

## VII.—WATER POWERS.

The water area of Canada is officially estimated at 137,493 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, it is inevitable that its rivers should generate abundant water power on their course 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 section of the Year Book is divided into three sub-sections, the first of which deals with 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 describes the policies of the Hydro-Electric Power Commissions in other provinces.

### 1.—The Water Powers of Canada.<sup>1</sup>

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. Modern nations are no longer sufficient unto themselves, and each country, besides collecting and compiling statistics of its own resources and activities, takes careful stock of the resources and facilities of other countries, amongst which the power resources and energy production are of prime importance.

A recent compilation by the "Electrical World" gives the kilowatt hours of energy generated in leading countries, and it is interesting to note that in electrical energy generated per capita Canada is second only to Norway. These figures of course include energy from all sources. In regard to hydro-electric energy, however, Canada has larger resources and a larger installation than any country except the United States.

With this brief reference to the production of energy in other countries, we may proceed to a more particular consideration and analysis of the hydro-electric energy of the Dominion. 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 easy transmission distance ample reserves for the future. Over 90 p.c. of the prime motive power of the central electric stations of Canada is hydro

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