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## Editorial

### IS THE HYDRO ARBITRARY?

Sir William Mackenzie and Sir Adam Beck have been providing the Toronto daily press with reams of free copy of late. Sir William has responded directly to few, if any, attacks during the past several years. Withdrawing into his knightly armor, he has suffered the swords to beat upon the metal, telling himself that they were merely lath-sticks and harmless. But Sir Adam found a hole in the armor a couple of weeks ago—a hole, by the way, which Sir Adam bored months previously by means of anticipatory legislation. Sir Adam's thrust was strong, and it aroused Sir William and his associates to denial, denunciation and dentiloquy.

The Hydro's head had accused the Electrical Development Co. of stealing water from the Niagara River. As president of that company, Sir William Mackenzie denied the charge, which, he said, is based upon the Hydro's own arbitrary interpretation of the company's agreement with the Victoria Park Commission.

Is it a fact that the Hydro is arbitrary? We believe that it is, but we also believe that the Hydro, as the trustee of the water resources of the province, must be and should be arbitrary in respect to allotments of water from the Niagara River.

The well-known treaty of 1910 allows Canada 36,000 sec.-ft. at Niagara. It is a point of national honor that not a drop more than that be taken. To stay rigidly within that limit and yet supply the enormous demand for power throughout Southern Ontario, it is imperative that the existing power companies be restrained from wasting water. Additional water passed through any of the three existing Canadian plants means waste. It would be developed at 136 to 180 ft. head, whereas the Hydro would develop it in their new Queenston plant at over 300 ft. head, and every second-foot used by any of the present companies means a second-foot less available for development at Queenston.

The Electrical Development Co. was organized under an agreement executed in 1903 with the Victoria Park Commission, stipulating that the company would be permitted to divert sufficient water from the river to develop 125,000 electrical horse-power. While this agreement was under negotiation it was represented to the province by the company's counsel that the operating head would not be less than 140 ft. The company also agreed not to instal turbines and electrical equipment for the generation of more than 125,000 electrical h.p., although each company at the Falls actually installed one spare unit. The Electrical Development Co. has eleven machines, each supposed to be 12,500 e.h.p. capacity, and at least one is supposed to be idle at all times. It appears that the Hydro is of the opinion that these machines are largely in excess of 12,500 e.h.p. and that the plant as a whole is being operated to the fullest extent of its installed capacity. Whether or not this is true, investigation under the terms of the Water Powers Regulation Act will no doubt reveal. The Victoria Park Commission, in its annual report just issued, accuses the Electrical Development Co. of developing 136,000 electrical h.p., and says that it has reached between 140,000 and 150,000 h.p. on peak load.

As the 1910 treaty assigned the water in terms of cubic feet per second, the evident intention of the Hydro

is to define the rights of the three companies uniformly in the same terms. If the rights of the Electrical Development Company are properly stated above in the matter of capacity and operating head, the amount of water necessary to give effect to these rights, assuming an overall plant efficiency of 81.5%, would be about 9,650 sec.-ft.

The Province of Ontario, through the Hydro as its agent, has the right to require any reasonable efficiency from any water power plant in Ontario under the terms of the Water Powers Regulation Act, an appeal to the Lieutenant-Governor-in-Council being allowed to the water power owner. If extensive alterations or reconstruction are necessary to the carrying out of the province's efficiency requirements, the Lieutenant-Governor-in-Council fixes the amount of the compensation, if any, to be allowed to the company for such work. The idea appears to be not the infliction of hardships on operating companies, but the conservation of the power resources of the province.

The whole trend of the argument between Sir Adam and Sir William, and of the Hydro legislation introduced during the past couple of years, and particularly during the last session, shows that it is the Hydro's ultimate intention to buy one, two or all three of the Canadian power companies at Niagara in order to be able to develop more water under the 300 ft. head at Queenston. The whole 36,000 sec.-ft., if developed at Queenston, would mean over a million h.p. for Ontario, compared with about 405,000 electrical h.p. now permissibly developed by the three Canadian private companies. The handwriting on the wall must have been apparent to Sir William for some years past.

### ECONOMICS AND THE ENGINEER.

The subject of economics in its modern aspect may be said to be the application of reason to industry; that is, as time advances the economics of industry represent a larger proportion of the alleged science.

It is well to bear in mind the fact that the science so limited is far from exact and is yet only groping toward the light. Its theorems and axioms are susceptible to controversy and argument. One man, breaking almost every commandment, may yet survive in business to give pause to the acceptance of academic and accepted theory. It is never safe to dogmatize unless you know, and not so very safe then.

It is, however, certain that in its real aspect the knowledge of economic matters cannot be neglected; its foundations are in the very human cement, common or garden sense. What most surprises the engineer brought into contact with it as a subject for the first time is that he has practised its precepts without subscribing to its formulæ in ignorance that any principles existed. Another surprising thing is that what the theoretical student finds most difficult to comprehend is as clear as daylight to the intelligent engineer.

If the nomenclature in which every specialist loves to enshroud his subject be reduced to common terms the definitions re-worded and the arguments made clear by specific example, the subject so stripped of its mystery is readily grasped.

If economic argument is developed by specific instance, then every engineer can from experience find the material from which to argue. A knowledge of essential