

hour and 21 miles an hour with an ordinary freight load. The dimensions are: Length over all, 365 ft.; length between perpendiculars, 341 ft.; breadth, moulded, 50 ft.; depth moulded to main deck, 18.6 ft.; depth moulded to spar deck, 27 ft.; depth moulded to awning deck, 35 ft.; depth water ballast tank in freight hold, 4 ft.; depth water ballast tank in engine room, 5.9 ft. The classification of the entire steamer will be the highest of the Great Lakes Register.

The hull is to be built on the channel system with solid longitudinals extending from the top of floors to the inner bottom, chocked to shell plating and continued fore and aft as far as possible. The spar and main decks are to be steel throughout the entire length of the steamer. The highest grade of steel will be used. The hull will contain nine bulkheads, after peak, engine room, two coal bunker bulkheads, boiler bulkhead, three bulkheads in cargo hold and a forward collision bulkhead. A double bottom will extend from stem to stern of the steamer, being 4 ft. in depth from collision bulkhead to after end of boiler room, and 5 ft. 9 ins. from engine room after to peak bulkhead. The cabins will be spacious and will include many new features. Accommodation will be provided for 500 first and second-class passengers. Running hot and cold water will be provided in every room. A large observation and ball room, 80 by 30 ft., will be on the upper deck. The interior of the cabins will be finished in mahogany and artistically finished from end to end.

The propelling power will consist of a vertical quadruple expansion engine, with cylinders 24, 35, 52 and 80 ins. in diameter, and a stroke of 42 ins. These will be supplied with steam by six Scotch marine boilers, 12½ x 11 ft., with a working pressure of 250 lbs. of steam to the sq. inch. These boilers will be set on the tank top, athwart ship, three on a side, all facing one firehold running fore and aft. The boilers will be fitted with the forced draft system. Each boiler will contain 264 3-in. tubes, and two corrugated steel furnaces, 44 ins. inside, and 2,030 square feet of heating surface. The coal bunkers will be both fore and aft of the boilers, with a trunk feeder fore and aft. A complete refrigerating plant will be installed in the engine room, where also will be an electric lighting plant. The navigation end of the steamer will be supplied with the most modern instruments and all the latest and most improved appliances.

The plans have been prepared by H. Calderwood, Toronto, with F. Kirby, of Detroit, Mich., as consulting naval architect. Mr. Calderwood will also act as inspecting engineer during construction. Delivery is to be made in the spring of 1909.

Reciprocating Engines vs. Turbines.

From the Scientific American.

A remarkable demonstration of the fact that the marine turbine does its best work when running at high speed, and that it ceases to be economical at low speed, occurred recently on the Great Lakes in connection with an attempt to capture the passenger traffic between two points, by placing upon the route a new and fast turbine steamer. The old-established service was operated by two boats, run by reciprocating engines at the very moderate speed of 16 miles an hour. The new company ordered a 21-knot turbine-driven boat from a British yard, placed her in service, and immediately began to secure the cream of the traffic. A representative of the old company, happening at this time to meet in England an engineer who had been prominently associated with the development of the turbine-driven steamship, told him of the conditions, and sought his advice as to the best way to meet

the competition. The turbine engineer asked what was the speed of the boats of the competing lines, and on learning that it was respectively 16 and 21 knots, stated that it would be a very easy matter for the old company to drive the new fast boat off the route, by the very simple expedient of dropping the speed of their boats from 16 to 13 or 14 knots, and making the big reduction in fares which the reduced running expenses of the boats would render possible. He stated that the company owning the turbine steamer could never meet the cut in rates, for the reason that the reduction of the running speed of their vessel would not bring any corresponding reduction in the coal consumption. The company determined to make the experiment; and, after running their boats for a few months at a lower speed and a lower rate, they found that they not only recovered the passenger traffic which they had lost, but that the reduction in running expenses was so great, that they made more money than they had done under the old conditions. Furthermore, it was not many months before the turbine steamer was laid off the route and offered for sale.

It should be understood, however, that the conditions were peculiar at this point, and that the patrons of the line consisted largely of working people, to whom the reduction in fare, even if gained at the expense of time, was a decided consideration. Under average conditions the faster boat would have held the traffic, even at the high rates. We record the incident merely as showing in an interesting way the limitations imposed upon the marine turbine by its inability to run economically at low speed.

Tonnage of Vessels Registered.

The Minister of Marine, in reply to a question in the House of Commons recently, gave the following figures, showing the tonnage of vessels registered in the various provinces during the statistical year ended June 30, 1907:

	STEAM.						SAILING.			
	Wood.		Steel.		Wood.		Steel.			
	Gross.	Net.	Gross.	Net.	Gross.	Net.	Gross.	Net.		
New Brunswick.....	220	153	44,938	29,140	1,511	1,417	.....	543	
Nova Scotia.....	771	467	1,650	990	6,373	5,502	1,360	1,226		
Quebec.....	622	402	3,623	2,145	4,385	4,154	1,318	978		
Ontario.....	5,629	3,448	14,006	8,880	5,983	5,394	1,127	.....	
Prince Edward Island.....	211	98	.....	.....	117	95	.....	.....
British Columbia.....	5,247	3,313	351	185	1,250	1,238	1,496	1,380		
Manitoba.....	438	283	.....	.....	.....	.....	.....	.....
Yukon.....	.....	89	.....	.....	.....	.....	.....	.....
Saskatchewan.....	141	.....	.....	.....	.....	.....	.....	.....
Total.....	13,279	8,253	64,568	41,340	19,619	17,800	4,601	4,217		

For the same period the Customs Department paid the following sums for drawback on ships: Ontario, \$10,747; Nova Scotia, \$4,132.34; Quebec, \$2,012.83; Prince Edward Island, \$125.51; New Brunswick, \$120.64; British Columbia, \$78.01.

Quebec's Future as a Port.

The future of the port of Quebec was the subject upon which a lengthened interview was recently given by J. G. Scott, General Manager of the Quebec and Lake St. John Ry. In his view the future of the port is bound up with the development of the great territory northward and eastward and westward. The first railway to enter this territory was the Quebec and Lake St. John Ry., and it has done a great work in opening up land for settlement, in creating trade and adding to the wealth of the community. As a result there were, it was claimed, at least 10,000 men working during the present winter along the line. The construction of the Transcontinental Railway would bring in a large amount of trade to the port, while the Canadian Northern Ry. would also make the port a shipping point upon its transcontinental line. Then there was also the projected Trans-Canada Ry., with a route 100 to 300 miles further north than the transcontinental G.T. Pacific Ry. This would be the shortest route from Port Simpson to the Atlantic coast. It might seem Utopian to speak of a fourth transcontinental line, but he was of opinion that there would be business for it. The wheat belt of the great North-west extended 400 miles further north than the projected railway, and being over 300 miles north of the U.S. boundary would be a safer military line than any of the others.

The vital question for Quebec, however, Mr. Scott said, was terminals at the port. It would take quite as long to construct the docks, elevators and other terminal facilities as it would to complete the National Transcontinental Ry. Unless these terminals were ready when the railway was the traffic would be diverted elsewhere, and lost entirely. The Terminal Company had a plan for a splendid system of docks stretching from Diamond Harbor to Sillery, and the construction work should be undertaken without delay. The Louise docks are insufficient even for the comparatively small trade brought to Quebec by rail at the present time, and the proposed extension of these docks on the St. Charles side will be none too much for the business of the C.P.R. and the Canadian Northern Ry. There is only one berth at the Louise docks where a cargo of rails can be landed, or a general cargo shipped. "What kind of port is this," said Mr. Scott in conclusion, "for handling the business of three transcontinental railways?"

Dominion Coal Company.

Following are extracts from the annual report for 1907:

The weather experienced throughout the winter and the spring was abnormally severe, thereby delaying the opening of navigation at Sydney by about four weeks, and owing to the presence of drift ice along the Nova Scotia coast and in the Gulf, the regular shipments to the St. Lawrence did not begin until June 6. These unusual conditions rendered it impossible to get up the full quantity of coal required for St. Lawrence points during the season of open navigation; supplementary shipments had to be made via Portland, Me., after the closing of the river, entailing heavy additional cost of railway carriage from that port to Montreal. The delays to steamers also caused an increase in the freighting costs.

In response to the invitation of the Federal Government to tender for the establishment of a wrecking plant to afford aid to wrecked, disabled or stranded vessels within the coastal waters of the Maritime Provinces and the Gulf of St. Lawrence, an offer was submitted by the company which was accepted, and an agreement entered into for five years. Cer-