gated by a vessel 520 ft. long, 61 ft. beam and 12,000 tons dead weight carrying capacity (or about 20,000 tons displacement), and that the economy of such a vessel was nearly double that of a vessel of 5,000 tons dead weight. It follows that a larger vessel would be still more economical, the limitations being only depth of channels, capacity of harbours and facilities for furnishing and handling large cargoes.

In the same paper he pointed out that a greater degree of safety and immunity from accident would be obtained by a large vessel than several small ones of equal capacity. One of the reasons for this is that a large vessel, such as we have under consideration, will usually be commanded by higher salaried and more competent officers than a smaller ship or tramp vessel. This means that the accidents, due to ignorance or negligence, and which may be classed as avoidable, will be reduced. There are also risks of the sea, which may be classed as unavoidable. These will also be less with a large ship than with a small one, for the reason that the large ship does the work of, say, three small ones, or, in other words, carries as much cargo in one voyage as the smaller vessel will do in three. Consequently, the risk from unavoidable disasters is one-third in point of time of exposure to such disasters for a given amount of commerce, and furthermore the large ship is more staunch and seaworthy, and thus better able to withstand the stress of the sea.

The assertion that better paid and more skilful officers and crew of a vessel carries with it greater immunity from accident, is borne out by the history of the lines coming to Montreal, as comparatively few accidents happen to the large and well-appointed regular liners whose officers and crew are experienced in the service. The majority of the accidents are those which have happened to the smaller class of vessels, and are due either to inexperience or negligence.

In pursuit of great economy and money-making capacity, the size of vessels is ever on the increase. Hence the necessity for deeper channels and greater facilities for handling of cargoes. Many vessels are in use larger than the size above, and the limit of depth for a first-class ocean port is now from 35 to 40 feet.

The condition of the St. Lawrence ship-channel, in 1901, was that the much-to-be-desired 30-foot stage of water was still some distance off. There remained some 25 millions of cubic yards to be dredged. (*1) and the fleet of six large dredges were removing it at the rate of about 2½ million yards per season (*2). In order to meet the

(*1.) See Estimate 30 foot channel Dec., 1902; Annual Report Dep't. Public Works, p. 146.

(*2.) The total number of cubic yards dredged in year ending June 30, 1901 was 2,479,385 cubic yards. See Annual Report 1901, p. 186.