

plicable via the all-rail routes, it would seem to be necessary for the C.V.R. which serves no large city with its own rails, to operate, or control the operation of, boats between New York and New London; and, if the extension of the rail line to Providence is to have the effect of increasing the value of the route of the C.V.R. and the G.T.R. between New York and the west as a competitive force, it would likewise seem necessary for the petitioner to operate, or control the operation of, boats between New York and Providence. The application was granted.

**Boston and Maine Rd.**—This application covered the operation of the s.s. Washington on Lake Winnepesaukee in New Hampshire. The traffic carried on is purely a summer one and local. On account of its size, the vessel cannot serve more than 6 of the 32 landing places on the lake, the balance being covered by other independent companies. The company has offered to sell the vessel, but makes a stipulation that the service is to be maintained at its present efficiency for the summer residents. The company also owns the s.s. Lady of the Lake, operating on Lake Memphremagog, situated partly in Vermont and partly in Quebec. This vessel, which is registered in Canada, touches at one port only in the U.S. The B. & M. R., in connection with the C.P.R., publishes a joint fare of \$1.75 between Newport and Magog at the head of the lake in Canada, the rail distance being 59 miles. The distance by water is approximately 30 miles and the fare is 85c. There is a competitive company, the Memphremagog Navigation Co., which also serves Newport. No request has been made to the B. & M. R. for through routes and joint fares in connection with that company, and it was intimated that if such request were made, it would be granted. The B. & M. R. has endeavored to sell the vessel, and would do so now, if a purchaser could be found. It was decided that so long as the vessels were operated as at present, they were in the public interest, and the application was granted.

**Maine Central Rd.**—The company operates a steamboat service from Mount Desert Ferry, Me., to various points on Mount Desert Island and on Frenchmen's Bay, and a similar service from Rockland, Me., to various points in Penobscot Bay, and between Bath and Woolwich on the opposite sides of the Kennebec River. The operation of vessels on the last named route are possibly within the Panama Canal Act technically, but as their continued use by the Maine Central violates none of the provisions, it need not be further considered. The Mount Desert line is run chiefly for the benefit of summer traffic, as is also the Penobscot Bay service, both of which, by themselves, were operated at a loss during 1915. The Eastern Steamship Co., an independent line, runs vessels through Penobscot Bay, calling at the same ports, and it was shown that all the traffic could not be handled by the vessels of either company alone, and that the Eastern Steamship Co.'s service has not been modified since the B. & M. service was inaugurated. The application was granted.

During the continuance of the war, the regulation of the internal traffic in Halifax harbor is under the direction of the Department of Naval Service, as represented by the Captain Superintendent of H. M. C. Dockyard. All masters of vessels, pilots and all other persons concerned must obey the instructions issued by him or his representatives.

### The Submersible Vessel Deutschland.

The recent arrival and departure of a German submersible vessel at Baltimore, Md., have occupied considerable space in the daily press, and comments thereon have in many cases been made in sheer ignorance as to the actual value to be placed on such trips. The whole matter should be viewed in its true perspective, and neither magnified into an abnormal achievement, nor minimized into something of no account. If it was intended to prove that it was possible for a vessel to cross the Atlantic under water, then the trip failed, as it was not claimed that the trip was made under water for the whole way, somewhere about one third of the distance being accomplished under water. Apart from this, it is claimed in England with some show of authority that submersible vessels had already crossed the Atlantic, from Canada to England, last year, without fanfare of trumpets. Again, if it is intended to show that blockade running can be successfully carried out by the Germans, the success achieved so far is infinitesimal, and at a really prohibitive cost. Information which has been made public, as to the cargo and of the vessel itself is vague and contradictory, so that it is not possible to build correctly on what has been obtained. Some calculations have been undertaken by Engineering, London, Eng., with the information it had at hand, and these show that submarine navigation with vessels of the type used is a commercial and financial impossibility. Assuming a surface displacement of 2,000 tons, with a length of 300 ft. and 30 ft. beam, with a collective b.h.p. of 2,600, the surface speed would be 14 knots an hour. With these dimensions a deadweight cargo capacity of 800 to 1,000 tons is impossible, and under the most favorable conditions regarding disposition of weight in the vessels and her machinery and stores, a greater cargo than 350 tons could not possibly be carried by a submersible vessel of 2,000 tons surface displacement. The hull, including the ballast keel, water and air service, auxiliaries, electric cables, fittings, etc., will weigh about 1,100 tons. There is of course a difficulty in determining exactly the electrical equipment for propulsion when submerged, and the power available and the speed obtained when submerged, but there is room only for a slight percentage of error. The captain stated that he proceeded 90 miles under water without requiring to charge his accumulators, so that his radius of action is provided by his storage batteries. The machinery, including the main Diesel engines, electric motors, storage batteries and lubricating oil, would approximate 260 tons. The capacity of the fuel oil tanks has been stated as 190 tons. The crew, fresh water, provisions and other stores cannot be put at less than 60 tons. The remaining weight, including trimming ballast, gun and ammunition, which it is stated were carried for protection, may be taken as 30 tons. The total of the weights as given, shows that out of a 2,000 ton surface displacement, there is left only 350 tons as cargo deadweight carrying capacity. The weights allowed give an approximate radius of action of 4,500 nautical miles at 14 knots an hour, and 6,650 nautical miles at 11½ knots. Assuming the reserve buoyancy as 55% of the surface displacement, the displacement when submerged would be about 3,100 tons.

### Stranding of the s.s. Arachne Investigated.

An investigation into the causes of the stranding of the British s.s. Arachne, near Point Plate, Miquelon Island, June 20, was held at Quebec, Que., recently, before Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Commander E. G. V. Elliott, R.N.R., and Lieutenant J. A. Murray, R.N.R., as nautical assessors. The Arachne was bound from Montreal with a cargo of wheat in bulk and bags. The master, G. R. Sargent, stated that the weather was thick intermittently, and he was on deck continuously, with the officers of the various watches. He believed he heard the horn at Point Plate, but did not know it to be that horn, taking it to come from a sailing vessel, and believing he was on a right course, there was no influence to cause him to go in a different direction. The telegraph remained at full speed until the time of the stranding, but verbal instructions were given to ease off steam, which was done. On seeing a dark shadow ahead, he gave orders for full speed astern, but the vessel grounded. After this orders were given to launch the boats, and soundings were taken when it was shown in his estimation that the vessel had run about one third of her length on the rocks. He came to the conclusion that she could not be refloated without assistance, and proceeded to St. Pierre. On his return 800 tons of grain were jettisoned and 1,200 tons put into lighters, and with the assistance of other vessels his vessel was released eight days after she struck. Evidence of the other officers shows that they accepted the courses given to them by the master, and did not verify them by consulting the chart.

The court decided that in view of the master's conduct, and taking into consideration his long service without accident, also his frank confession of the facts as they occurred, without any attempt at prevarication, it would show its appreciation of such evidence and his long good record, by not retaining his certificate, but censuring and reprimanding him severely for the non-accomplishment of simple navigation principles, which, although ordinary, are necessary. The court also had in mind the scarcity of experienced masters occasioned by the abnormal conditions existing. The court also cautioned the master that he should see that his officers have sufficient ambition to ascertain for themselves that the courses given them are right, for the benefit of all concerned. Regarding the first and second officers, J. E. Turner and E. Evans, who are men of long experience in sailing and steam vessels, the court was astonished to note the lack of ambition displayed on their part, in accepting the information conveyed to them by the officer being relieved, as to the course, without ascertaining if it was one which would carry them safely through the watch, and in view of this lack of interest, they were warned and reprimanded severely. The conduct of the engineers was beyond reproach.

The Robert Reford Co. has been appointed agent for the Compagnie Generale Transatlantique, at Halifax, N.S., in place of S. Cunard & Co., whose shipping agency business there has been taken over.

The British s.s. Athos, which grounded near Trepassy, Nfld., recently, was temporarily repaired there, and then taken to St. John's, where she was docked for overhauling and complete repairs.