tically slack water navigation will obtain.

That ordinary lift locks are best suited to the conditions found. That their minimum length should be 650 feet between the inside gates, with 65 feet clear width, and 22 feet clear depth throughout.

That the gates should be of steel, and for safety, there should be two pairs of upper gates, and two pairs of lower gates, with additional lower unwatering gates, if necessary. That the locks should be constructed of concrete with long approach piers of continuous cribwork at each end.

That all locks will be in secure rock foundation.

The fact that all locks will be in secure rock foundations is to my mind very important.

On the route the number of reaches is twenty-three, a flight of two locks being provided for at Roche Capitaine rapids, and at the lower and upper Paresseux falls.

The lock channels are to have a clear length of 650 feet and a clear width of 65 feet, with a depth of 22 feet over the mitre sills. These dimensions will accommodate vessels of the largest tonnage on the great lakes and will provide reasonable accommodation for any probable increase in the size of these boats. Duplicate pairs of gates are provided at both ends of the locks and, should a longer chamber be required occasionally, a clear length of 707 feet would be available by leaving the inner pair of lower gates open. Some of the lake boats for the iron ore trade, as has been stated, have attained a length of 605 feet. The common lake carriers of 6,000 to 10,000 tons are from 350 to 500 feet and over in length.

Conclusion No. 5 deals with the dams:

There will be 18 main dams required, some of considerable size, all being on secure rock foundations.

That regulation by stop-log sluices is amply efficient in most of the cases encountered, and 'Stoney' sluices and overflow regulation are adapted to the remaining reaches.

6th. That excavated channels with sides showing above water should have a minimum width of 200 feet at bottom, and submerged channels a minimum width of 300 feet at bottom, with marking piers at intervals, and that the minimum depth throughout should be 22 feet. That the project presented contemplates: 28 miles of canal excavation, 66 miles of channel dredging, and 346 miles of river and lake with a width of 300 feet to a half mile.

That is 6·36 per cent of the total route is of canal excavation, 15 per cent of channel dredging and 78·64 per cent of river and lake requiring no improvements. You will see, Mr. Speaker, what a small percentage of this waterway is to be improved in any way.

Conclusion No. 7 deals with the time of transportation.

Mr. G. V. WHITE.

That the total time taken by a lake freight boat of 12-mile maximum speed, without delays at locks or in meeting other boats, from French river harbour to Montreal would be 70 hours. That the season of navigation will average 210 days from May to November.

This is one of the objections which have been raised to the construction of the Georgian Bay canal by parties opposed to the scheme—that the short season of navigation would be a hindrance. But, when we consider that the time occupied in the trip from the mouth of the French river to Montreal would be only 70 hours, we can see that, in a navigation season of say 210 days, which means 5,040 hours, there would be 72 trips of seventy hours each. I compiled figures of the reports of the Buffalo Chamber of Commerce, showing the opening and closing of navigation at different points along the great lakes for ten seasons from 1898 to 1907, and I find that the number of days during which navigation was open averages 214. During last season, navigation on the great lakes, as stated in the report of the Trade and Commerce Department, opened on April 28 and closed on December 10, making 226 days in all. So, we find that the season of navigation of this Georgian Bay canal route will be practically the same as the season of navigation on the St. Lawrence at Montreal.

Conclusion No. 8 says:

That the proposed reaches will be generally held at about the ordinary high-water level of their vicinity, and much of the area to be flooded is now inundated each spring, so no extensive damage to the farming districts will occur.

Conclusion No. 9, in my opinion, is one of the most important arrived at by this board of engineers. It deals with the question of water-powers and is as follows:

That with a storage system as planned, and the tributary basins thereto required for the navigation project, a reliable water-power supply is secured at various dams amounting to 1,000,000 horse-power, which can be developed at $50 per horse-power.

I have gone pretty fully into the question of water-powers, for, as I have stated, it is, to my mind, one of the principal questions to be dealt with in connection with this important project. Water-powers, as we all know, will play a very important part in the future development of our country, and it is pointed out that the force unused on the Ottawa river at present is enormous. Through the construction of dams and locks, the water-powers will be concentrated at various points along the route. The first essential in water-power development is an average flow, such as can be accomplished by the construction of a perfect system of reservoirs. For example, we find that, in Minneapolis, they