

## SHIPBUILDING ON VANCOUVER ISLAND

These and other interesting facts are recited in the annual report of the Inner Harbor Association, Victoria, B.C., just published:—

When the great need for ships became apparent the Cameron Lumber Company, Limited, operating a saw mill on the Upper Harbor of Victoria, and the Genoa Bay Lumber Company, operating a mill on Cowichan Bay, Vancouver Island, organized a shipbuilding company under the title of Cameron-Genoa Mills Shipbuilders, Limited, and established a shipyard on the western shore of the Inner Harbor of the city of Victoria. Work was started thereon about the first of June, 1916. After the necessary buildings had been erected and the machinery installed, the keels for three ships were laid down in rapid succession, and work thereon pushed with all possible speed. The first ship was launched about February 1st, 1917. So far there have been launched by that company six five-masted wooden schooners. These ships are 256 feet long over all, 43 feet breadth of beam and 21 feet depth of hold, with a carrying capacity of from 1,500,000 to 1,750,000 feet of lumber, or 2,500 tons dead weight, equipped with auxiliary power of the Bolinder type of engine, developing 350 horse-power, with a normal speed of 7 knots when engine-driven, using oil fuel, and carrying a crew of 15 men.

They have proved themselves to be excellent lumber carriers, loaded with lumber for overseas markets as they have been completed and ready to be put into commission. These ships are classed A1 at Lloyds for 12 years. This shipyard has now on the ways and under construction four steam schooners, which are being built for the Imperial Munitions Board of the British government.

### Work With All Speed

The Foundation Company's yards were established during the summer of 1917, and five wooden steamers are now on order at these yards by the Imperial Munitions Board, four of which are in various states of progress, and one will probably be launched in a short time, the others following at short intervals.

These steamers are 250 feet long, 42 feet 6 inches molded breadth and 25 feet molded depth, with a dead weight carrying capacity of about 2,800 tons. The steamers are of the well-decked type; have four extra large hatchways with five winches for rapid loading and discharging cargo. They have ample accommodation for officers and crew, and equipped with two class A lifeboats to British Board of Trade requirements, each capable of taking the whole crew. The engines are triple expansion, developing 1,000 indicated horse-power, two marine boilers of the Howden water tube type, three furnaces with forced draught for either coal or oil complete. All parts of the vessel's hull and machinery and fittings are standardized, designed with the idea of providing a good commercial, fairly speedy type of cargo carrier capable of being built in the shortest possible time (in this case less than six months) at a minimum cost. These two shipyards employ about 1,300 men and have a monthly pay roll of about \$100,000.

Altogether the shipbuilding programme of the province comprises 41 wooden ships distributed amongst the various shipyards along the coast. Twelve of these are auxiliary schooners and constitute the fleet of the Canada West Coast Navigation Company. Two are for the Dominion government and 27 are for the Imperial Munitions Board. The Canada West Navigation Company's ships and the two schooners for the Dominion government are of the same type and require about 1,100,000 feet of lumber apiece. The average price of lumber has been about \$36.50 a thousand feet. In British Columbia there is an inexhaustible supply of the finest timber, admirably adapted for shipbuilding purposes, with a constant demand in the foreign market.

### Quality of Wood Excellent

The Douglas fir is one of the best woods for spars frequently squaring 45 inches for a length of 90 feet. It is exceptionally strong for its weight, a fact more important in the shipbuilding industry than almost any other business requires. It is important that the material be as light as the desired strength will permit, since all surplus weight increases the cost of transportation. It is one of the few woods whose strength is above the value set by the well established law of weight vs. strength.

In addition to the large timbers and planks obtainable from Douglas fir trees, the stumps yield the finest and largest

ship knees in the world. The knees used in the construction of the local vessels were obtained at Cobble Hill and experts who have seen them declare they are the very best known. Cedar, spruce and hemlock abound of great size. The best timber areas are as yet, however, untouched as the mills have hitherto limited their operations to coast districts with direct water carriage. The area further inland will be reached later by railroads as the country is more developed.

### Facilities for Ship Repairing

As having a direct bearing upon port interests, attention may be called to facilities for shipbuilding and general repairing directly connected with the harbor.

In the Upper Harbor or Basin, are situated the works of the Victoria Machinery Depot, having a frontage of about 360 feet, the marine ways are fitted with a cradle 280 feet long by 60 feet beam, providing dry dockage for repairing, cleaning, etc., for vessels up to 3,000 tons displacement. Larger vessels are docked by the firm at the Esquimalt drydock. At the plant are situated up-to-date machine shops, boiler shops, blacksmith shop, foundry and pattern shops, and a large wharf for receiving and storage of goods.

### Supplies and Equipment Ready

Contracts have been obtained for the manufacture of the Howden marine boilers for the Imperial Munitions Board for installation in wooden steamers under construction on this coast. Hutcheson Brothers and Company, Limited, Bay Street, electrical and mechanical engineers, iron and brass founders, manufacturers of marine and stationary engines, anchor and cargo winches. This firm has a contract for the supply of winches and other deck machinery for the Imperial Munitions Board.

The Robertson Iron Works, Store Street, supply most of the heavy forgings for the steering engines and other machinery, for which they are fully equipped with steam hammers and complete appliances. The Ramsay Machine Shop, machinists and engineers, Store Street, are supplying winches for use on these steamers for the Imperial Munitions Board, together with the under-water and other special fittings and steering engines, and the Lemon Gonnason Company, Limited, capital planing mills, Orchard Street, have supplied a large proportion of the finished framing, doors, windows and house finishings for the vessels recently launched and are completing similar work for the steamers building for the Imperial Munitions Board.

Messrs. Moore and Whittington, of Pleasant Street, have supplied to both the shipyards a considerable amount of the heavy timbering for the ribs and ceilings, as well as the decking and house framing used in the various ships under construction. Messrs. Jas. Leigh and Sons are supplying to the shipyards of the Foundation Company and the Cameron-Genoa Company a proportion of the heavy timbering and decking and house work used in the various ships that have been and are now under construction.

### Obtain Work of Noted Company

The firm of Yarrows, Limited (associated with the firm of Yarrows and Company, Limited, of Glasgow), builders of shallow draft vessels, have extensive shipyards at Lang Cove, Esquimalt Harbor, contiguous to the present government drydock. Their marine railway is capable of accommodating vessels up to 300 feet in length by 55 foot beam, and has a hauling capacity of 2,500 tons deadweight. Larger vessels are docked by the firm at the adjacent government drydock. Their wharf is over 600 feet in length and has shearlegs with a lifting capacity of 60 tons. Also a floating crane with a 95 feet boom capable of lifting 10 tons.

The firm is at present working on a contract for propellers for the Imperial Munitions Board, for the wooden steamers under construction, and also for five sternwheelers for river service in India, 185 feet long and 30 foot beam; two have been finished and put into service, while the other two (and a third 185 feet by 35 feet by 7 feet) are under construction. After being fully assembled at the Esquimalt Yards and placed in readiness for the water, the vessels, which are of extremely light draught (about 3 feet) and practically flat bottomed, are "knocked-down" and the parts shipped to the Orient, where they are re-assembled and put in running order. They carry both passengers and freight and make about 10 knots a hour. Contiguous to the above is the government graving dock, 480 feet in length by 90 feet in width at coping level and 65 feet wide at the entrance, with a depth of water of 26½ feet. This dock is available for general ship repairing when not required by the government.