

Power—Canada's Opportunity

War Has Emphasized Value of Developed Power Resources—European Nations Have Found Construction Necessary in Spite of War—American Efforts Have Been in Right Direction, But So Far Inadequate—Function of Dominion Power Board

By A. M. BEALE

Assistant Engineer, Water Power Branch, Department of Interior, Ottawa

THE return of peace will find most of the nations of the world burdened with debt. Vast areas devastated by war will have to be completely rehabilitated and for a considerable period at least will be non-productive. Belligerent countries will have to make renewals and replacements in many directions whence material has been diverted for war requirements. Finally, the war has brought about the consumption of natural resources on such a vast scale that it will be essential to see to it that in future our resources are used to the best advantage.

It is obvious, therefore, that if the world is to make a speedy recovery, there must be a quick industrial revival and the country most prompt to produce in excess of its needs will be able to dispose of its surplus in foreign markets to the best advantage, and being first in the field will be in a position to build up an export trade whereby its national credit will be maintained, its national obligations met and imports requisite for its needs, comfort and general well-being secured. Canada should be in a position to be early in the field, but must look to her industrial efficiency, if she is to progress in face of the keen competition which will develop amongst the nations striving to regain their sadly impaired prosperity.

Industrial Civilization Requires Power

"Motive power," in the words of Sir Dugald Clerk, the eminent British engineer, "is of fundamental importance to industrial civilization." It has been pointed out that the development of power resources has gone hand in hand with civilization; lack of mechanical sources of energy to replace manual labor or the neglect of such sources has always retarded progress, as, for example, in China, whereas the discovery or development of power has led to prompt industrial progress. The early location of the iron and woolen industries in Yorkshire is attributed to the existence there of water power, while Great Britain's commercial supremacy is in a great measure due to the discovery and exploitation of her coal, which placed large quantities of power at her disposal.

The world war, bringing with it a tremendous speeding up of industry in the manufacture and transportation of munitions, has taxed the power resources of every nation; the immediate cause of fuel and consequent power shortage has varied, but the result has been the same, namely, an almost feverish energy to attain greater efficiency in the use of existing power resources and in the search for and investigation of new ones. Every country, of which we have news, is studying its power resources not so much from the standpoint of present needs but rather for those of the future.

In Great Britain, proposals have been set forth for vast central station fuel-power plants at strategic points for the supply of power for all industries, so as to secure a more efficient use of coal, the extraction of all by-products is being urged not merely on account of their value, which is enormous, but also because a cheap fuel will thereby become available to reduce the cost of power.

A recent report by the committee on electrical trades appointed by the British Board of Trade states: "The prosperity of industries depends largely on cheap energy for driving machinery, and even a fractional reduction in price is of importance in determining the ability of manufacturers to compete in the world's markets." Stock, too, is being taken of the water powers of the British Isles.

A conjoint board of scientific societies acting under the auspices of the Imperial Government and recruited from the highest ranks of technical men in Great Britain is studying the resources of the Empire. Recognizing the importance of water power, a strong sub-committee was appointed to take stock of this resource and, thanks to the co-operation of the dominions, a large amount of valuable data has been secured and steps taken towards a fuller knowledge and appreciation of the water power resources of the Empire. Whilst Canada leads, New Guinea, New Zealand, Tasmania may be instanced amongst others of the British dominions as having great and vastly important water power possibilities.

It may not be amiss to draw attention here to the Tata hydro-electric undertaking in India which, to those unfamiliar with tropical conditions, is truly remarkable. It is a scheme to provide approximately 100,000 horse-power for 3,600 hours per year from valleys which have hitherto been dry for nine months of the year. This undertaking depends for its water supply on the storage of the monsoon rains which, it is stated, averaged, over a period of 34 years, $3\frac{1}{4}$ inches per day, for 45 days.

This scheme, as yet incomplete, is nevertheless in operation. It was financed in India and during the first year of operation earned and paid a dividend on its full capital.

Handicapped by Unsatisfactory Laws

Amongst our allies, the United States, faced with similar fuel conditions to ourselves, is taking active steps to mobilize her power resources but is handicapped, as are some parts of Canada, by unsatisfactory water power laws.

Water power is a salient feature in the contrast between the United States-Canadian boundary and the frontiers of Europe. To a traveller journeying along the frontiers of continental Europe in times of peace, the most conspicuous handiwork of man would probably be the mighty fortresses designed for defence against war-like aggression. These must always serve to remind the frontier dwellers that they live in the shadow of a continual war-menace. Here, on the contrary, the handiwork of man has been devoted to the erection of undefended bridges and canals along boundary waters, and of hydro-electric stations, which attract dwellers to the border regions that they may mutually enjoy a natural industrial asset, and must remind them that they live in the light of what promises to be a perpetual peace.

France, until the war an importer of one-third of her coal, was faced by the loss to the enemy of a considerable proportion of her own mines and the rising price and