

its uses are interdependent. Prominent officers of the engineer corps have recently even gone so far as to assert in print that waterways are not dependent upon the conservation of the forests about their head waters. This position is opposed to all the recent work of the scientific bureaus of the government, and to the general experience of mankind. A physician who disbelieved in vaccination would not be the right man to handle an epidemic of small-pox nor should we leave a doctor sceptical about the transmission of yellow fever by the stegomyia mosquito in charge of sanitation at Havana or Panama. So with the improvement of our rivers; it is no longer wise or safe to leave this great work in the hands of men who fail to grasp the essential relations between navigation and general development and to assimilate and use the central facts about our streams.

Until the work of river improvement is undertaken in a modern way it cannot have results that will meet the needs of this modern nation. These needs should be met without further dilly-dallying or delay. The plan which promises the best and quickest results is that of a permanent commission authorized to co-ordinate the work of all the government departments relating to waterways, and to frame and supervise the execution of a comprehensive plan. Under such a commission the actual work of construction might be entrusted to the reclamation service, or to the military engineers acting with a sufficient number of civilians to continue the work in time of war, or it might be divided between the reclamation service and the corps of engineers. Funds should be provided from current revenues if it is deemed wise—otherwise from the sale of bonds. The essential thing is that the work should go forward under the best possible plan and with the least possible delay. We should have a new type of work and a new organization for planning and directing it. The time for playing with our waterways is past. The country demands results.

I have also an extract from a recent report of the commissioner of corporations on transportation by water in the United States giving further reasons for the abandonment of certain canals in the United States. This report says:

Among the causes for the abandonment of canals have been the original improvident location of some canals, mismanagement, the adverse control of strategic connections and terminals, and above all the inability of shallow towpath canals to adopt their physical conditions to the demands of modern transportation. Practically all the canals now in most successful use are ship canals, forming comparatively short links between important natural waterways and opening up extended routes of transportation by water for large vessels.

Then I find that the North American Conservation Conference which met last year at Washington calls the attention of the country to our waterways. It says:

We recognize the waters as a primary resource, and we regard their use for domestic

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and municipal supply, irrigation, navigation and power, as interrelated public uses, and properly subject to public control. We therefore favour the complete and concurrent development of the streams and their sources for every useful purpose to which they may be put.

The highest and most necessary use of water is for domestic and municipal purposes. We therefore favour the recognition of this principle in legislation, and, where necessary, the subordination of other uses of water thereto.

The superior economy of water transportation over land transportation, as well as its advantages in limiting the consumption of the non-renewable resources, coal and iron, and its effectiveness in the promotion of commerce, are generally acknowledged. We therefore favour the development of inland navigation under general plans adapted to secure the uniform progress of the work and the fullest use of the streams for all purposes. We further express our belief that all waterways so developed should be retained under exclusive public ownership and control.

Before discussing the report of the Georgian Bay canal survey, which was laid on the table of the House last session, I wish to offer my congratulations to the board of engineers in charge of this survey work. The report which they have presented to the House contains a mass of valuable information compiled in such a manner as to make it both interesting and instructive reading. Having had the advantage of a course in engineering myself, I feel that I can appreciate the value of this work. I shall take up simply the results and conclusions submitted by the board appointed to investigate the feasibility and probable cost of a deep waterway from the Great Lakes to the sea-board via the French and Ottawa rivers. The first conclusion at which the board arrive is as follows:

That a 22-foot waterway for the largest lake boats (600 ft. x 60 ft. x 20 ft. draft) can be established for one hundred million dollars (\$100,000,000) in ten years, and that the annual maintenance will be approximately \$900,000 including the operation of storage reservoirs for the better distribution of the flood waters of the Ottawa river.

This board of engineers investigated the cost of two routes the results being as follows:

SUMMARY OF COST.

Route A.—Via Montreal, Lake St. Louis, Ste. Anne de Bellevue, Ottawa, Rocher Fondu Channel, Coulonge, Pembroke, Des Joachims, Mattawa, Talon Lake, North Bay, Lake Nipissing and French river.

Locks, dams, channels, piers, lighting, damages.	\$88,626,108
Contingencies, engineering, administration, &c.	8,862,892
Storage of flood waters, regulation basins, telephones, &c.	2,200,000

Total. \$99,689,000