

of the work was done. No one could tell what conditions would be from year to year, said witness. Labor increased from 100 to 243 per cent.; material increased from 100 to 300 per cent., and in some cases to 400 per cent.; there were other factors, such as fires, labor turnover, increased cost of exchange, increase in duties, increase in sales tax in some cases from 1 to 3 per cent., and, of course, the increase in

freight rates. All these increases were practically caught at the peak.

R. R. Hall, Parry Sound, asked Mr. Gaby if, as a practical engineer doing work for himself, would he have been satisfied to have started on the Chippawa work with the meagre information he had. Mr. Gaby said he did not agree that the information was meagre. Increases were due to increased costs and difference in conditions. Wages alone added twelve and a half millions; interest about four millions, and the increase in the size of the canal added five or six millions to the cost.

Contractors Afraid of It.

Mr. Gaby then produced the offers of several big contracting firms tendering to build Chippawa canal. These men were asked to tender in January, 1917. Mr. Gaby testified that they all said they would not take a contract in view of conditions then existing as regards labor and material. They would do the work only on a cost-plus basis. After thorough consideration the commission had decided that it would be to its best interests to carry on the work under its own direction. He read a letter from one of these firms, Larkin & Sangster, of Buffalo, which said that they knew of no contractor that could meet the requirements within one year or a year and a half.

Coming down to 1920, Mr. Gaby said the Government had requested an estimate on conditions at that time. The commission asked permission of the Government to employ consulting engineers, and Mr. Cooper was employed. Two other firms were called in—Stewart & Kirbaugh, and Johnston & Lee. These reports were submitted to the Government in the fall of 1920. On these reports the commission submitted an estimate in January, 1921. He then told of the things had had interfered with the carrying out of this work as planned—the steam shovels coming late, etc. He told Mr. Clarke that a report submitted by engineers showed that increases were attributed to causes beyond the control of those making the estimates.

Change Cost \$2,500,000.

The commission, said Mr. Gaby, carried on certain investigations as to the best screen to put on the river to take care of ice troubles. The design was changed, and the extra cost was two and a half millions. This was being installed as needed. This intake would have a capacity of 20,000 to 25,000 feet per second, when the original plan was for 10,000 to 15,000 per second. He said the commission had today tenders to do this work at a figure \$200,000 to \$300,000 below the estimates. All the tenders they had received recently on the canal were materially within the estimates.

Mr. Gaby said the estimate put in to finish the five units was \$65,365,603, after allowing about three and a half million for salvage. The lining of the canal, he said, was based on the prices of 1919. Various changes were always submitted to the Government, not always in writing, but the matters were discussed from time to time.

Mr. Gaby said that the first written report on Chippawa was submitted on September 13, 1915. It estimated the cost of 100,000 horsepower installed and approximately 190,000 to 200,000 horsepower canal, at a price of ten and a half millions of dollars. Subsequent to this date the then Premier requested a full report, and on October 21, 1915, further information was given. On January 12, 1917, a report was submitted to the Premier, showing that costs of material had risen anywhere from 15 to 20 per cent., and estimating the cost of the project at \$13,215,000.

Revised Report Necessary.

In the spring of 1917 the commission took over the Ontario Power Company, which made available additional water. New estimates were then prepared, with additional water available increasing the capacity to 10,000 feet per second. These estimates were from twenty-five to twenty-nine millions. In 1919 in view of increasing demands of the municipalities and the shortage of capacity and the necessity of having the plant completed at the earliest possible moment, it was necessary to revise the report. The recommendation then made was that the commission submarine, drill and concrete the sides. This increased the flow of water and the horse power. They also had to increase the forebay to take care of the nine units. In the spring of 1920 on the request of the Government, a further investigation was made extending over a period of six months, and for that the commission employed Messrs. Cooper, Stewart, Kirbaugh, Johnston and Lee. The reports were submitted in October or November, 1920. During 1921 further checks on costs were prepared, submitted to the commission in September, and Mr. Gaby said he believed, were taken up with the Government on October 12, 1921.

Mr. Gaby said the commission had considered at one time the question of installing a cement plant. In 1919 and 1920 the commission had to arrange for the purchase of a quarry, and for the full output of a cement mill at cost. The commission did this in 1920 and 1921. In addition large quantities had to be bought elsewhere because of the great amount wanted in a short time.

Further investigation will be made on Chippawa matters next Wednesday morning, when Messrs. Stewart, Kirbaugh and Johnston will appear.