

the country's wheat export has, up to the present time, been comparatively insignificant, and, in the writer's opinion, it can also be shown that under ordinary circumstances there is not much prospect of the amount being materially increased for some years to come.

The increased exports of 1892 and 1893 were the result of the remarkable crop of 1891, and not of any increase in area and cultivation, and it may be many years before such figures are reached again. As a matter of fact, the area under wheat is, at the best, only stationary, for the decline in wheat cultivation in Ontario only about keeps pace with the progress of settlement in the North-West, the decrease in the former province in 1893, as compared with 1890, having been 159,844 acres, while the increase in Manitoba in the same period was only 107,030 acres, and if the territories, concerning which no details are obtainable, are credited with an increase of 25,000 acres (probably over the mark), the area under wheat in 1893 was 28,000 acres less than it was in 1890. It is true that between the years 1880 and 1890, the area under wheat in the North-West increased by 953,450 acres, while that in Ontario decreased by 499,604 acres, leaving a net increase of 450,000 acres, but this was further reduced by decreases in the other provinces, and after deducting the additional quantity required for seed and consumption, there was not much to swell the exports.

The reason, therefore, why, in spite of the progress of settlement, the quantity of wheat available for export does not materially increase, is that the increase in one part of the Dominion is counteracted by the decrease in another part, and the additional yield in the newer parts of the country is absorbed by the growing demand in the older provinces.

There is no doubt, however, that, if properly developed, the wheat fields of the North-West have enormous capabilities of production. The area of the Province of Manitoba, and of the provisional districts, Assiniboia, Alberta, and Saskatchewan, is about 360,000 square miles, containing, say 230,000,000 acres, of which, at least, one-half is admirable wheat land, much of it indeed being probably the finest in the world, though at the present time not more than about 1,300,000 acres have been brought under cultivation of that grain. The yield per acre varies with the seasons, which are uncertain. Particulars concerning the yield in the Territories are not available, but the figures for Manitoba will apply fairly well to a large section of the country. In that province, the yield has ranged from 32 bushels per acre in 1887 to 15 bushels in 1893; the average yield for the whole period, 1887 to 1893, inclusive, was about 21 bushels per acre. The small yield of 1893 was largely atoned for by the excellent quality of the grain, over 50 per cent. having been graded as No. 1 hard. While, therefore, in favorable seasons, the yield may be vastly increased, even at the lowest figure of 15 bushels per acre, some idea can be obtained of what this section of Canada is capable of producing. There is, however, one element necessary to develop this production, which is at present lacking, and that is population. The other materials, land, soil and climate, are all there; but the one thing necessary to utilize these advantages remains wanting; the machinery stands idle, for the motive power is absent.

At what rate of speed that power will be supplied, it is impossible to say, but there is no reason for supposing that, under the altered conditions now prevailing, any very rapid increase of settlement is likely to take place in the near future. Immigration returns from all countries show during the last few years, a steady falling off which seems likely to continue.

Some attraction, other than the rather chimerical one of growing rich, under existing circumstances, by the cultivation of wheat, will be necessary to induce any special flow of immigration to the North-West.

The variations in the price of wheat will undoubtedly have an important influence on immigration and settlement; but beyond repeat-

ing the opinion that the day of permanent high prices has gone for ever, it seems idle to speculate upon those variations, for when one looks back and reads the different predictions that have been made during the last few years, and notices how they have been almost universally falsified by the actual course of events, one cannot but feel that speculations on the subject are more or less a waste of time.

When, therefore, the past production of the country, the fact that the decrease in cultivation about keeps pace with the increase (*i. e.*, that for every acre of new land that is broken up and sown with wheat, there is an acre of cultivated land diverted from wheat growing to other agricultural purposes), and the fact also that there is no reason to expect, at present, sufficient immigration to overtake to any extent the decreasing area, are all considered, the conclusion may fairly be come to, that in the absence of abnormal conditions, it will be some years before the wheat exports of the country exceed an annual average of from six to eight million bushels, if indeed they amount to as much. But at the same time it must be remembered that the land is there, circumstances favorable to production are there, and, given the population, the country can at any time respond to any increase in demand, or to any appreciation in price.

### The St. Lawrence Canals.

THE grandest canal enterprise, when considered from an engineering standpoint, that has ever been undertaken in the history of the United States and Canada, and, with few exceptions the grandest in the world, is the St. Lawrence River system of canals, extending from Montreal to Prescott, a distance of 119 miles, and effectually overcoming the numerous obstructions to navigation in this rapidly flowing river. After overcoming the St. Louis rapids by the Lachine Canal, there is an expansion of the river into Lake St. Louis for a distance of 15 miles, when it again contracts and the Beauharnois Canal 11½ miles long, passing the Cascades, Cedars, and Coteau rapids, was found necessary in order to reach the second expansion of Lake St. Francis. The river is thereafter navigable for a distance of nearly 83 miles, above which the Cornwall Canal, 11½ miles long, has been constructed to overcome another series of rapids, *viz.*, the Long Sault. But 5 miles of a reach now intervene until the Farran's Point Canal, ¾ mile long, is found unavoidable for many vessels in ascending. Descending vessels however run the rapids in safety. Another reach of 10½ miles intervenes between the latter and the Rapide Plat Canal, which is 4 miles long. It is similar to the one just described and intended only for ascending vessels. Another reach of 4½ miles brings us to the Galop rapids, the first in the series on the downward trip, which are surmounted by the Galop Canal, 7½ miles long. Thence a free and uninterrupted sail up the river and Lake Ontario for 236½ miles to Port Dalhousie at the entrance of the Welland Canal.

Without entering into the details of each of the series of canals on the St. Lawrence, we will observe that the total length of canals is 43½ miles, the total height directly overcome by locks 206½ feet, and the total number of locks 26. The original plan of construction gave a width of canal varying from 50 to 100 feet, and locks of 200 x 45 feet dimensions, with a depth of 9 feet of water over the miter sills. These dimensions answered the purpose for a number of years,

but latterly the demand has become more urgent from year to year for locks of sufficient size to accommodate the largest vessels engaged in the carrying trade upon the upper lakes, and thus avoid transshipping upon smaller vessels at Kingston and elsewhere such produce as may desire to reach the seaboard. In line with the policy adopted in reference to the Welland Canal, the government decided that the St. Lawrence Canals must also be enlarged so as to accommodate vessels drawing 14 feet of water, and the work of enlargement is now progressing from year to year. The enlarged docks are made 270 feet long, and 45 feet wide. The canals are being widened and deepened so as to admit of a 14-foot draft, and the river reaches have been improved in several places. The final completion of the scheme will require a considerable time, as the yearly appropriations for the purpose cannot be large, owing to many pressing claims upon the government from other quarters.

It was finally decided after considerable deliberation and investigation, that instead of enlarging the Beauharnois Canal between Lake St. Louis and Lake St. Francis, it would be more economical to build a new canal outright upon the opposite side of the river. This is known as the Soulanges Canal, and in accordance with the decision of Parliament, tenders were asked for during the past year, and the work is now under contract.

When all the locks on the St. Lawrence become enlarged to the dimensions of the present plans, the canals and reaches deepened, where necessary, to the requisite depth, Canada will have solved the problem of the century, by making Toronto, Chicago, Duluth, and Port Arthur seaport towns.

While the height of Canada's ambition in reference to her canals, has been to complete the enlargement of the St. Lawrence system so as to maintain a uniform depth of 14 feet, we find the Americans, with broader conceptions of the magnitude of the great American, as well as Canadian trade, developing in the West, are not satisfied with the size of the locks now under construction, but think they should be made to correspond with the new lock at the "Soo," having a depth of 21 feet; which would allow all the large upper lake vessels to navigate the St. Lawrence and convey their cargoes to the seaboard or Liverpool without breaking bulk. They argue that formerly the Great Lakes have been used almost entirely for internal traffic between the bordering states and Canada, but that, "the recent development of untold resources of the great Northwest, has, however, made the productions of that region not only a vital part of our foreign trade," and that it is important that our internal commerce, but the leading factor of the American Government take immediate steps "to secure a deep-water outlet for the foreign commerce originating in the states bordering on and tributary to these waters." It is conceded that the deepening of the Erie Canal to the requisite depth is impracticable, and that while the construction of a canal from Oswego to the Hudson River may be feasible, the length of time required to complete it, and the enormous cost of from \$40,000,000 to \$100,000,000 it would necessitate, as well as the construction of another canal at Niagara, place this deep-water project beyond the bounds of impossibility, owing to the urgent demands of the present.