which has existed in connection with Alsace-Lorraine has been that Germany wishes to maintain this outlet for her coal and in return derive from these areas the supply of iron which she herself lacks. The necessities of life—not the precious metals—are the real arbiters of exchange.

Portion of Canada Dependent Upon United States for Coal

Now, a very large portion of Canada—and for this one may hold in mind much of the populated territory extending, say, from Quebec to Winnipeg—has become increasingly dependent for its fuel supply upon the coal fields of the United States, and absolutely dependent upon that country for its annual supply of some 4,500,000 tons of anthracite coal.

In addition to the use of imported anthracite coal for fuel for heating and domestic purposes, large quantities of bituminous coal—some 10,000,000 to 14,000,000 tons—are also imported from the United States, largely for power purposes.

The known anthracite coal fields of the United States are within measurable distance of exhaustion. Upon this point there seems little difference of opinion. The time during which the supply will last, at rates of consumption existent prior to the war, is placed at about one hundred years. Doubtless, in the near future, the United States will feel compelled to conserve this valuable commodity, and the exportation of it may be largely restricted, if not entirely cut off.

There are available scores of examples, arising out of the present war conditions, where the United States has found it necessary to place stringent embargoes upon natural and manufactured products.

If Canada is to be in a position to command special consideration under possible restricted conditions, she must realize the value of her own resources and have them strictly under national control in order that she may be enabled to deal on a basis of *quid pro quo*. When the commodities of commerce are exchanged there must, of course, be a substantial basis for barter. When Germany demanded gold from Switzerland she offered to exchange coal. Suppose that the United States, in the conduct of her commerce, concluded that it was in the general interest of her citizens only to *barter* coal for certain commodities which she specially required, what desirable commodities has Canada to barter?

Canada an Exporter of Electrical Energy

Other than the products of her agricultural lands, mines and forests, there are certain resources in Canada of unique and special value. One of these is the hydro-electric energy which may be developed from Canada's waters, including her equity in international waters. At the present time the United States is importing from Canada about 275,000 horse-power years of electrical energy.* Many factors, of course, enter into the determination of the equivalent of this electrical power in terms of anthracite coal. Electric power has great advantage for many purposes over steam. Speaking in round figures, and taking cognizance of some of these special factors, the electrical power now imported by the United States would be the equivalent of probably not less than 3,000,000 tons of coal—it may be a quantity substantially greater.

Canada has been richly endowed with water-powers, although those serviceable from the standpoint of present economic development should be carefully conserved so that they may be used in the general public interest.

Any estimate for the water-powers of Canada must be presented and considered with a due appreciation of its limitations. The following table representatively sets forth the water-power situation in Canada. By no means may all the water powers be economically developed:—

Estimate of Water-Power Resources of Canada **

Province	Total possible horse-power.	Developed horse-power.
Ontario	5,800,000	760,000
Quebec	6,000,000	640,000
Nova Scotia	100,000	26,000
New Brunswick	300,000	15,000
Prince Edward Island	3,000	500
Manitoba, Saskatchewan, Alberta, North-West Territories	3,500,000	76,000 33,000
British Columbia	3,000,000	250,000
Yukon	100,000	12,700
Total	18,803,000	1,813,200

Men far-sighted in the fields of industry and finance have foreseen the extent to which present and future generations will be increasingly dependent upon power, whether it be steam or hydro-electric.

Concentration of Control

In the United States, for many years past, special efforts have been made to concentrate control of water-powers. Most of the water-powers which are more readily capable of economic development in Canada, as well as in the United States, either have been already developed or are privately controlled. Concentration of ownership is a noticeable feature of this control. It has been authoritatively published that in the United States, in 1913, about 6,300,000 horse-power was controlled by ten groups of interests. This concentration is still going on. Owing both to provincial and federal legislation, it has not been possible for interests so readily to obtain control of water-powers in Canada. Efforts, however, are continually being made to secure the rights for such desirable water-powers as are yet vested in the Crown. The efforts made by the powerful financial interests behind the Long Sault Development Company to obtain control of the almost unequalled power rights at the Long Sault rapids, on the St. Lawrence River, are still in mind.†

Power Monopoly

The public cannot be too well informed respecting the extent to which they may be compelled to pay tribute to those concentrating hydro-electric powers, by reason of the control which such interests have over the distribution and supply of electrical energy.

In this connection no words are better fitted to express what is going on than those of Mr. Gifford Pinchot when he states:—

> "And whoever dominates power, dominates all industry. Have you ever seen a few drops of oil scattered on the water, spreading until they formed a continuous film, which put an end at once to all agitation of the surface? The time for us to agitate this question is now, before the separate circles of centralized control spread into the uniform, unbroken, nation-wide covering of a single gigantic trust. There will be little chance for mere agitation after that. No man at all familiar with the situation can doubt that the time for effective protest is very short. If we do not use it to protect ourselves now we may be very sure that the trust will give hereafter small consideration to the welfare of the average citizen when in conflict with its own."

Respecting the water-powers of the United States and the attempt to create a monopoly of same, Mr. Roosevelt, in accurate, prophetic terms, as true for Canada as the United States, has stated that:—

> "The people of this country are threatened by a monopoly far more powerful, because in far closer touch with their domestic and industrial life, than anything known to our experience. A single generation will see the exhaustion of our natural resources of oil and gas, and such a rise in the price of coal as will make the price of electrically transmitted water-power a controlling factor in transportation, in manufacturing, and in household lighting and heating. Our water-power alone, if fully developed and wisely used, is probably sufficient for our present transportation, industrial, municipal and domestic needs. Most of it is undeveloped, and is still in National or State control. To give away without con-

*Respecting various phases of this subject, consult an article by Arthur V. White on the "Exportation of Electricity," which appeared in the *University Magazine*, October, 1910, pages 360 *et seq.* Consult, also, *Toronto World*, March 18th, 1912; also, "Exportation of Electricity—An International Problem: Relation of a Possible Coal Embargo by United States to a Curtailment or Stoppage of Canada's Electric Power," by Arthur V. White, in *The Monetary Times* of January 5th, 1917, pages 21 *et seq.* Consult, also, *Annual Reports of Commission of Conservation*, Ottawa.

**See *Conservation*, Ottawa, for December, 1917.

†For a review of the water-power situation on the St. Lawrence River, consult report of recent annual meeting of the Commission of Conservation, Canada; also *Electrical News*, Toronto, 15th December, 1917.