

BIG SHIPS OF NICKEL STEEL.

Prof. J. H. Biles, of Glasgow University, says that if nickel steel were now the same price per ton as mild steel, there seems to be no reason why it should not be at once adopted for large vessels, either war or mercantile. But it is not produced at present for much less than three times the price of mild steel. In a paper dealing with "Improved Materials of Construction and their Influence on Design," read before the British Institution of Civil Engineers, Prof. Biles writes very interestingly of questions of construction involved in the use of nickel steel as a material for ships. He concludes with a summary of the effect which the adoption of nickel steel would have upon the design of a 10,000-ton ship.

"It may be assumed," says Prof. Biles, "that nickel steel, 50 per cent. stronger than mild steel, can be produced with certainty. The relative weight of parts subjected to longitudinal stress may be reduced 33 1-3 per cent. If we assume that to resist compressive strains we have to reduce frame spacing, and can only take advantage of the increased strength of the material to the extent of one-half, we shall only gain 16 2-3 per cent. in transverse framing material. The total gain in a 10,000-ton ship will be 1,000 tons on a weight of 6,000 tons—this is 16 2-3 per cent. It was found in passing from iron to mild steel that from 1 1/2 to 3 1/2 per cent. was added by increased weight of butt straps, laps, etc., and though a smaller percentage would probably be added in this case, some allowance should be made. It seems as if from 14 per cent. to 15 per cent. of the weight of steel could be saved. This reduction in the weight of hull can be used to increase weight of machinery and coal. The extra speed resulting therefrom in a 20-knot ship will be 1 1-4 knots with an extra total coal consumption of 13 per cent. To produce a mild steel vessel carrying the same dead weight of cargo and having 21 1-4 knots speed, the dimensions would have to be increased by 10 per cent., the horse-power by 40 per cent., the first cost by 20 per cent., say \$350,000 (supposing passenger accommodation to remain the same). Supposing the cost of workmanship is the same in a nickel steel vessel of the same dimensions as in one of mild steel (it will probably be less), we should have as the only difference in the first cost of the two vessels, that between 6,000 tons of mild steel and 5,000 tons of nickel steel. The former might cost \$200,000, but the latter could hardly cost \$200,000 plus \$350,000, which would be \$550,000; and anything below this would be in favor of the nickel steel ship, both in economy of first cost and in economy of upkeep. The coal bill in the mild steel ship would be 19 1/2 per cent. more than in the nickel steel ship. The 5,000 tons of nickel steel could probably be bought at present for \$375,000, leaving a balance of \$175,000 of saving. These figures are given to show the great value which increase of strength of material has upon the design of a ship and upon its first cost. It will be of interest to know what chance there is of this material being produced much more cheaply. No reference has been made to reductions in weight of machinery due to the adoption of nickel steel and their effect upon design."

NORTHERN ONTARIO MINES.

The discoveries in the Michipicoten district, mentioned in our last month's report, whilst they prove to be not very extensive, show that the gold region extends from the Manitoba boundaries to the extreme eastern end of Lake Superior. The Government under the power of the new Mining Act, which provides for the setting apart by an order-in-Council of a tract of country within the limits of which district owners of a miner's right may proceed to stake out areas of 2 1/2 acres, to be known as miner's claims, have established this district as a "mining division."

This is a step in the right direction, and does away with the cumbersome survey procedure and the freehold Crown grant which has enabled capitalists to blanket so much of the Algoma country. The division embraces about 5,000 square miles. Following up this action the Government dispatched a survey party under Prof. B. A. B. Willmot to thoroughly examine the district. The vein formation as far as prospected is almost entirely lenticular. The rich finds advertised should be accepted with some hesitation, as the large majority of the prospectors are innocent of mining experience. Our private report of the district is unsatisfactory, the deposits being very low grade. It is, however, not likely that enough will be known of the district this year for a full opinion to be formed. The reported placer finds in the district prove to be of very limited extent, of no great value, and very widely separated.

Near Tache, about 140 miles west of Port Arthur, some good discoveries are reported, reefs running from 20 to 50 ft. in width carrying much visible gold, and alluvial deposits extending for some miles. In the Shabandowan district some rich and large reefs are reported as discovered; whilst in the vicinity of Round Lake development work has exposed a remarkably rich copper deposit, the extent and width of which is going to be tested with the diamond drills.

Progress with the construction of the Rainy River Railway is delayed, owing to modifications in the route, necessitated by the difficulty of grading along the proposed survey.

Some valuable discoveries of black sand containing platinum, osmium and iridium, assaying \$45 per pound, are reported privately.

Prices for leading companies closed for the month:

Saw Bill, \$2.25 to \$2.50; Foley, \$1.75 to \$2; Hawk Bay, 35 to 50c; Princess, 25 to 30c; Empress, 5 to 10c; Hammond Reef, 25 to 35c.

Locations on prospectors' hands are, in the case of out-of-the-way positions, offering freely, but those well chosen along the Contact are changing hands at higher figures. Locations with satisfactory opening developments have been bonded at good figures, and are more in demand than at any time during the year, whilst actual sales are recorded as high as \$25,000. —*Aemilius Jarvis' Circular, October.*

CANADA IN ENGLAND.

Among the remarks or suggestions as to things Canadian which have been made by visitors to the Dominion in connection with the British Association, one which is eminently sensible was made by Mr. J. Scott Keltie, editor of the Statesman's Year Book, viz., that pains should be taken to place the actual condition of Canada before the peoples of the Old Land.

Mr. Keltie says that the people in the Old World do not realize the condition of things here. He thought that much more might be done in the direction of making the actual conditions in Canada known more widely and generally than they now are. Especially would it be beneficial if the many advantages which Canada has to offer for farming upon a small scale were made known. "There are," he said, "many respectable and intelligent farmers on the other side of the water, who cannot, in recent years get along, owing to low prices and other reasons, but who can command a little capital; and I understand but very little is required to carry them over for a year. If these men were fairly informed as to the condition of things here, you would, I believe, get a good many more desirable immigrants. Many more than you are getting now."

I understand quite well that you do not want the riffraff of London for settlers. You want physically strong, able-bodied men with good intelligence, a willingness to work, and ambition to make comfortable homes for themselves and families,

and with the necessary capital to tide themselves over the first year of settlement. I think there are plenty of this type of men in England, Scotland and Ireland, who, if it were brought home to them thoroughly, would be only too glad to come over here and try it. And not only there, but in other parts of Europe, are men of this desirable type to be found. In Switzerland, for example, there are a great many farmers who have had a most terrible struggle for life, and who live under climatic conditions which specially qualify them for the Canadian winter, and in other respects they are desirable people to have."

RICHER FARMERS.

A common error has been made in supposing that there never would be any radically new discoveries in farming methods. Farmers seem to have settled down to a permanent continuance of old methods, presuming all is known that ever can be known. But this has recently been shown to be a mistake, as is illustrated in the Campbell method of growing crops, allusion to which has been made in these columns. From an Iowa exchange we learn that a series of tests has been made under the old and new system. And what a difference! Wheat grown under the old system had heads about two inches long, with straw no larger than a knitting needle, and an average height of about fifteen inches, and is nearly ready to cut, while the other has heads that will average four inches long, a large kernel that is not nearly filled yet, with a large, strong stalk, and is of a dark-green color and will not be ripe for two or three weeks yet. Under the old way one and one-half bushels of seed were sown to the acre, the result being that when it came up it did not stool at all, but sent up one spindly stalk from each grain of seed, while the other was drilled in rows twenty inches apart, one peck of seed being sown to the acre, and it has stooled out sufficiently to nearly cover the intervening space between the rows, and from seventeen to twenty stalks spring up from one grain of seed. Mr. Campbell estimates that the yield under his method will be 250 per cent. greater than the yield under the old. Fancy the difference this will make in the ability of a farmer to pay his mortgage and other debts? —*American Investments.*

STOCKS IN MONTREAL.

MONTREAL, Oct. 6th, 1897.

Stocks	Highest.	Lowest.	Total.	Sellers.	Buyers.	Average price same date 1896.
Montreal	240	238	14	240	236	224
Ontario	98 1/2	98 1/2	20	100	97 1/2	80
Molson's	195	195	.....	204	190	172 1/2
Toronto .....	.....	.....	.....	240	233	235
Jacques Cartier .....	.....	.....	.....	.....	.....	168 1/2
Merchants'	186	185	14	190	184	168 1/2
Commerce	137	136	119	138 1/2	137 1/2	137 1/2
Union	101	100	20	.....	101	101
M. Teleg. .....	.....	.....	.....	180	174	161
Rich. & Ont.	106	100	2707	110	106	84 1/2
St. Ry.	227	224	1612	226 1/2	225 1/2	217 1/2
do new	221	218	105	222 1/2	220 1/2	179
Gas	189 1/2	187 1/2	690	189 1/2	188 1/2	154
C. Pacific Ry.	60 1/2	76 1/2	6270	80 1/2	80	108
Ld. Grant bnds. ....	.....	.....	.....	.....	109	108
N.W. Land pfd. ....	.....	.....	.....	56	52 1/2	156
Bell Tele.	172	172	39	175	172 1/2	.....
Mont. 4% stock	109 1/2	109 1/2	\$3700	.....	.....	.....

—One of the best crops that has been reported this year from Manitoba, was that of Mr. A. J. Cotton, of Treherne, who threshed from 475 acres over 12,500 bushels of No. 1 hard wheat. The yield on the whole field averaged 26 bushels to the acre. In addition to this Mr. Cotton succeeded in marketing quite a large bulk of the grain early in the season, and will realize from it about \$9,500. He will clear by the crop \$6,000 or \$7,000 for his year's work.