

sent time no large vessel has been built on the Canadian coast, or on the Canadian shores of the Great Lakes, of steel plates made in Canada. There are two steel shipbuilding yards at Toronto. A steel ship yard has also been recently established at Collingwood, on Lake Huron. All the material used at these places is from Pennsylvania or Ohio, and there can be no large all-Canadian-built steamers until a modern structural steel plant is at work.

One feature of the Sault Ste. Marie plant will be a very general use of electricity as a motive power. All this electricity is to be generated by the Rapids on Ste. Marie River, the natural waterway which connects Lake Superior with Lake Huron. Part of this immense water-power is already in service at the large pulp mills at Sault Ste. Marie, established by the Lake Superior Power company, and extensive works are now well advanced to generate additional power for the steel plant.

From the point of view of its ore supply, the plant at Sault Ste. Marie is nearly as well placed as the steel plant at Sydney. The Helen mine is twelve miles inland from Michipicoton Bay. The shipping pier is at Gros Cap, twenty hours' steaming down Lake Superior, so that while the ore has to be hauled twelve miles from the mine to the shipping pier, its water transportation is shorter than that of the Wabana ore to Sydney. The ore is not so easily mined as at Wabana. It also has to be passed through a crusher, a process for which there is no necessity at Wabana. But its grades as high as 64 per cent. of metallic iron, while the Wabana ore grades from 52 to 54 per cent.

The mines are on Boyer Lake, one of a chain of small lakes drained by the Maple River. Boyer Lake is 650 feet above Lake Superior. The ore body is described in the geological reports of the Mines Department of the Ontario government as rising to a point from the east end of Boyer Lake, and forming a hill ninety feet above its level at the highest point. The superficial area of the ore body is 650 feet by 550 feet. Drilling has shown that the ore goes to a depth of at least 188 feet below lake level. "The ore on the surface," continues the expert report from which the foregoing figures have been taken, "is chiefly hard, somewhat porous limonite, but parts of it are blue (steel grey), or have the yellow of ochre, and other parts, the red of hematite, so that different varieties are mixed. However, the average contents of metallic iron are much above that of limonite, so that most of the ore must be hematite."

Coal and coke for the Sault Ste. Marie plant are to be obtained from Connellsville. They will have to be transported from the Lake Erie ports in the neighborhood of Cleveland westward up Lake Erie and through the Detroit River, Lake St. Clair and the St. Clair River to the head of Lake Huron. This is the route of the ore boats, which are returning from the Lake Erie ports to load at Duluth, Superior, Ashland, Houghton, Marquette, and the other ore shipping ports of Michigan and Minnesota. It is the expectation of the promoters of the steel undertaking at Sault Ste. Marie, that they will obtain cheap rates for the transport of coal and coke, which will be carried as return cargo by the American ore steamers. The weakest point in the Sault Ste. Marie undertaking is its dependence on American coal, and the long distance the coal will have to be freighted. Until 1907, the higher rate of bounty given on pig-iron made from Canadian ore, and the Ontario bounty ties on the use of Ontario ores, will do much to offset the disadvantages arising from the remoteness of the coal fields. As far as regards transportation of the raw material, the Clergue plant is more advantageously placed than the inland plants of Pennsylvania and Ohio, as their ore has to be transported from points further west on Lake Superior than Sault Ste. Marie. It takes steamers nine days to make the trip in and out to the Lake Superior ore ports, even when they do not wait for return cargoes.

As regards the shipment of the output of the furnaces and mills, Sault Ste. Marie is most advantageously placed for the trade of the whole Dominion of Canada. Ontario is the great iron-consuming province. Shipments eastward can be carried down the lakes for eight months in the

year; while for shipments westward and to the Orient Sault Ste. Marie is served by the Canadian Pacific, which stretches across the continent to Vancouver, and by its new Crow's Nest Pass division reaches the great coal mining regions west of the Rocky Mountains, which are now being rapidly developed.

For the export trade with Europe, Sault Ste. Marie has also some obvious advantages. The deepened Canadian canals admit of the passage of fairly large ocean-going vessels from the lakes to the St. Lawrence; and for two seasons a fleet of steamers, built in England, has been in service carrying ore from Michipicoton Bay, to the new pig metal-making plant on Georgian Bay, off Lake Huron.

When the great plant now projected at Sault Ste. Marie, with its six blast furnaces of 400 tons capacity each, is completed, and in work, there must inevitably be competition with British iron and steel manufacturers from Western Ontario, as well as from Nova Scotia.

The manufacture of pig-iron in Ontario by modern methods dates back only to 1896. Since 1897, the Ontario government has given a bounty of one dollar a ton on pig-iron made from Ontario ores. Until December last, when the new furnace at Midland was put in blast and began to use ore from the Helen Mine, the Ontario ores were from small and only moderately successful mines along the Kingston and Pembroke railway. In 1898, the last year for which the statistics have been officially published, 24,000 tons of Ontario ore, or 22 per cent. of the amount required was used at the two then existing furnaces at Hamilton and Deseronto. The rest of the ore was imported from the United States. The eastern Ontario ore carries but a low percentage of iron, and is not likely to be increasingly used now that there is a vast supply in the Michipicoton country. In 1899, 64,700 tons of pig-iron were produced in Ontario. By far the larger part of it at the furnace of the Hamilton Iron and Steel Company on Lake Ontario at Hamilton.

The furnace at Hamilton has a capacity of 150 tons. There are also two open hearth furnaces; and until the works at Sydney and Sault Ste. Marie are complete, the Hamilton plant will rank as the best equipped in Canada. It ranks with the best American plants of its size. At Deseronto, charcoal iron is made chiefly from imported Lake Superior ore.

The Midland furnace is the latest addition to the Ontario iron manufacturing plants. It has been established by the Canada Iron Furnace company, limited, of Montreal. Midland is a prosperous and growing lumber and grain centre on Georgian Bay. It has a magnificent harbor, one of the best on Lake Huron; and is one of the industrial centres on the lake, which has been immensely benefited by the change of policy of three years ago of the Ontario government in connection with the sale of timber limits on crown lands. Until 1898, Americans were permitted to buy these limits, and float the logs cut from them across the lake to Bay City and other Michigan ports, where they were sawn into lumber for the American market. When the Dingley Act, with its unprecedentedly high duty on Canadian lumber went into operation in 1897, the provincial government promptly retaliated by inserting in the conditions governing the sale of crown lands that the logs cut on them should be manufactured into lumber in Canada. A great howl was raised in Michigan, but the result of the new order has been that, at Midland, and at several other towns on the Grand Trunk railway between Midland and Illora, Americans have been compelled to erect large sawmills, and an industry which was formerly carried on in the state of Michigan has been transferred to the Ontario side of Lake Huron.

The municipality of Midland, to induce the Furnace company to establish its plant there, gave the company a bonus of \$50,000, and has freed it from all but nominal taxation for ten years to come. The Furnace company is in possession of eighty acres on the north side of Midland Harbor, with a frontage of half a mile to deep water. Its furnace has a capacity of 150 tons a day, and at the time of my visit was making pig-metal for shipment to Sault Ste. Marie, where it is to be used in the rails which the Clergue company is under contract to supply between now and September for the intercolonial railway. Midland is an increasingly important station on the Grand Trunk railway, and an excellent distributing point both by rail and

water for the provinces of Ontario and Quebec.

To make this survey of the iron and steel industry in Canada complete, it should be added that the province of Quebec has one charcoal iron-making plant. It is at Radnor, near Three Rivers, the oldest iron-making centre in Upper Canada. The furnace is forty feet high, nine feet in diameter at the bosh, with a crucible five feet deep. Lake and bog ores are exclusively used at Radnor, and the Canada Iron Furnace company, which owns both the Midland and the Radnor plants, has control of over 100,000 acres of ore-bearing lands and lakes in the neighborhood of the Radnor furnace. Except for this charcoal furnace in the province of Quebec, the manufacture of iron and steel is as yet confined to the provinces of Nova Scotia and Ontario, which, as these letters will make clear, are not only soon to supply all the iron and steel needed in the Dominion, but are to compete with Great Britain and the United States for the trade of the world.

EDWARD PORRITT.

### From Erwood to Prince Albert.

Mr. C. R. Stovel, of Prince Albert, who is in the city and has made the trip from Erwood to Prince Albert via the projected line of the Canadian Northern, furnishes the Free Press with the following description of that region:

Few indeed are aware, and rarer still are they who have traveled and seen for themselves, the rich country lying on either side of the Canadian Northern Railway's projected line, over that part of it beyond the boundaries of the Province of Manitoba. From Swan River westwards or to be more explicit northwards past Red Deer Lake across numerous waterways, and through many fine and valuable belts of timber and tracts of rich farming lands to Erwood, the present End-of-steel, situated at the crossing of the Red Deer River an important stream rising far to the westward, almost due south of Prince Albert and flowing for 150 miles east and north to Red Deer Lake, thence by an air line 100 miles distant to Melfort and from there 60 miles slightly northwest to Prince Albert.

This it is almost unnecessary to say is a region far removed from the beaten paths of travel, yet none the less important on that account. At Erwood the company have a number of good buildings, including a large boarding house, store house and roundhouse. The Red Deer River is spanned by a substantial wooden bridge trestled for 1,000 feet and a 200 ft. span. Tracklaying in 1900 ceased at this point but beyond for a distance of ten miles the road was graded last year, and is ready for the steel. The embryo town of Erwood by reason of its situation on the banks of a large river available as that river is for the easy transport of the magnificent timber standing along its banks for a distance of at least 100 miles, may in time blossom into a prosperous lumbering camp aided by its chances of being a divisional point on the projected transcontinental line.

Beyond Erwood, the Canadian Northern location hugs the base line between townships 44 and 45, straight west of Melfort, end of track being in Range 2, and Melfort in Range 18, west of second meridian and the line diverging but a trifle north or south of this line. Ninety-one miles cover the distance between Erwood and Stony Creek settlement, around which point is situated one of, if not the richest agricultural districts in Manitoba or the Territories. While there is considerable muskeg and waste land between these centres there is compensation in the fact, that according to Mr. Stewart Dominion Forestry Inspector there is here directly tributary to the Canadian Northern Railway the "Finest body of timber to be found between Lake Superior and the Rocky Mountains" Spruce, tamarac and poplar there is to be sure in abundance. Mile after mile from Erwood to the Dog Hide River, where the original prairie is first met The "forest primeval" extends and bluffs containing millions of feet of the above mentioned varieties of timber are everywhere to be seen. Ten miles out from "Trackend" the Fir River is crossed and ten miles further on the Greenbush, both valuable streams for lumbering operations. In anticipation of construction this year the contractors have placed stores at

a distance of 20, 40 and 60 miles where immense quantities of supplies and building material are stored ready for use.

At the western edge of the great forest, which extends from Swan River on the east to this point in the west and north and south from the Red Deer to the main Saskatchewan River, the Dog Hide or Beaver River flowing north along the western base of the Pasquin Hills is first met, much of the land between Erwood and Dog Hide is fit for settlement when cleared of timber, the soil in the main being first class and in addition those indispensable requisites for successful farming wood, water and hay being close at hand. At Dog Hide in range 15 W. of second meridian the entire character of the country changes, emerging on one section from the densest growth of timber and crossing the little river, the traveller has exposed to his view the eastern fringe of a stretching airy undulations for five hundred miles or more to and beyond the famed Edmonton district in the west and embracing the old and well known settlements of Prince Albert, Carrot River, Melfort, Saskatoon, Battleford, Rosethorn and Duck Lake, where in some of them, for considerably over a quarter of a century men have successfully grown all kinds of cereals and root crops, and upon whose nutritious natural grasses thousands of the choicest cattle have fattened and prepared themselves for the markets of eastern Canada and Europe. For twenty years extensive lumbering operations have here been carried on and large quantities of lumber manufactured and supplied to the prairie towns and settlements south of the timber line. At Dog Hide there begins the agricultural section proper, and around this point the railway company have been fortunate enough to secure as a part of the land grant to the old H. B. Railway Company many choice sections of land. Few settlers have found their way so far from the track, but a start has been made and soon land at this point will be scarce.

Willow Creek twenty miles west, is a prosperous and well settled district. Ten miles west is located Stony Creek or Melfort settlement and here during the past spring and summer a veritable land boom has been in progress. New settlers by the score from the Old Country, United States, Ontario and Manitoba have come in, spied out the land and in every case have been delighted with the prospects. Several land companies doing business in Winnipeg could easily verify the statement that over one hundred quarter sections of wild land in the territory between Willow Creek and the South Saskatchewan along the Canadian Northern right of way have been sold by their solicitors. Homestead entries have also literally poured into the Dominion Lands office and land seekers are still scattered over the country in swarms. Price of land has risen in consequence and \$5 per acre is about the minimum fee that owners quote at present while in many instances so enamored of their holdings are the original settlers that refusals of \$10.00 per acre are common, and this in a district, at present 75 miles from railway communication or a market. Last year's acreage has been largely increased, much new land has been brought under cultivation and should the Canadian Northern be built to within say 40 or 50 miles of Melfort this year the amount of grain that will be shipped from that point next season will place it in the front rank as a grain centre in the Northwest.

Briefly to describe the country along this line between Dog Hide River and Prince Albert it would be safe to say it compares most favorably with the Portage Plains the Brandon country and many parts of Southern Manitoba. West and South of Prince Albert there are also vast tracts of magnificent land as yet untouched by the hand of the most advanced pioneer.

Grand Forks, B. C., July 15.—During the week ended Saturday the Granby smelter treated 4,370 tons of ore. Total to date 178,408 tons.

The ore shipments for the past week were: Le Rol 1,410; Le Rol No. 2, 480; Centre Star 1,410; War Eagle 540; Iron Mask 120; Homestake 20; total 3,980; for the year 211,438.