

carrying capacity to the full extent on each outward voyage from British Columbia and shall be operated continuously; charters are subject to the approval of the commission, which has the power to fix rates, which may not be higher than rates charged for similar voyages from ports in Washington and Oregon; 1 per cent. of the gross earnings shall be paid to the commission to meet the cost of administration. The subsidy may only be paid subject to the bona fide use of the ship in British Columbia trade for outward borne cargoes, returning to some British Columbia port for reloading, with liberty to carry return cargo to any port along the generally practicable route of return to British Columbia; the subsidy can be paid only to the owner who actually paid for building the ship and not to any middleman or promotor; the subsidy is not subject to assignment, attachment, or process of execution whatsoever.

ONE year ago the building of a merchant marine for British Columbia had scarcely been mentioned; by midwinter it was a live question with the Government committed to some plan for bringing it about, and early in the spring the bill was drawn, whipped into shape, and passed May 31. It appears that all that was required to give the province a delivery system for its produce was the assurance that shipping men would receive a reasonable return on their investment after the war ended and the present era of high war-imposed freight rates passed, and at once capital for shipbuilding began to flow into the province.

Within a fortnight of the passage of the Act the Canada West Coast Navigation Company, Ltd., a \$5,000,000 corporation, was organized, and within a month the first ship for this company was laid down in North Vancouver to be followed by five others in rapid succession, while three were laid down in Victoria, and a third yard is being fitted for building three more in Nanaimo, all for the same company. There are interested in this corporation James Carruthers, of Montreal, operator of Great Lakes steamship lines and steamships to the West Indies; Joseph W. Norcross, president of the Canada Steamship Co., a thirty million dollar corporation operating Great Lakes steamers; Roy J. Wolvin, another Great Lakes operator; M. J. Haney, the Toronto contractor; Sir Trevor Dawson, of the Canadian Vickers, Ltd., and James Whalen, the B. C. pulp man, head of the \$12,000,000 pulp industry above Vancouver. This company, if yards can be established fast enough to care for them all, will take up the full number of ships that may be built under the subsidy section. It is an all-Canadian corporation and is financed by Canadian capital exclusively, and if the subsidy is to be earned, all the ships must be kept in British Columbia trade.

The nine ships now under construction and the three being laid down at Nanaimo are of identical design and material. They are five-masted schooners, 225 feet long, 45 feet beam and 19 feet depth of hold. Each ship will be equipped with two 240-h.p. Bolinder-Deisel interior combustion engines, giving a speed of $8\frac{1}{2}$ knots an hour, tanks holding 800 barrels of distillate and giving a steaming radius of 1,000 miles. The ships will have a deadweight carrying capacity of 2,500 tons, and will carry a cargo of approximately 1,700,000 feet of lumber. A little more than 1,000,000 feet of fir lumber is used in the construction of each vessel, and the contract price of each schooner is \$165,000. The engines are of Swedish pattern, and are on the ground direct from Stockholm.

NO description can give an adequate idea of the massive construction of these schooners required to secure a rating at Lloyds satisfactory to the commission. The keels, 25 feet long between uprights, are formed of three timbers 20 x 20 inches in dimension, each 75 feet in length; the keelson is composed of three sticks each 20 x 28 inches in size lying side by side, requiring nine such timbers; the sister and rider keelsons, upon which the floor of the ship is built, are made up of five timbers running the length of the ship, each 20 x 20 inches in size. The timbers used in the keelsons are 116 feet long. The ribs of the ships are double flitch of 12 x 24 inches, making a solid rib 24 x 24 inches square, set 8 inches apart. The outer sheeting is of 6-inch timbers on the bottom; 9-inch timber in the bilges, and 8 inches thick on the sides. The inner skin is still heavier, being made up of timber 12 inches thick in the bottom, 16 inches thick in the bilges, and 15 inches thick on the wales, or sides. The schooners have two decks and the deck beams are 15 x 16 inches, set 12 inches apart, each beam being a single stick of timber. The beams are supported at wale and bilge by knees 16 x 16 inches by six feet and 30 inches wide at the angle; these knees are sawed out of fir stumps and 400 such knees are required for each ship. The decking is $4\frac{1}{2}$ x $4\frac{1}{2}$



Ribs of a wooden ship, built at North Vancouver, in a land of limitless wood.

One of the construction plants of the Wallace shipyards, N. Vancouver, where they are at present building a steel steamer for the Japanese route.

The knees of these modern ships, built in B.C., are hewn from fir stumps. In the picture at the bottom of the page, Mr. Wallace, head of Wallace Shipyards, Ltd., is seen standing beside the up-ended root of the stump.

inch clear, vertical grain dressed fir, the same quality as that used in No. 1 flooring. The counter, or sternboard, is formed of a single timber 40 x 30 inches in size by 40 feet long.

One thousand men are now employed directly in this industry in the shipyards and sawmills connected with the yards, and in camps getting out stumps for knees and on the ships themselves.

Getting out the knees is a big thing in itself. Fir trees averaging 30 inches in diameter are selected and the tree is thrown, and the stump is then torn from the ground by dynamite and donkey engine, rough-hewn on the ground and hauled to the shipyard, where it is sawed to the required dimensions. The timber from the bodies of these trees is utilized in the mills. What this means may be understood when it is remembered the 25 ships require 10,000 green fir stumps for knees alone.

Indirectly many more than 1,000 men are given employment by this new industry. The lumber used in the construction of the wooden ships will keep three mills, each cutting 50,000 feet of lumber daily and employing in logging camp and millshed 200 men each, busy for a year. But only a comparatively small percentage of the cut can be utilized in ship construction, and the 25,000,000 feet used in the schooners probably represents a cut of 200,000,000 feet and the employment for a year of a dozen mills and two or three thousand men.

