

the water line, the additional resistance to wind could only be an almost inappreciable trifle and at any rate a disadvantage not to be weighed against the inappreciable boon of a certainty of absence of all danger for one's life.

Now as to the effect of waves impinging endwise on these projecting rafts which they of course would do during high seas, it will be seen as well by the photographic view as from the plans and models that this is provided for by fenders at each end so made of a kee form, as to parry off the force of wave and cause it to expend itself along the upturned bottoms of the successive rafts, precisely as it would have done if the rafts were not there, against the flank of the vessel itself and without any tendency to move the rafts thus supported and thus solidly fixed in situ and close alongside vessel, with bolters reaching down from gallery to gallery. Our photo-gravure shows at top, an elevation plan or view of the raft as, when not in use, attached to flank of vessel. The lower diagram or figure is a bird's-eye view of the raft when in the water, and the right hand figure, a cross section of flank of vessel and through raft as well when in place alongside as when in water in the act of landing, and in this figure can also be seen the pendant raft tie bars acting as fenders to prevent the raft from getting foul of projecting gallery.

Of the original prize of \$20,000.00 there are now available but \$18,000.00, the Jury of October 1900 having awarded \$2,000.00 to M. Roper for an over-deck raft. This is merely an extension of the hurricane or observation gallery on any vessel, reaching from flank to flank of vessel and made wider. This over-head deck raft is supposed to run off on rails and rollers until it falls into the sea. The jury awarded it something as being "something in the right direction", that is in its main feature of saving several hundred of the passengers and crew simultaneously; but the Jury pronounced it too big and unwieldy and at any rate it would seem difficult, if the raft as the Committee said, were made to hold only half the number of passengers, to see how space could be found on and over deck for enough such galleries or rafts, to ship and save a crew of from 2,000 to 3,000 souls — while the experiment's system is extensible at will, and even to 5,000 souls in a vessel like the *Celtic* without the 18 or 20 rafts required 9 to 10 on each side, reaching so far as to encroach on the curved ends of the vessel fore or aft. And again it must be improbable, but, launched from such a height above water, M. Roper's raft can reach the water otherwise than at an angle approaching to a right angle and thus plunging beneath the surface, is sure to ship much water before righting itself for the reception of passengers; and all this water to be bailed out before passengers can enter raft, or wet every one's feet and legs and thus expose all to colds and coughs and sickness and thus hasten the death of many of those on board.

M. Baillargé, though he has done all the work of the present exhibits, including plans models, specifications, correspondence, calculations of weights and cost and buoyancy, has nevertheless associated M. Hurly's name with it, because of this, M. Hurly's, originally conceived scheme of *side* instead of *deck* raft — though M. Baillargé must have likely arrived at the same disposal thereof, had he from the moment of the institution of the Palluk prize set his mind to work out the problem.

The jurors will please see, in experimenting with the models, that the bath or reservoir if too small or narrow which mine is, which accompanies the models, be well filled with water every time the raft is let fall into it; as otherwise, the wave of water displaced and driven away by the raft when launched, would cause a return wave or swell which would or might cause some water to enter the raft when it falls into the bath or cistern.

Mr. Baillargé would suggest that the reservoir experimental with be so wide, alongside the model or vessel as to allow the wave or swell of water caused by the raft on falling into it, to spread out and go forward towards the open, as would be the case at sea.

The supporting gallery should and need not be more than from 3 to 4 ft. above sea level for the 20 ft. raft or 3 ft. for the 12 ft. raft above level line or draft of water; a height sufficient to be no obstruction to light of dead-eyes beneath the gallery; as, the nearer the gallery to the water, the easier and surer of launching the raft without any danger of its shipping water, and as its total draft when loaded will be but 2 to 2½ ft. or thereabout it will thus be at a convenient level to step into or out of.

Ocean navigation, swell and so called mountain waves are not unknown or unknown, dear to the writer who crossed the ocean in February 1874 in the S. S. *Circassian* of the Allan line in 14 days of stormy water, going by Portland and back in 10 days by the St. Lawrence route.