

begins. The depth of the water at piers 4 and 5 is 55 ft. The north abutment and piers 6, 7, 8 and 9 will consist of pneumatic caissons; the south abutment is a box caisson resting on hard pan; abutment A and piers 6 and 7 will have caissons 30x55 ft., the depth of the abutment being 78 ft. below high-water level, and that of the piers 98 ft. below high-water level; piers 8 and 9 will have caissons 30x45 ft. and will extend to a depth of 81 and 71 ft. respectively below high-water level. The whole of the piers will be rip-rapped with quartzite rock. The masonry will consist of Wallia sandstone and will extend about 14 ft. above high-water level. The rise and fall of the tides at springs is 10 ft. The north approach is 1,500 ft. long, and the south 600 ft. They will consist of a solid earthen embankment 48 ft. wide at foundation and be heavily rip-rapped with stone.

The work embraces some 3,000 piles, pneumatic sinking, cribwork in protection piers; concrete, first-class masonry and earthwork in approaches. All material has to be brought to the island. The approximate quantities of materials are as follows: Timber—hemlock, short leaf pine and Douglas fir, 3,600,000 ft. B.M.; hardwood plank—birch and oak, 250,000 ft. B.M.; concrete, 20,000 cubic yds.; first-class masonry, 8,000 cubic yds.; rip-rap, stone, 70,000 cubic yds.; sand, 6,000 cubic yds.; iron in bolts, washers, etc., 900 tons; earthwork, 250,000 cubic yds. The plant is one of the most extensive ever gathered together on one work in the Dominion, and includes the most modern pneumatic tools for driving drift bolts, spikes, boring and caulking; a dredge, 100 ft. long, 40 ft. wide, with a boom 80 ft. in length, and a 2-yd. clam shell bucket; an air machinery barge, 100 ft. long, 28 ft. wide; a pile-driving outfit, consisting of a boat 70 ft. long, 28 ft. wide, fitted with a double set of leads, 75 ft. high, one with a long follower; and a powerful pump as jointing has to be resorted to; two derrick scows, two

dump scows and four material scows; 2 schooners each of 300 tons register, and several tugs. All the timbers used are sized, bored and framed in the framing mill to templet.

The position of the work at present is that pneumatic caisson no. 9 has been launched; pneumatic caisson no. 8, is ready for launching and box caissons 0, 1, 11, 4 and 10 are in the water. The piles have been driven on piers 10 and 11, and the caisson on no. 10 has been sunk to place. The quarry at Arisaig is fully opened up and is in a position for immediate work in the spring; at the Wallia quarry the engine and truck is on hand.

M. J. Butler, C.E., is engineer in charge for the contractor, and has as assistant H. R. Morrow.

Canadian Northern Railway's Growth.

Employees, Jan., 1897, 14; Nov., 1901, 1,069.		
Wages per month, Jan., 1897, \$645.93; Nov., 1901, \$44,091.84.		
Size of time card, first card, single sheet, 6¼x10½; Nov., 1901, 14 pages, 9½x10¼.		
Mileage operated, Jan., 1897, 100; now, 1,254.		
Gross earnings, Jan., 1897, \$3,267.84; year 1897, \$70,119.28; Oct., 1901, \$136,031.49.		
Equipment	1897	1901
Locomotives	3	52
Passenger coaches	3	31
Cars	80	1,728

An Art School Association with 40 students has been organized in connection with the G.T.R. car shops in London, Ont. Classes in freehand and mechanical drawing and other branches of study have been formed.

The Rathbun Co., Deseronto, Ont., write: "We enjoy reading THE RAILWAY AND SHIPPING WORLD."

RAILWAY DEVELOPMENT.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alaska.—P. B. Weare, formerly of the North American Transportation and Trading Co., is reported to be the president of the Company proposing to construct a railway from Valdez to the mines on Copper river, Alaska. (Jan., pg. 1.)

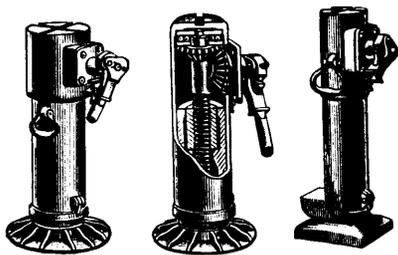
The Trans-Alaska Ry. Co. has been organized with the following officers:—President, J. J. Frey; vice-president, A. L. New; general manager, F. S. Granger; solicitor, S. L. Selden; chief engineer, W. E. Smith; general freight and passenger agent, F. Jaenigen. The offices of the Company are at Seattle, Wash. (Jan., pg. 1.)

Alberta Ry. & Coal Co.—A number of the wooden structures between Lethbridge, Alta., and Coutts at the International boundary, are being renewed, and we are officially informed that the line, as well as the Great Falls and Canada Ry., from the International boundary to Great Falls, Montana, will be widened to standard gauge by the end of the summer. See also under Great Northern Ry., U.S.

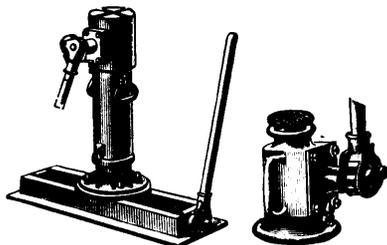
Algoma Central & Hudson's Bay Ry.—We were officially informed recently that track had been laid to Ogidaki, 48 miles from Sault Ste. Marie, and a rock cut had to be completed at that point before any further track laying could be done, but that it was expected to have the track laid to Pangissing station, on the Chippewa river, mileage 71, by the end of Jan.

The Josephine branch is 10½ miles in length, and is in operation to Josephine mines. The distance between this point and Park Lake Jct., where connection will be made with the main line from Sault Ste. Marie, is about 5 miles. (Jan., pg. 1.)

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