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"Persevere and

Succeed."

EDITORIAL.

GEORGIAN BAY CANAL CONSTRUCTION.

militarism that afflict Europe. Her chief item of

expenditure is in creating routes for her commerce.

She has to complete her railway system and build

the Georgian Bay Canal."-Sir Wilfrid Laurier, at

To the Dominion as a whole, and to agricul-

ture in particular, the foregoing announcement

ranks first in importance of all the reported

declarations of British or Colonial statesmen at

the Imperial Conference just held at the metropo-

lis of the Empire, and yet less has been heard

about the ship canal through the newspaper press

than about tariff or armament, or what the pre-

miers ate and wore. What references the Toronto

papers contain, so far as we have seen, to this pregnant declaration of the Canadian Premier, are

somewhat microscopic in their character. The

project is not a sensation of to-day, and, when

completed, will not run through the Toronto yard,

but that does not make it any less a mighty na-

tional waterway, which will reduce the time and

cost of transportation, bind East and West to-

the hands of the people's Government to control

portion of the taxes, these questions are of deep

interest to readers of "The Farmer's Advocate,"

railway service and rates.

tion thereon

the National Club Banquet, London, England.

" Happily, Canada is not under the burdens of

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As a factor in Canadian transportation, what will it do for us? As a piece of engineering, is it feasible ? What are the structural difficulties ? What financial obligations will it involve? What progress is being made in the Government surveys now in progress? When begun, how long will it take to complete? As the canal will be very largely employed to convey agricultural products at lessened rates, and farmers pay so large a pro-

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LONDON, ONTARIO, MAY 16, 1907.

and Home Magazine

Che Farmer's Mavocate

present cost, every fraction of which should go into the pockets of the wheat producers of the Canadian West. There will be an average of from $5\frac{1}{2}$ to six months a year of navigation by this canal; in other words, from the last week in April to the last in November. Its advantages in solving the transportation problems of the country are simply incalculable.

Eminent civil engineers, such as Marcus Smith, Mr. Wickstead, A. M. Wellington, and others, see no insuperable difficulties in the way, but, on the contrary, are disposed to agree that on the globe there is no more favorable route for a deep-water canal.

The staff of engineers employed on the survey of the proposed route of the canal are still at work, and it is not expected that their report will be ready for perusal by the public much before the reassembling of the Dominion Parliament in November next. But we hear that when the report is issued it will be accompanied by comprehensive data which will demonstrate the immense advantage to Canada of this great enterprise.

The length of this new waterway, from the Upper Lakes to the St. Lawrence, from the mouth of the French River, on the Georgian Bay, via Lake Nipissing, the Mattawa and Ottawa Rivers, will be 430 miles. Of this distance, about 350 miles are already a perfect natural navigation, but gether, and prove an effectual competitive lever in as the survey provides for a depth of 22 feet throughout, there will be much blasting and dredging even in those lakes and rivers that, for a 14foot waterway, could be used with little or no alteration. The magnitude of the new canal can be better understood when it is remembered that the Canal on the Ottawa River between Ottawa and the St. Lawrence River, has a depth of only nine feet, and the length of the lock is 200 feet, and the proposed canal will require 600 or 700foot locks. The outline map which we give in this issue will afford the reader an idea of the directness of the proposed route to the St. Lawrence, compared with the roundabout Lower-lake and we have been at some pains to secure informa- passage.

The chief engineering difficulties will be the mass Sir William Van Horne, of the C. P. R., has of rock excavation, the providing of the great lift admitted its great benefit to the general trade and locks necessary for reaching the high level of Lake commerce of the country. James J. Hill, the Nipissing and neighboring lakes. Lake Nipissing is sixty miles in length, and it will be made the Lake Nipissing is deep in parts, but some portions will require to have the channel blasted, but Trout Lake is very deep. The cut between these ence in levels being over 32 feet. Turtle Lake, still further to the east, is only two feet lower than Trout, so that the levels of all three can be equalized at a height of 648 feet above sea level. One reason for the delay in issuing the report -the chief reason, we believe-is the work now in progress, and likely to be continued all summer, to accurately ascertain the conditions existing at the headwaters of the Ottawa River, the Gatineau learn how best to maintain a sufficiency of water at all seasons for the waterway. There is always ample water in the months of May and June, and sometimes considerably longer, but these are the "flood months," when the northern streams are fed by the accumulated water of the winter, and we are informed that the intention is not only to streams, so as to intercept the flood waters of the rates would be cut down to one-third their the data necessary to estimate the cost and effect

of this dam construction is a special task in itself, which the engineers are determined shall be so complete that no doubt can exist as to the permanency of the great volume of water necessary to insure navigation during the entire shipping year.

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The engineers invariably decline to give an estimate of the total cost of the great work. They say they cannot do so while masses of details are unsettled, and while such investigations as we have indicated have yet to be completed and figured on. We have reason for believing, however, that the completed work will probably exceed \$50,000,000, and might require a much larger In this connection, it is apropos to sum. state that the United States are spending \$80,-000,000 to \$100,00,600 to improve the old Erie ditch, and from \$200,000,000 to \$250,000,000 on the Panama Canal. The time required to construct will depend on the energy that may be put into the work, and from six to ten years might elapse between the time of beginning the work and the opening of the canal throughout for traffic.

CO-OPERATIVE EXPERIMENTS IN AGRICUL-TURE.

Manifold indirect benefits accrue to a community from having an agricultural college in its midst. In fact, these, in the aggregate, far outweigh the direct advantage which comes from training a limited number of young men in the college halls, fields and class-rooms. An agricultural college becomes, to a greater or less extent, a center of research. The best educational work is done where investigation is being prosecuted hand-in-hand by the faculty which directs the instruction. Conversely, the most valuable and practical experimentation is liable to be undertaken at the institution whose staff are coming into more or less close contact with the people through the exercise of their professional function. This, at least, has been the experience in Canada.

Moreover, the results of the investigation work at an agricultural college may be extended to great advantage through the medium of cooperative experiments by its ex-students and others. The Ontario Agricultural and Experimenal Union is primarily an organization of the

transportation genius of the North-western States, and a Canadian-born to boot, points out that it summit level of the waterway, being connected by will bring Montreal 15 miles nearer Duluth than canal with Trout Lake, five miles to the east. Buffalo is, enable 400,000-bushel vessels to carry grain down at a profit for 3 cents per bushel, and not only convey the wheat of the Canadian Northwest to the seaboard, but grain from all parts of two lakes will be very expensive work, the differthe United States north of Kansas City, because traffic will follow the line of least resistance. Between Port Arthur or Fort William and Montreal it will shorten the distance by over 300 miles, compared with the present Welland Canal route, or a three days' saving in navigation time. When we come to Atlantic-ocean transportation, it will shorten the distance from the northern lake ports to Liverpool by 1,000 miles, as compared with the New York route. As Mr. Robt. Reford points River and other feeders of the Ottawa, so as to out in the Montreal Trade Bulletin, which has persistently championed the project, the Georgian Bay Canal is so superior to anything possessed by the United States, that a proper 22 or 23 foot canal will insure Canada's getting the bulk of the currying trade of the north-west of this continent. The present freight rates from Lake Superior ports to Montreal or New York range from 61 to 9 dam Lake Nipissing where it feeds the French cents per bushel, including rail, while it has been River, but to construct one or more great dams www that the boats can carry grain at a profit at the headwaters of the Ottawa and other or from 11 to 2 cents per bushel from Lake Supe-Nor to Port Colborne or Buffalo; so that, with early spring and conserve them for the feeding of abroken cargoes through the Georgian Bay Canal, the canal in the fall and early summer. To get

alumni of the Ontario Agricultural College. Under its auspices, co-operative experiments, directed by heads of several College Departments, are conducted throughout the Province, and the results are summarized and published upon occasion of the annual December meeting of the Union. Commencing with field crops, the scope has been widened to include horticultural, chemical and poultry investigation. The list of experimenters is by no means confined to members of the Union, any farmer in the Province being invited to participate who is willing to comply with the conditions. The number of co-operative experimenters has been steadily growing, numbering 3,700, in 1907. The general benefits to Canadian agriculture are large, and the advantage to the College authorities of comparing their results with those obtained co-operatively under average farm conditions, are likewise considerable, but the greatest measure of helpfulness is reaped by the experimenters themselves.

In the Maritime Provinces, Mr. F. L. Fuller, Agriculturist, of the Agricultural College, Truro, N. S., is endeavoring to organize a Maritime Experimental Union. In 1906, through this agency, some sixty Eastern farmers experimented with nitro-culture, to most excellent purpose, as explained by Principal Cumming in an article in "The Farmer's Advocate," issue April 4th. Fifty per cent of those who reported had noticed a great.