CHAPTER XIII.—WATER POWERS.

The water area of Canada is officially estimated at 180,035 square miles—an area substantially larger than the whole land area of the British Isles, and certainly larger than the fresh water area of any other country in the world. As many parts of this well-watered country are situated at a considerable height above sea-level, there are great supplies of potential energy in the rapids and waterfalls of the rivers conveying the water from these areas to the sea. Water power, therefore, is among the chief natural resources of Canada, and its development has in recent years contributed materially to swell the volume of Canadian production.

This Water Power chapter of the Year Book is divided into three sections; the first describes our water powers, their development and use in industry; the second deals with the Canadian central electric station industry, which is based almost wholly upon hydro-electric power; the third treats of the public ownership of hydro-electric power in Ontario, the chief manufacturing area, and also describes the policies of the Hydro-Electric Commissions in other provinces.

Section 1.—The Water Powers of Canada.[1]

The progress of civilization in its material aspects may be measured by the extent to which the resources of nature are adapted to the uses of mankind. These resources yield, in the first instance, raw materials such as coal and iron, cotton and lumber, hides and wool, which enter into so many things that they are spoken of as basic commodities. Energy, until comparatively recently, was largely secured by the combustion of coal, and was therefore looked upon as a secondary product, whereas when produced from falling water, it is just as much a primary product as coal itself. Energy now enters so largely into the scheme of modern existence that it is recognized as a basic commodity, and statistics concern themselves with kilowatt hours of electrical energy produced as being just as important as returns covering the production of pig iron, coal or cotton, and take note of undeveloped water power as being a source of raw material just as important as uncut forests or untapped oil fields. The relationship of power to production is of such vital consequence that every nation, besides considering its own power-producing resources, is deeply interested in the similar resources of other countries, and the method of their development. To this end the second Plenary World Power Conference, composed of representatives from 48 member states, is being held in Berlin during June 1930, where the technical, economic and statistical aspects of power development will be discussed.

Canada is richly endowed with water power resources and is in the forefront as regards their utilization. In fact, practically every large industrial centre throughout the Dominion is now served with hydro-electric energy and has within practical transmission distance substantial reserves for the future. Over 96 p.c. of the total main plant equipment of the central electric stations of Canada is hydro power, and this equipment generates almost 99 p.c. of the total electrical output. Indeed, water power is a mainspring of industrial progress in the central provinces, which have no indigenous coal supplies. Table 1 shows the provincial distribution of available and developed power in Canada at Jan. 1, 1930.

[1] By J. T. Johnston, Director, Dominion Water Power and Reclamation Service, Department of the Interior.