

CANADA'S WATER-POWERS.

Report by Commission of Conservation—Lack of Accurate Data Regarding their Extent—About 1,000,000 H.P. at Present Developed.

The Commission of Conservation has lately issued a report dealing with the subject of Canada's water-powers written by Mr. Leo G. Denis, B.Sc., and Mr. Arthur V. White, C.E. This report, which extends to 400 pages and is copiously illustrated with reproductions of photographs, is the result of nearly two years' work of investigation and compilation on the part of the officials of the Commission of Conservation. It is stated that the information respecting the water powers of Ontario, Quebec, Nova Scotia, New Brunswick and Prince Edward Island is much more complete than that of the other provinces, and that the information available concerning Manitoba, Saskatchewan, Alberta and British Columbia was so scanty that the commission has found it necessary to institute a reconnaissance survey of the powers in those provinces.

A general introduction to this volume is contributed by Mr. A. V. White, who states, that, speaking generally, it may be said that no public records exist which adequately set forth the amounts, locations and characteristics of the water powers of the Dominion. There are instances where private or corporate interests have had individual water-powers developed, surveyed and otherwise more or less thoroughly examined, and instances also, where daily gaugings of water levels are taken with the object of determining the regimen of the waters contributory to some particular source of water power. But such instances, where data are carefully compiled are the rare exception and not the general rule. Mr. White sums up his principal conclusions in a general introductory survey as follows:—

1. Water power is dependent primarily upon precipitation. Other interests such as municipal and domestic water supply, navigation, agriculture and irrigation are likewise dependent upon the same source. The subject of water powers, therefore, cannot be properly considered without making fair allowances for the demands of the other interests that have just claims upon water as a natural resource.

2. Knowledge of the physical circumstances intimately associated with water powers is essential to an intelligent classification of them. It is as unreasonable not to differentiate between water powers as it would be not to differentiate between timber tracts, mineral lands or the items of any other natural resource varying in quantity, quality and situation.

3. The accuracy of published data relating to water powers must be accepted with qualifications, unless that data is based upon carefully ascertained facts obtained in the field.

4. General statements, so commonly made, of vast numbers of existent water powers are misleading and tend to disguise the fact that the number of water powers in Canada, at present desirable from an economic standpoint, is much smaller than generally supposed.

5. Reliable data upon water powers have definite characteristics. At the present time, there is urgent need for such data and for detailed topographical maps.

6. Certain steps are necessary to secure water-

power data that are thoroughly reliable. Metering stations should be established at carefully selected points on the principal rivers and streams, and accurate cross sections of the river beds made at such stations. Permanent bench marks should be established. A substantial gauge should be erected in an accessible place at each gauging or metering station. Carefully conducted discharge measurements could then be made from time to time during the year and gauge readings could be taken daily by some reliable person resident in the locality; or, on the more important rivers, self-registering gauges could be installed. As a result of such procedure, rating tables could be prepared to show the discharges at all stages on the water. Thus, in the course of a very few years, recorded data of fact would be on file and from such data, the maximum, minimum and mean monthly and mean yearly discharges could be ascertained. Furthermore, if the areas of the drainage basins of the respective watersheds are known, and information upon the rainfall is available, important deductions relating to the run-off may be made. If good "common sense" judgment were exercised in the selection, equipment and arrangements for the maintenance of gauging stations, much valuable and reliable information could be obtained for a comparatively limited initial outlay and subsequent annual expenditure.

SUMMARY OF WATER-POWER DEVELOPED.

Owing to the paucity of information available respecting water-powers in Northern Canada and the northern portions of the various provinces, and also, respecting many of the minor powers in the settled area, it has not been considered advisable to make an estimate of the total water power in Canada. One "estimate" places it at nearly 17,000,000 h.p., but it does not, and cannot, rest upon any basis of reliable information. The information procured, however, justifies the publication of the following table showing the total water-power developed in Canada in 1910, and the principal industries using it:

	Electrical Energy H.P.	Paper and pulp H.P.	Other Industries H.P.	Total H.P.
Ontario*	400,683	57,575	74,908	532,266
Quebec	191,252	76,926	31,975	300,153
Nova Scotia	1,875	12,000	1,397	15,272
New Brunswick	3,400	3,050	3,315	9,765
Prince Edward Island	50	.....	450	500
Manitoba	48,250	.....	50	48,300
Saskatchewan	.....	.....	.....	45
Alberta	7,300	.....	.....	7,300
British Columbia	88,145	8,500	4,275	100,920
Yukon	2,000	.....	.....	2,000
Total	742,955	158,051	115,515	1,016,521

*Includes all Ottawa River powers between Montreal and Lake Temiskaming, whether wholly in Quebec, or in Ontario or partly in each.

Mr. W. A. G. Hoskin, who has been secretary-treasurer of the Winnipeg branch of the Mutual Life Assurance Company of Canada for the past six years, has severed his connection with that company and returned to Toronto, where he will engage in business for himself. Mr. Charles B. Clement, who has been connected with the head office of the company for many years, succeeds Mr. Hoskin. As an evidence of the good wishes of his associates at head office, Mr. Clement was presented before leaving with a fumed-oak Morris chair, upholstered in Spanish leather, accompanied by an address.