REPORT ON WATER POWERS

BY EDWARD A. BIRGE.

A careful investigation and summary of the water powers of the state, both those now utilized and those still undeveloped, was recently made for the United States Government by Professor L. S. Smith, who has also submitted a report on the same subject to the State Conservation Commission. From his estimate it appears that the developed powers of the state are capable of furnishing about 194,000 horse power. This estimate is based on the capacity of the installed turbines. The undeveloped powers, estimated on the basis of the minimum flow for the entire year, represent about 350,000 horse power, and estimated on the basis of the minimum flow for the highest six months, they are about 653,000 horse power. In most large power installations, provision is made for the use of steam power, helping out in times of low water; so that if all of these powers were utilized, the amount of horse power installed would be far in excess of 350,000. It appears, therefore, that the undeveloped water powers of the state far exceed in amounts those that are undeveloped. It appears, also, that no natural resource still in the immediate control of the state at all approaches in value the water power.

The policy which Wisconsin, in common with all other parts of the United States, has followed regarding water powers, has been that of granting them freely to any responsible applicant. No attempt has been made to secure revenue to the state from them, and, until very recently, nothing has been done to secure for the public any regulation of charges for power, or indeed to secure the public in any way. This neglect has been entirely natural, for it is only recently that the great value of water powers has become evident. It is now plain that their value is not only great but rapidly increasing, and that the coming decades will witness an enormous rise in the demand for water
powers, not only on the part of manufacturers, but also from municipalities and from quasi-public corporations, which will seek franchises in order to develop and retail power, which may be distributed to great distances.

The questions concerning the regulation of water powers and of water power franchises are, therefore, on the one hand, pressing for a rapid solution as the value of the powers is well understood and capital is seeking their control. On the other hand, the settlement of these questions is rendered extremely difficult by the almost total absence of experience with them, and the equal absence of any habit of mind or fixed opinion regarding them on the part of the public. Water powers have been treated as if they had no value to the public, and have been given away as the public lands were a generation ago. Now we suddenly awake to the fact that these water powers are the most valuable possession remaining to the state, and the problems of their control and utilization must be settled now if ever.

The question of the control of water powers is further complicated by their relation to the industrial development of the state and of its increase in wealth and population. The development and utilization of water powers tends to cause a great and permanent increase in all these important matters. The State, therefore, cannot adopt a policy which will check industrial development even though it should promise great returns in the future. In the same way the free land and cheap land of a generation ago aided greatly in promoting the rapid settlement and increase of population and of wealth. Yet this does not blind us, as we look back on the history of the past, to the fact that the public lands could have been so treated as to produce more good to the state and nation than they actually yielded; and in the same way the water powers can be and should be so handled by the State as to save for the public all the value possible, and provide for the largest possible returns to the Commonwealth, without checking individual enterprise or the development of manufactures.

The best policy, if it could be successfully carried out, would be that of leasing the right to develop water powers. This policy is commonly carried out in Europe. It appears that in practically all countries of Europe concessions for the use of water powers are granted either by the central or by the local govern-
ments, and on terms which vary widely according to locality. The concession is the expression of an agreement between the government and the industrial concern, and returns for the concession may be made in various forms, such as rental, a fixed payment, or an agreement to furnish power at certain rates for public purposes.

The Monthly Consular and Trade Reports for January, 1909, contains information from consuls regarding certain points of regulation of water powers in Europe. Switzerland is taking care of the enormous resources of power generated by the streams from the Alps. The Canton of Berne leases water powers to applicants for the term of fifty years, the lease being renewable for two additional terms of twenty-five years each. Companies seeking franchises pay a concession fee of 60 cents to $1.60 per horse power according to the size of the enterprise. They pay, also, a graded impost on each average horse power used during the year of 20 to 60 cents. They are taxed on the value of their property at the same rate as other property, and a horse power is rated at a taxable value of $180 to $300. If the concession is not renewed at the end of fifty years, the Canton must pay the value of land, buildings, machinery, etc. At the end of one hundred years the land only need be taken, but if the machinery is then taken by the Canton, it must be paid for.

The government of Norway has recently proposed to the legislature the granting of two concessions to a company which proposes to develop 60,000 to 70,000 horse power. Besides various agreements as to use of power for public purposes, etc., the company pays about 27 cents per horse power annually on all power created by its improvements. At the end of seventy-five years the concession expires, and the plants revert to the state.

These are the examples of recent European legislation on this subject. The essential points are, a lease by the state of the right to develop the water power for a long term of years with low rental, and the right of renewal and of revaluation at the close of the term. This policy preserves to the state in the future the right to receive an equitable share in the certain rise of value of such property, and the moderate charges made at present are so low that they do not place any check on the present development in the use of water powers.
Should the State decide to adopt this policy regarding the water powers of Wisconsin, it would be wise to devote all rentals coming from rivers rising in the state forest reserve to maintaining and improving that reserve. If the policy of taxing water powers of these rivers for this purpose should be adopted, the rental for new concessions could be made the same as the tax on franchises already granted.

Whether or not the State deems it wise to adopt the policy of leasing, it would be of great advantage to enact a general law on the subject of water powers which should embody the policy of the State in the matter. Such a law, indeed, is unnecessary if water powers are to be given away indiscriminately, as was the case in the not remote past. But if franchises are to be granted only on certain conditions, it would seem better to express these in general than to have each company bargaining afresh with the legislature.

Such a law might well contain the following provisions; most of which apply equally to the lease and the franchise systems:

1. All applications for the privilege of developing water powers should be submitted to the authorities of the State, or to one of the state boards, such as the Rate Commission, or, as proposed in the last session of the Legislature, the Geological and Natural History Survey. In New York there is a board for this purpose composed of four ex-officio members and one appointive member, who is to be a surveyor.

2. In case the application is for so small a power that the public has little or no interest in it, such commission should be empowered to grant permits without cost to the applicant and without survey. In case an application is more important, surveys, etc., should be made, as was provided two years ago in the case of The Wisconsin River Improvement Co. In considering these applications, the commission should have the right to grant such applications as will most wisely utilize the power of the streams in question, and to refuse permits in case the development of the stream at the point proposed would seriously affect its total value.

3. The capitalizing of companies should be limited to actual investment; accounts should be kept as directed by the Rate Commission or State Tax Commission.

4. In case power is sold or rented charges for its use should be limited to such amounts as will return such rate of interest
on investment as the State regards as equitable, having due regard for depreciation and expense of renewals.

5. Rentals or taxes on these franchises, if levied on streams coming from the state forest reserve, should be applied to the enlargement and improvement of that reserve.

6. Franchises should expire, if the improvements are not installed, within a limited period, and if the power lies idle for a term of years to be specified, the State should have the right to assign the franchise to a new applicant.

The Commission respectfully represent to the Governor the great importance of the subject of water powers. The care with which the legislature of 1907 framed the act to incorporate The Wisconsin River Improvement Company is evidence that the State is ready to give the matter careful and intelligent consideration. It would seem as though a general act might now be passed which should at once encourage industrial development and aid in securing to the public some share in the control and in the future worth of this valuable asset of the State. The matter will be determined in a very few years in one way or another. The State will either establish general principles as the result of framing a general law, or such a law will become unnecessary as the result of granting unlimited franchises for utilizing all of the important water powers.

The Wisconsin Geological and Natural History Survey, with the aid of the United States Geological Survey, has examined part of the rivers of the state with reference to their water powers. Nearly five hundred miles of the most important rivers of the state have been carefully surveyed. A report on these streams has been published by the Survey, and the United States Government has issued detailed maps showing the streams and the topography immediately adjacent to them. The report also contains much information regarding other streams, especially those in the southern part of the state. Since these streams flow through a well-settled region, and most of the water powers are already more or less utilized, much information could be collected concerning them without making the careful survey necessary on the other rivers. There still remain to be surveyed four hundred or more miles of important streams, chiefly in the northern part of the state, whose water powers are now for the most part undeveloped, but which will soon be utilized. It would be of great advantage to the State to com-
plete this survey, which can be done without great cost. An appropriation of five thousand dollars would pay the expenses of the field and office work involved in the examination of the more important of these streams, and would also permit the Survey to carry on the gauging of water flow at low water, especially in winter. This estimate is based on the expectation that the United States Geological Survey will cooperate as in the past, and will defray half of the expense.