

**REPORT OF SENATORS PAUL
O. HUSTING AND HENRY
KRUMREY; WATER POWERS,
FORESTRY AND DRAINAGE**

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Report of Senators Paul O. Husting and Henry Krumrey; Water Powers, Forestry and Drainage
by Paul O. Husting & Henry Krumrey

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PAUL O. HUSTING & HENRY KRUMREY

**REPORT OF SENATORS PAUL
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FORESTRY AND DRAINAGE**

Wisconsin Legislature, Committee on
Water Powers, Forestry and Drainage

REPORT

OF

SENATORS PAUL O. HUSTING

AND

HENRY KRUMREY

Members of Special Legislative Committee appointed to
investigate and to recommend legislation relating to

Water Powers, Forestry and
Drainage

Made to the Governor January 24, 1910.



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REPORT.

*To his Excellency, the Governor, and the Honorable Legislature
of the State of Wisconsin:*

In compliance with the requirements of joint resolution No. 8, adopted at the regular 1909 session of the legislature, appointing a joint committee consisting of four members of the assembly and three members of the senate to thoroughly investigate the subject of the control of the water power by the state and the conditions upon which franchises for the same should be granted and the expediency of imposing a charge therefor; and to investigate such other matters pertaining to this subject as the said committee shall determine; and to draft a bill or bills covering such subject; and the further joint resolution No. 21, referring to this committee all bills now pending before the legislature granting, creating or extending any authority or franchise for the construction of any dam, reservoir, or reservoir system by any person, association or corporation; and joint resolution No. 38, A., to amend section 10, of Article 8 of the constitution relating to internal improvements and development of water power, we the undersigned, members of said committee have the honor to submit herewith the following report.

We are,

Respectfully,

PAUL O. HUSTING,
HENRY KRUMREY.

ACTIVITIES OF THE COMMITTEE.

The committee on water power, forestry and drainage was created by joint resolution No. 8 and supplemented by joint resolution No. 21, which provides for the appointment by the respective branches of the legislature of a committee consisting of three members from the senate and four members from the assembly.

The following were appointed members of said committee: Senators H. P. Bird, Paul O. Husting and Henry Krumrey, and Assemblymen W. M. Bray, George P. Hambrecht, James E. Thomas, and F. W. Kubasta. The committee met for the first time July 14, 1909, and organized by choosing Senator H. P. Bird, chairman and Assemblyman George P. Hambrecht, secretary. The chairman, secretary and James E. Thomas were chosen as a sub-committee to audit the expense accounts of the members.

For the purpose of familiarizing themselves with pertinent conditions, the committee made extensive trips throughout Northern Wisconsin, visiting the valleys of the Fox, Wisconsin and Chippewa rivers, and Northwestern Minnesota. Hearings were had at various cities located along and in those valleys and oral and written information was gathered, all of which is filed with this report and made a part thereof. No subpoenas were issued, but a general invitation was extended to the public to appear and give the committee such information as was desired. Generally speaking only those interested in the ownership or operation of water powers responded to the invitation. The only persons appearing by special invitation were State Forester E. M. Griffith, President C. R. Van Hise, Dr. E. A. Birge, Professor E. A. Gilmore, Professor D. W. Mead, and Professor L. S. Smith, who appeared before the committee in Milwaukee and all of whom gave information and were interrogated in regard to such matters as were before the committee.

Other reports will be filed going into the details of these trips and to avoid needless repetition, such detail is omitted herefrom.

THE DEVELOPED AND UNDEVELOPED WATER POWER RESOURCE OF WISCONSIN.

Wisconsin is rich in its potential water powers. While there has been some development of these natural powers it may be

said that such development is still in its infancy. As was natural the rivers in lower Wisconsin were first available for water power and for that reason show a larger percentage of development, but the rivers of northern Wisconsin, affording the greatest water power possibilities may be said to be scarcely touched.

A glance at Table I, following, shows that while the Fox and Rock rivers have been developed nearly to their full

TABLE I.

The following table gives the most important facts regarding the principal water power rivers of Wisconsin.

| River system. | Drainage area. | Total fall. | Already developed. | Easily developed. | Now developed. | Now undeveloped. |
|------------------------------|----------------|-------------|--------------------|-------------------|----------------|------------------|
| | Sq. mi. | Feet. | Feet. | Feet. | H. P. | H. P. |
| Wisconsin..... | 12,280 | 1,044 | 308 | 430 | 67,200 | 386,500 |
| Fox..... | 6,400 | 170 | 150 | 13 | 38,250 | 11,500 |
| Wolf..... | 3,850 | 800 | | 400 | 2,580 | 34,000 |
| Menominee..... | 4,000 | 550 | 130 | 307 | 12,800 | 72,500 |
| Peshigo..... | 1,123 | 1,040 | 30 | 880 | 2,190 | 53,800 |
| Oconto..... | 9.4 | 245 | 60 | 725 | 2,885 | 21,000 |
| Black..... | 2,270 | 570 | 95 | 400 | 2,200 | 16,500 |
| Chippewa..... | 8,573 | 730 | 300 | 700 | 20,000 | 156,000 |
| St. Croix..... | 7,578 | 322 | 50 | 200 | 18,800 | 45,800 |
| Rock..... | 3,500 | 132 | 67 | 14 | 7,700 | 1,000 |
| Milwaukee..... | 840 | 437 | 122 | 100 | 3,300 | 4,300 |
| Flambeau..... | 11,983 | 575 | 60 | 370 | 5,200 | 45,000 |
| Omitting Flambeau river..... | | | | | 183,105 | |
| Including Dore Flambeau..... | | | | | | 827,900 |

L. S. Smith, University of Wisconsin.
Wisconsin Engineer, June, 1909, page 285.

capacity, such rivers as the Wisconsin, Chippewa and Flambeau show but a very small percentage of development. Figure 1 graphically shows this condition, the darkened part showing the percentage undeveloped. Again glancing at Table I, it will be noticed that there are 183,105 horse power developed and 827,900 horse power undeveloped in Wisconsin. On the Wisconsin river 67,200 horse power only, has been developed and 386,500 horse power remain undeveloped or nearly double the entire developed horse power in the state. On the Chippewa and Flambeau

rivers there are 25,200 horse power developed, and 201,000 horse power undeveloped or more than 17,000 horse power in excess of the entire developed horse power in Wisconsin. In fact it will be noticed that so far as the northern rivers are concerned there remains a great wealth of potential horse power yet to be put to beneficial use. These facts are cited to show the magnitude of the rivers and their potential powers and their importance to

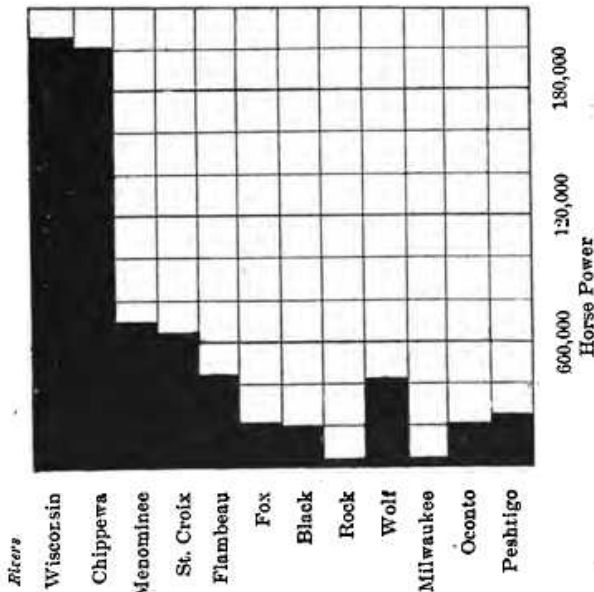


Fig. 1—Wisconsin Water Power, Undeveloped.

the state of Wisconsin. To quote Professor L. S. Smith, Associate Professor of Topographical Engineering of the University of Wisconsin, who has made a special study of Wisconsin rivers and their hydraulic potentialities: "The water power resources of Wisconsin excel those of any other state in the Middle West, indeed, they are probably excelled by only six or seven states in the entire union." * * *

"The importance of water power resources to a state so remote from coal mines as is Wisconsin is not likely to be overestimated. Unquestionably these Wisconsin rivers, if properly husbanded

and developed, are destined to exercise a profound influence upon the development of the state. Indeed, this result can even now be observed in localities like the lower Fox river, where the important water power developments have created a great industrial center." *Wisconsin Engineer*, June 1909, p. 273.

THE INCREASE OF THE DEVELOPMENT.

That it is essential for the best interest of Wisconsin and its people that these water powers should be developed, cannot be questioned, and there is every reason to believe that such development is at hand. The events of the past few years have demonstrated that water power is coming more and more into use and supplanting steam in all lines of industrial activity and especially along the lines of transportation, lighting, heating and other public utility purposes.

During the past few years the development of immense water powers on the Wisconsin and Chippewa rivers is most marked. Great industries and great power transmission plants have been established at various points. The water powers of the Wisconsin river at points of development are manufacturing the paper for the metropolitan dailies as well as transmitting the power for driving the street cars both in the valley and in distant cities.

There is no question but that Wisconsin by reason of its great natural water power resources is destined to become at no distant day, the workshop of the Mississippi Valley.

Figure 2, page 8, shows an interesting curve indicating the rate of increase in development along the lines just stated. It appears therefrom that between 1860 and 1890, the rate of increase was quite slow, being only about 1000 horse power per year. Beginning, however, with 1890, there is a great change, showing a much larger increase in power development. From 1890 to 1900 the increase was 40,000 horse power or at the rate of 4,000 horse power per annum, and from 1900 until 1909, the increase was 83,105 horse power or at the rate of over 9,200 horse power per annum. During the last nineteen years approximately 120,000 horse power have been developed, nearly twice as much as had been developed theretofore in the history of the state and territory. Commenting on this sudden in-

crease, Professor Smith says: "Unquestionably no single factor has contributed so much to bring about this wholesale use of water power as the recent development of the electrical transmission and generation of power, permitting, as it does, the generation of power at a distant point, where it may be found in great quantities and transmitting it to other localities where transportation or other facilities render it more valuable." L. S. Smith, University of Wisconsin, *Wisconsin Engineer*, p. 279, 1909.

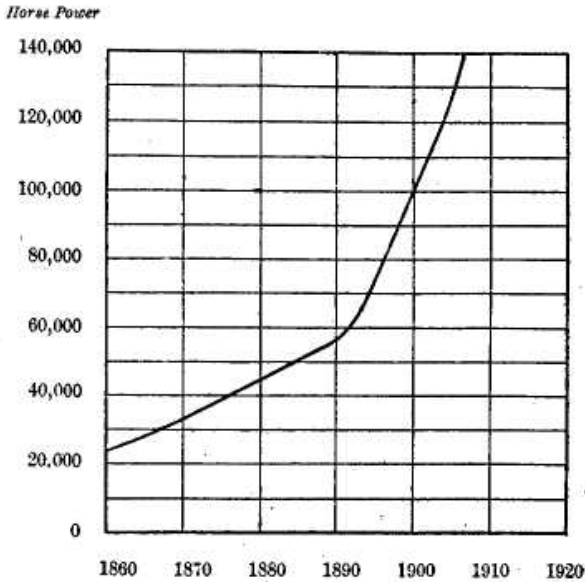


Fig. 2—Wisconsin Water Power Developed .

The increase in the use and development of water power is not characteristic of Wisconsin alone, but a like increase has manifested itself throughout the United States and has attracted the attention of engineers as well as public men. The reason for this is not difficult of apprehension.

H. St. Clair Putnam, a noted engineer, in explanation of this increasing development, goes into the history of power development and divides the same into three periods.