

and t , c and $B \div b d^2$ are given in metric units as well as in pounds and inches.

It will be evident that the diagram is a great improvement on the ordinary beam curves, which only give the relations of r and $B \div b d^2$ for fixed values of t and c .

The T-beam diagrams are used in the manner indicated by the dotted lines. These diagrams were designed by methods which are mathematically accurate, no approximation being involved. They are interesting illustrations of the way in which cumbersome formulæ may be graphically represented. The most convenient way of reading the diagrams is to use a strip of celluloid with a straight line scribed upon it.

SOUTH FALLS AND COBDEN HYDRO-ELECTRIC PLANTS

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Government, the plans and specifications covering the development of any power site owned by the province, must be approved by the Commission, as a condition governing the issue of the lease. Two important matters were dealt with under this head during the past year.

The first was the development of the Mattagami Pulp and Paper Co. at Smooth Rock Falls on the Mattagami River. This scheme involved the building of a large power plant and pulp mill.

The Abitibi Pulp and Paper Co., who have already a development at Iroquois Falls, submitted plans for a further power installation at Twin Falls on the Abitibi River. The plans involve the elimination of the company's dam at Couchiching Falls, which controls the storage of Lake Abitibi.

Measurement of Stream Flow

The systematic measurement of stream flow was begun in 1912, and has been carried on continuously up to the present time. This hydrometric study of the important rivers of the province, though so far extending over a period of time too short to be really comprehensive, has nevertheless resulted in the accumulation of an appreciable amount of valuable data, and has provided an absolutely necessary basis of computation for the proper study of hydraulic development, river improvement, and flood prevention.

It is only by means of some governmental agency that information on stream flow can be adequately secured. The value of the data being directly proportional to the period of time over which it has been taken, the process is essentially continuous. No individual or private enterprise, therefore, possibly can carry on a work the utility of which is dependent solely upon the consistent accumulation and compilation of data over a continuous and long period of years.

The run-off from 47,000 square miles of watershed is now under continuous observation, but this is only about 12 per cent. of the total area of the basins within the boundaries of the province, and the great number of enquiries received with reference to the flow of the rivers of Ontario, indicates not only that the Hydro-Electric Power Commission is becoming recognized as the source for dependable data of this kind, but also the necessity of increasing the scope of the work to cover a much greater territory within the province than it does at present. In this connection it is especially necessary that the rivers flowing into James Bay and in the Lake Superior district

be brought under observation, as the success of the large number of mining and pulp industries in this territory is absolutely dependent upon the power of the rivers, which cannot be gauged by any means other than the systematic study and recording of their flow.

During the year 1916, conditions did not permit of the addition of new stations, or even of the desired amount of work on those already established, and the rivers covered are practically the same as those of the previous year. The discharge curves, however, are better defined as a result of measurements secured at river stages not reached during previous years, and the accuracy of the daily flow estimates has been increased to a corresponding extent.

Many very valuable power sites are situated in uninhabited country often difficult of access, where river stages cannot be brought under continuous observation. In such cases the only information secured has consisted of intermittent flow measurements taken by the metering parties on the occasion of such visits as they were able to make.

Col. Sir Adam Beck, K.B., LL.D., is chairman of the Ontario Hydro-Electric Power Commission, the other commissioners being Hon. I. B. Lucas, M.P.P., of Markdale, Ont., and Col. W. K. McNaught, C.M.G., of London, Ont. The officers of the Commission under whom the above hydraulic work was accomplished, are F. A. Gaby, chief engineer; H. G. Acres, hydraulic engineer; T. H. Hogg, assistant hydraulic engineer; W. W. Pope, secretary.

STEEL TRADE CONFERENCE

The following statement with regard to the conference of iron and steel manufacturers was given out by the Department of Trade and Commerce last week:—

In view of the increasing difficulties in obtaining supplies of pig iron and various iron and steel products from the United States, a largely attended meeting which was hurriedly summoned, of representative iron and steel manufacturers was held in Ottawa yesterday. In view of the urgency of the matter a number of distant firms of importance could not be included. The meeting, however, canvassed the situation generally and decided to appoint representatives of the various industries. Those representatives are as follows:—

Government departments, F. C. T. O'Hara; ship-building, P. L. Miller, Canadian Vickers Co.; bridge and structural building, R. M. Davy, Dominion Bridge Co.; locomotives, D. W. Fraser, Montreal Locomotive Co.; farm machinery, R. Harmer, Sawyer-Massey Co., Hamilton; merchants handling plate for general trade, T. McC. Hutchison, Drummond McCall Co.; high carbon and alloy steel, F. R. Humpage, Wilkes Twist Drill Co., Walkerville; boilers, tanks, pulp and general machinery, C. A. Watrous, Watrous Engine Co.

Additional representatives will be appointed representing the car-builders, railways and foundrymen.

It is the intention of the various chairmen to circularize those in the respective industries and ascertain from them their immediate requirements in those iron and steel products which are prohibited from being exported from the United States, showing in detail the commodity and quantity required and the specific purpose for which the same is required. Firms interested may, if they so desire, communicate with any of the above noted.