National Saving of Fuel and Power

Canada Must Take Action Towards True Conservation — Co-ordination & Power Producing Systems—Great Britain and United States To Save Coal—Excerpts from Report Presented at Tenth Annual Meeting of the Commission of Conservation

By ARTHUR V. WHITE

Consulting Engineer, Commission of Conservation

THE field which this Commission covers in its work of power conservation is such that in the time at our disposal it is impossible to review all features of the work. We shall, therefore, at this meeting consider chiefly the great importance which attaches to the more economic generation of power,—a problem to which, with the encouragement of their respective governments, the ablest experts of the principal manufacturing countries of the world are devoting particular attention. It has become clearly recognized that cheap power is one of the basic factors enabling manufacturing countries successfully to compete in the world's markets.

Before entering our discussion may I very briefly state that during the past year the following are some of the subjects which have specially engaged the Commission's attention: the applications by the St. Lawrence River Power Co. and by the New York & Ontario Power Co. involving use of additional water for power purposes from the St. Lawrence River; the completion of the Calumet-Sag portion of the Chicago Drainage Canal, facilitating the diversion of additional water from the Great Lakes system; and the increased development of power at Niagara by the new Niagara Falls Power Co., of Niagara Falls, N.Y., and by the Hydro-Electric Power Commission of Ontario in its Chippawa-Queenston development. The former project contemplates the utilizing of the full head from lake to lake in two stages, one at the Falls, the other at Lake Ontario; while the Hydro Commission project utilizes a single head of 305 feet at Queenston. The complete apportionment having now been made of the total diversion permitted under the Boundary Waters' Treaty, various propositions are being put forth for re-opening the treaty in order to secure additional water. The increasing erosion of the Horseshoe Falls is also demanding attention.

These and other matters cognate thereto, indicate the nature of some of the subjects to which special attention has been given during the past year.

Development of Water Powers

There is also under consideration much that is new in the way of legislation and regulation respecting the development of water-powers. In the United States there are special bills before Congress suggesting means for the better utilization of existing electrical and mechanical power and for the development of new sources of power; also for the acquisition by eminent domain of property and rights necessary for the improvement and increase of facilities for the development, transmission, distribution and supplying of electrical energy; also for the control and regulation of the use of boundary waters of the United States, for power and other purposes. In Canada, the Dominion Water-Power Board created-by order-in-council of 25th April, 1918, under the Chairmanship of Hon. Arthur Meighen, Minister of the Interior, Ottawa,-for the purpose of assisting the Government to take prompt and constructive action to provide for the future fuel and power needs of the country, and to assist also in co-ordinating government activities relating thereto, had under consideration at its first general meeting the problem of co-ordinating certain legislation and regulations relating to water-power development in the various provinces.

Although the manufacture of munitions of war has largely ceased, thereby liberating much power, nevertheless hope is expressed by many that during the next few years there will be throughout Canada an almost unprecedented activity in water-power development. The power already released by munition works, is likely to be absorbed in the immediate future by the extension of industrial plants and by consumers being able now to secure power which, owing to the exigencies of war production, had been denied them. It is believed that a portion of the 50,000 additional horse-power which is being made available by the third pipe-line installed by the Ontario Power Co., will be required to meet early demands of consumers,—in fact, that the past experiences with respect to power demands will be repeated in the future.

Let us now turn to the main part of our subject, which relates to means for effecting the greatest savings of coal and power.

The European War has resulted in impressing upon us, as nothing else has, the vital importance of coal. Practically all industry is dependent upon coal. The United States, producing practically half the present world coal consumption, has, through its fuel administration, been compelled to use every endeavor to curtail coal consumption by cutting off unnecessary or wasteful uses; and by requiring, wherever possible, consumption only under conditions making for increased efficiency.

Enormous Coal Production

It is difficult to form an adequate conception of the enormous quantity of coal produced annually by the United States. In endeavoring to convey an idea of this quantity, the fuel administration, in 1918, stated:—

"Every year the miners go into the ground and dig out coal, and the railroad ships it for hundreds of miles, dragging back the empty cars, until the amount mined is 2¼ times the earth and rock removed in digging the Panama Canal. It took sixteen years to dig the Panama Canal. The miners will dig 2½ Panama Canals this year."

During the battle of Verdun the French fired from their cannons, 60,000,000 shells, containing nearly 1,800,000 tons of steel, the production of which consumed nearly 9,000,000 tons of coal,—that is, 25 per cent. of Canada's annual consumption. Throughout the war the coal situation has been the factor governing the production of manufactured articles. Every large coal-producing country, except the United States, found it impossible to maintain the pre-war production of coal.

It is true that Canada, like the United States, has striven to reduce her fuel consumption, but being still dependent upon her neighbors to the south for 22,500,000 tons, —including over 5,000,000 net tons of anthracite,—out of a total yearly consumption of 34,800,000 net tons of coal, it is clearly incumbent upon Canada to apply every permanent means within her power to utilize coal in the best and most efficient manner. Where Canada is deriving so large a proportion of her coal from the United States, it certainly will contribute to her good status with that country if Canada takes hold and effects every possible fuel economy. This, besides being an evidence of good common-sense, will also result in the saving of a large amount of money now absolutely lost in coal wastefully used.

Fuel Restrictions and Economies

Doubtless, coal shortage will again recur. We must, therefore, not forget the "heatless days;" the times when gasoline could not be used; the denial of fuel for certain luxuries, as use on private yachts; the curtailment of fuel for the manufacture of such apparatus as musical instruments, talking machines, etc.; the allotment to florists for greenhouse purposes of only 50 per cent. of the fuel they