I am not getting up here to criticise or find fault in any way with any apparatus, but, quite unexpectedly to myself, I heard my name mentioned by Mr. Lacon, in his paper, in reference to my invention which has been tried on board the "Challenger." I have not met with one sailor who could advance any great objection against the invention, and I rise here now to ask if any gentleman who is here can point out any faults therein. I may say I hope soon to have a model which every one may inspect in this Institution. Now in order to show you that the loss of the "Challenger's" boat from the davits must not be considered adverse to the invention, I will read you a copy of the report which Captain Nares sent to the Admiralty. "The port quarter boat fitted with Messrs. Hill and Clark's Patent Disengaging Hooks, had been kept ready for immediate lowering, with the safety pins out. As the men were about to enter the boat to replace and secure them, a very heavy sea, combined with a lurch, dipped her in the water. The hooks immediately slipped (as is Mr. Hill's intention), and the boat was washed from the davits. Before steps could be taken to recover her, the foremost thwart to which the boat rope was attached, was carried away, probably in consequence of the boat being struck against the ship's counter, and she drifted astern, and was lost.

"Although this boat was undoubtedly lost in consequence of the falls being fitted with Hill and Co.'s disengaging hooks, I still think them most valuable, and on seeing the boat ready for lowering with the safety pins in, which prevents the falls unhooking, I made the men try to draw them out, and finding that they could not do so without first using a marine-spike to twist them round, I ordered them to be kept out. The pins were probably in the present case a little large and stiff, through being galvanized."

The galvanizing was done at the last moment, and that accounted for a little stiffness. Captain Nares ordered me to fit another boat with the apparatus, and the "Challenger," I am happy to say, has arrived at Gibraltar with that apparatus on board, and no account of any further accident has been recorded.

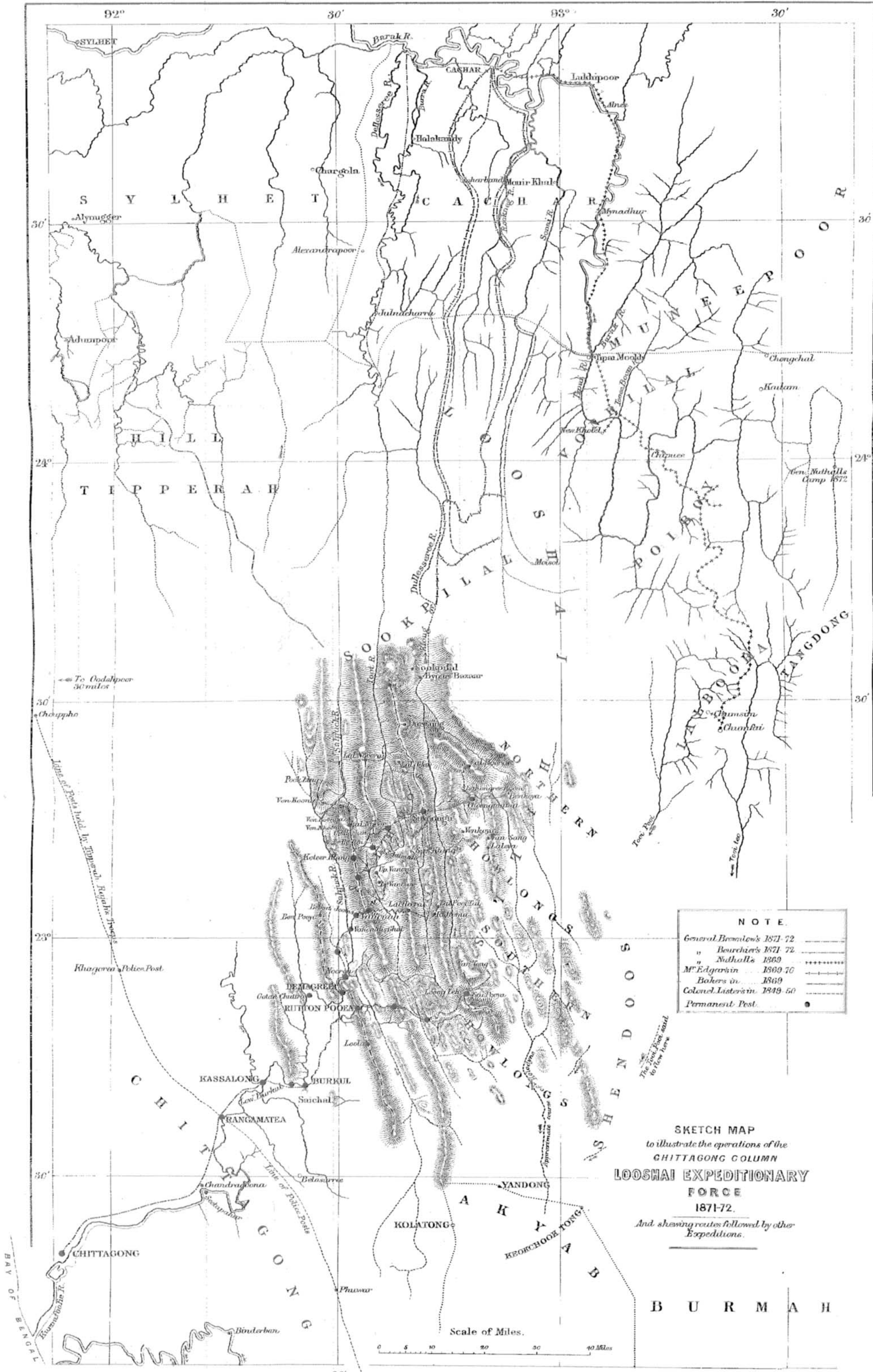
In conclusion I may add the "Challenger" is not fitted with our lowering gear, but simply with our patent disengaging hooks. The lowering gear enables one man to lower the boat upon an even keel by the old falls, without fear of accident.

The CHAIRMAN: I believe it is not the duty of the Chairman to criticise, but rather to try and make matters as pleasant as possible for all parties. I wish, however, to make one remark with regard to the old Service plan, because I think it will be useful. If boats are lowered into the sea in the manner just displayed to us, there would be great difficulty in unhooking the tackles, even if the boat came down fairly; but the "Phæton" having been alluded to, I must tell you that in that ship we always had a strong boat's painter passed forward along the ship, and stopped up to the main chains, just sufficiently long, so that when the boat touched the water the painter caught the boat and kept her from going aft, so that the men in the boat could unhook the tackles. With this precaution I have never had any hesitation in smooth water in lowering quarter boats when the ship had headway. I believe that

another matter has been very much neglected. We have been fitting our quarter boats, which is quite necessary, but we have neglected our stern boat. I believe a boat can be let go from the stern and let run on Mr. Lacon's or any other similar plan. It is generally a smaller boat, and therefore I have found that by having the stern boat fitted so that she could be let run with a pennant in the manner just described, it can be done with more safety than from the quarter, because there is no doubt that where a boat is slipped from the tackles, either on this or any other plan, strict attention must be paid to the roll of the ship, which is not an easy matter, and if any mistake is made in carrying out these complicated arrangements, the consequences may be very serious. One or two remarks have been made which I may just notice. One was with regard to letting these chains drop on the men. I do not think much of that, nor do I think that the chain could get into the screw well. I do not think that the chain would injure the men, but if it did, you might splice a rope on to the end of the chain. I dare say it would not be pleasant to have it on one's head, but I do not think it would injure a man, and Jack does sometimes stand a good crack without caring much about it. Then it was said that the lead-line would interfere, because if the lead-line happened to jamb, the boat would be swamped by it. I do not think the lead-line would hold on. I think it would break immediately such a strain came upon it. I do not know that an Officer is ever placed in a position of greater responsibility than he is when he is called upon in bad weather to decide whether to lower a boat after a man who has fallen overboard, because the question is this, whether you are not going to lose perhaps eight or ten men in the endeavour to save one. I have heard what my friend Mr. Stirling Lacon has said, and I should really prefer his plan to either Kynaston's or Clifford's. I have never adopted either of those plans, because I considered that they were just as likely in the long run to cause accidents as they were to prevent them; that was my opinion. For that reason I always fitted my boats in the ordinary way. I consider Mr. Lacon's a very sensible plan for smooth water, but I see the objection of letting go when the ship is not on an even keel. If the vessel happened to be rolling heavily, the boat might be let go at some distance from the water, which would be objectionable. This question of submitting plans by models is, I think, most unsatisfactory, and few have the opportunity of having them put to actual test. The question of saving life at sea is one to which many may remember my name has been attached for a very great number of years. I have always had it on my thoughts. I think a good deal could be done to save life at sea, and I think very little has been done. I hear that in the United States they have an association for the purpose of promoting the safety of life at sea, and that that association has done a great deal of good. I am happy to say an association of a similar kind has been formed in England, and will be heard of in a very short time. I trust everybody who can, who has this great and important question at heart, when they see this opportunity afforded them will come forward to assist that association to promote safety of life at sea, by putting a model merchant ship into the water to contain all the best means and appliances by which life can be saved, whether it be for the lowering of boats, or for saving the breaking of chain cables, or preventing collision, which is the most important thing of all. We have railways on shore; we have the Board of Trade enforcing railway breaks, not only that, but enforcing the adoption of the very best break that can be procured. At sea we have ships running with a screw propeller which has no power whatever to arrest the progress of the ship, and until we do get a break of some kind to our ships we shall never stop collisions, because if the helm happens to be put the wrong way, on the ship must go, and she must go over everything in her way.

MR. STIRLING LACON: I ought to have spoken before Admiral Elliot, in answer to Captain Wells, who spoke of the danger from the chain falling on the men. Now there is no necessity to have a chain. You may have rope pennants. Then, as to the fouling of the screw, I should think the first thing the Commanding Officer would do in the event of lowering the boat would be to stop the screw. With regard to Mr. Hill's remarks, he will recollect that I stated Admiral Richards had written to me saying that it was through no fault of Mr. Hill's plan that the accident took place.

THE CHAIRMAN: I am sure we are greatly obliged to Mr. Lacon for having brought this subject forward in the very able manner he has done.

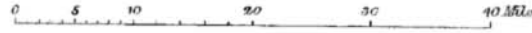


NOTE.	
General Brownlow's 1871-72	—
" Bouchier's 1871-72	—
" Nuthall's 1869	—
M ^r Edgersin 1869-70	—
Bakers in 1869	—
Colonel Lister's in 1849-50	—
Permanent Post	●

SKETCH MAP
to illustrate the operations of the
CHITTAGONG COLUMN
LOOSHAI EXPEDITIONARY
FORCE
1871-72.
And showing routes followed by other
Expeditions.

BURMAH

Scale of Miles.



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