of the whole work is the scheme that has been adopted to remove some 140,000 cu. yd. of rock in the immediate entrance channel to the dry dock. The grade of the excavation in this channel is El.—32, which, with a 28 ft. maximum tide, gives which, with a 28 ft. maximum tide, gives 60 ft. at highest water. The depth of rock at the entrance to the dock is 48 ft. and the rock dips below grade 500 ft. out from this point. The width of the entrance channel is 250 ft. The custom-ary method of submarine drilling and blasting and dredging was at first con-sidered for the removal of this rock, but the anticipated difficulty of drilling to a 60 ft. depth, at high water, with rise and fall, of the tide, and undertow, suggested the possibility of coffer damming the whole area and excavating in the dry. This scheme also appeared to assure bet-ter results in the excavation of foundater results in the excavation of foundations for the lay to and fitting out berths.

dam was completed in Dec., 1919, and the water let out at low tide period, the succeeding high tide being kept out by making a closure in a sluice left for that pur-The sheet piling has been found pose. to be tight, but leaks have developed at the inner end of both side walls, necesthe inner end of both side walls, neces-sitating cutting off where these walls make contact with the bank. Unusually severe weather conditions this winter have interfered with further work on the cofferdam, but work will soon be re-sumed and no difficulty is anticipated in making a satisfactory closure. The cru-cial test of the cofferdam will be when cial test of the cofferdam will be when the overburden in the enclosed area is removed. The danger to be found will be from water in sand and gravel beds coming underneath the sheet piling. De-pendence is being placed on the continuity of certain beds of clay, which, it is expected, will form an impenetrable seal.



Looking along top of Breakwater at Courtenay Bay, St. John, N.B.

A decision having been arrived at, a cofferdam, enclosing an area about 600 x 600 ft. has been built. The cofferdam consistence inclusion of 6 inch B. C. x 600 ft. has been built. The cofferdam consists of a single row of 6 inch B. C. en from a substantial 4 pile bent trestle, on the location of the outer cross wall depth of 45 ft. of silt, gravel, sand and piling is driven to an average penetra-up in a bed of what appears to be stiff tact has not been made with the rock. face within the enclosed area is El.+10 (1) ft. above lowest water). The coffer-

The Harbor Works Contract calls for the construction of a series of three deep water piers on the west side of Cour-tenay Bay, in the position shown on the accompanying map. Work on these has not been started.

The contracts call for completion of all works, with the exception of the deep water wharves, by July, 1922, and, based

water wharves, by July, 1922, and, based on the present rate of progress, the con-ditions in this respect will be fulfilled. The Organization.—The St. John Dry-dock & Shipbuilding Co.'s officers are: Jas. Playfair, Midland, Ont., President; D. S. Pratt, Midland Ont., Vice President and Managing Director; Thomas A. Duff, Toronto, Secretary-Treasurer; J. B. Cra-ven, New York, N.Y.; W. E. Phin, Ham-ilton, Ont.; W. J. Sheppard, Waubashene,

Ont.; D. L. White, Jr., Midland, Ont. The local staff at St. John consists of A. R. Dufresne, Chief Engineer and Manager; E. J. Cameron, Principal Engineer; V. S. Chestnut, B. Allen, J. T. Turnbull, en-gineer, F. M. Ross and S. M. Telfer, general office.

Alex. Ritchie Dufresne, B.A.Sc., C.E., Chief Engineer and Manager, was born at Ottawa, Dec. 18, 1872, and graduated in civil engineering at McGill Univer-sity, Montreal, in 1806, since when his record has been as follows: 1896-1900, construction, St. Lawrence River canals, Railways and Canals Department; 1900-1903 hydrographic supers 1903, hydrographic surveys, St. Lawrence River, Public Works Department, 1903-1906, in charge of construction, St. And-rews lock and dam, Red River, Man.; 1906-1910, District Engineer for Mani-1906-1910, District Engineer for Mani-toba, Dominion Public Works Depart-ment, Winnipeg; 1910-1918, Assistant Chief Engineer, Public Works Depart-ment, Ottawa; 1918 to date, Chief Engi-neer and Manager, St. John Drydock & Shipbuilding Co., St. John, N.B. He is a member of the American Society of Civil Engineers and of the Engineering Insti-tute of Canada.

The rock excavation is being done by the Bedford Construction Co., Ltd., of Halifax, N.S., the officers of which are: P. Pagano, President; V. J. Cavicchi, Vice President; and J. J. Herbert, Sec-retary-Treasurer. Carlo Carniel is Sup-erintendent of the works in Courtenay Bay. The other portions of the work in Bay. The other portions of the work in connection with the main contracts are being done direct by St. John Drydock & Shipbuilding Co.

United States Shipping and Shipbuilding Notes.

The Atlantic Coast Shipbuilders' As-sociation states that, exclusive of U.S. Shipping Board tonnage, U.S. shippards had in hand recently 263 steel vessels of 1,250,573 gross tons for private account.

A U.S. Senate sub committee, on April 14, completed a merchant marine policy bill, containing a provision that merchant ships owned by the government shall be disposed of to private interests within 10 years. It also provides for a permanent shipping board of 7, instead of 5, mem-bers, which would be directed to devote special attention to development of new trade routes.

According to returns received by the U.S. Bureau of Navigation, merchant steel ship building on a commercial basis steel ship building on a commercial basis in the U.S. shows steady progress. On Jan. 1, shipyards were building, or un-der contract to build, for private ship-owners, 165 steel ships of 679,170 gross tons. On Feb. 1, the total had increased to 183 steel ships of 791,911 gross tons, and on Mar. 1, the total was 247 of 947,-193 gross tons 193 gross tons.

Esquimalt Dry Dock. We are offic-ially advised that the Dominion Government has acquired a site for the construction of a dry dock at Skinners Cove, Esquimalt, B.C. The proposed drydock will be of the first class as specified under the Drydocks Subsidy Act and will have the following general dimen-sions,—length 1,150 ft., breadth 125 ft., depth 38 ft. It was anticipated that tenders for the construction of the dock would be invited about the end of April.

Shipping figures for the world, published recently in London, Eng., are re-ported to show that Canada comes first after the great powers.