

# CHAPTER XIII.—POWER GENERATION AND UTILIZATION IN CANADA\*

## CONSPECTUS

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### Section 1.—Water Power

Canada's basic geological formations and their superimposed topographical features have resulted in a fresh-water area officially estimated at 228,307 square miles. This is larger than the fresh-water area of any other country and more than double that of the whole land area of Great Britain and Ireland. As all of this fresh-water area is above sea-level, and much of it at considerable altitudes, its outflow in its descent to the sea creates sources of potential energy at every rapid and fall along its course. By what may be regarded as a special dispensation of nature, more than half of this potential power occurs in that section of Canada comprising the Provinces of Ontario and Quebec, which is without commercial fuel deposits and in which is concentrated over 80 p.c. of the industrial development of the Dominion.

Water power is the mainspring of Canadian industry both in peace and in war. During the present century the utilization of water power has been a basic factor in enabling Canada to advance from a predominantly agricultural economy to an outstanding manufacturing country. Under peacetime conditions the progressive development of water powers and the construction of transmission line networks provided an ever-increasing flow of low-cost hydro-electric energy to industries throughout the Dominion. As a result there was built up a reservoir of power and an industrial background which was of vital importance to the organization of Canada's war effort at the outbreak of hostilities in 1939. In the ensuing five years and more of war, the widespread extension of industry and the tremendous achievement in the production of materials and munitions of war for the use of the United Nations in every field of conflict, has been made possible only by the development of new sources of power and the utilization to the greatest possible extent of those sources hitherto developed. During the war period more than 2,000,000 h.p. has been added to Canada's water-power installation, bringing the total, at the beginning of 1945, to 10,283,000 h.p. Virtually all of this new installation has been utilized for war production and in addition great quantities of power have been diverted from peacetime to wartime use. Although definite figures are not directly available, it is safe to say that about one-third of the developed water-power capacity

\* In this Chapter of the Year Book all information respecting power generation and utilization in Canada is co-ordinated; some sections, however, cannot be regarded as complete owing to the insufficiency of available data. Section 1 has been revised under the direction of V. Meek, Controller, Dominion Water and Power Bureau, Surveys and Engineering Branch, Department of Mines and Resources, and Sections 2, 3 and 4 (except as otherwise stated) by G. S. Wrong, B.Sc., Chief, Transportation and Public Utilities Branch, Dominion Bureau of Statistics.