SEVENTY-NINTH LEGISLATURE

HOUSE NO. 134

House of Representatives, Feb. 11, 1919.

Ordered, that 500 copies of the testimony given by Hon. E. C. Jordan before the Judiciary Committee at the hearing on the Water Powers Bills be printed for the use of the members.

CLYDE R. CHAPMAN, Clerk.

STATE OF MAINE

IN THE YEAR OF OUR LORD ONE THOUSAND NINE HUNDRED AND NINETEEN

Remarks of Hon. Edward C. Jordan of Portland, formerly a member of Maine Water Storage Commission, given before the Committee on Judiciary at a public hearing on the Maine Water Power Commission bill, January 29, 1919, at State Capitol, Augusta, Maine.

Mr. E. C. Jordan: Mr. Chairman and gentlemen: This subject is by no means brief, but I am going to make it so in explaining the advent of the old Maine Water Power Commission, and this present bill I have abstracted in order not to amplify and take up time.

In 1894 I was largely employed by the Portland Street Rail-

way system and the Portland Electric Company in enlarging its electric trolley system. The Electric Company was furnishing power with coal—steam power. That company I urged to buy a water power about 4½ miles from Portland—Smelt Hill. They demurred, but I asked them to get an expert, for I knew what was developing in the country. The expert came and he reported that the electric power in this station 4½ miles away would be inefficient and expensive, and they did not equip. Incidentally I might say that the expert was selling them engines and boilers. In 1900 I urged them to buy again, having watched the development of the times, the North Gorham Water Power, and again the expert (that was only seventeen miles away) reported against the efficiency of such a plant, and, knowing what was developing, I persuaded other people to take up the plant. We developed it and sent the electricity to Portland, to Portland's great profit and to the great profit of the Company. This plant originally had 5000 horse power, but by finesse of certain parties we were restricted to developing 3000 horse power. There were four pen-stocks eight feet in diameter,—I say this because I will refer to it a little later,—leaving the wheels under a 34-foot head and developing 3000 horse power.

In 1901, while I was doing this work, I came in contact with electrical experts—specialists—and learned (I had known about it from the literature) that electric power, a long distance transmission had been determined and disclosed to capitalists, and they were busy buying the powers throughout the country.

In 1903, I was acquainted with what they were doing in California through the literature, and I went there to see. I had in mind the contrast of my own power that I had just developed, and there I found on Mill Creek, a mountain stream, a 22-inch pipe coming down over the mountain, divided into four hose streams and developing 3000 horse power and sending it 63 miles to Los Angeles. I had in mind the contrast with my own four 8-foot tubes. As a matter of elevation, incidentally the head was 2000 feet. I went a little further up into Kern river, and there found a development under an 800-foot head where they were proposing to send 200,000 horse power to Los Angeles and 200,000 horse power to San Francisco, 250 miles away. Incidentally, after the earthquake, the powers were hitched together in California and sent 300 miles.

Shortly after my return from California, I was asked by certain experts to furnish them with a list of powers in Maine within 250 miles of Boston, and I was a good deal disturbed about it as to what was intended for me because I had seen the little flourishing place of North Gorham depopulated and the product that was once manufactured there carried to Portland with its population. During this time I was largely in the employer of Hiram Ricker and Son and I disclosed what I thought was impending for Maine to Mr. E. P. Ricker. I showed him what 250 miles of transmission would do, starting in on the coast of Maine at Machias, sweeping up through and taking the most of the Penobscot valley, across Moosehead, and so on to the Canadian line, taking within its limits

all of the water powers of various rivers, south to the coast line again. Then Mr. Ricker commenced to get busy, and a little later, owing to meeting with certain resistance, he got busier, and out of it grew the Maine Water Power Storage Commission, with Governor Fernald as Chairman of the Board. I have said that in 1902 long distance transmission had been determined a commercial success, and we know that the capitalists got busy in acquiring all of the various powers they could. This resistance that I have spoken of I might explain in this way: For ten years prior to 1899, the United States government, through its Geological Survey, had been making these surveys that you have seen in your Hall of Representatives, or in the lobby, called the quadrilaterals of this State—most important maps. They started in probably as war maps to disclose roads, points of fortification, contours, and all such things as that. They started in at their own expense in order to have something which would correspond to the great ordnance maps that we see in Europe, and that would incidentally, if time was given for them, disclose all of the water resources of Maine; but the process of their construction was extremely slow and other methods were pursued.

In 1899 this State entered upon a new departure, and what was called the Survey Commission was established. People had watched and seen how valuable these maps were. That Survey Commission was authorized to act in conjunction with the United States government. They had an appropriation from the United States government for the further and more

rapid production of these maps; but their activities were switched off in 1903-4 and 5 into making river surveys—river surveys that disclosed every power, and, on coming to a pitch the dam site was surveyed, and all of the conditions of the principal rivers of the State were disclosed by those surveys. It is interesting to see the index map of the Geological Survey and to note how these river surveys extend way up into the State like a veritable octopus. They disclosed everything that there was and an immense amount of valuable information was acquired. I wanted that information in my own practice as a hydraulic engineer, and I applied repeatedly at Washington for it without success; it was not available. In the meantime Mr. Ricker was pushing me to apply more and more, to keep applying, and we went on together to apply for that information and in 1908 we got it. In 1909 it was published in the first edition of the Maine Water Storage Commission, and in succeeding years. Now I am not going to discuss anything about the motives of that resistance; I will leave that for you to consider. Baring the impaired rights of other parties, I believe more benefit accrued to the State by the earlier developments than would otherwise have taken place, and the sole conception of the Water Storage Commission was to render more efficient all developments, with the further conception that the State should exercise a certain control as were in duty bound by our people to make recommendations. In the meantime certain interests combined. They wished no control, and by adroitness the Water Storage Commission was relegated to a more quiet life in 1913.

This Water Storage Commission was a board that served without pay, and upon which I also had the honor to serve. I am here now with even more enthusiastic spirit for the work, but with less utility; that is by reason of my physical condition from deafness. I am here to urge you to re-create under this new form the old conception of the Water Storage work that it may proceed under those unswervedly friendly to its purposes and to the welfare of the State.

The development of hydro-electric science makes many things possible. We have seen what water wheels with an efficiency of twelve per cent go up to over ninety-three per cent. We have seen transmission, formerly a beggarly distance, extended to hundreds and hundreds of miles—enough to embrace this whole State. It has required a great deal of temerity for anyone to forecast the limit to what may be applied in power or in heating of our houses. Our hydro-electric operators in this State know from their special journals, just the same as I do, what is impending; but they are quite careful in endeavoring that you shall not, and in the meantime they clamor for additional time in which to strengthen their holds and without any control whatever. You might ask what is impending. Undoubtedly many things that are not thought of today; but today there is impending the interlocking of all of our multiple resources to its distribution throughout the State.

In 1908 with a purpose in view I went back to the reunion of my engineering—fortieth reunion—recently attended the fiftieth,—fortieth reunion of my engineering class at Union

College, the home of the General Electric Company. The great specialist of this country is a man by the name of Steinmetz, and he is at the General Electric Company's plant and incidentally accepted a professorship of electrical engineering in my college. I was favorably introduced to him, and I was absolutely paralyzed with the vision of future affairs that he indicated to me upon my inquiry. I was interested in one or two features, not knownig specifically about electrical power as to how it was transmitted, and its details. The great aggregate of all our incidental powers, and the accumulation of the aggregate of the smaller powers, is colossal in the State. The great powers are few, but if we can add the aggregate of the incidental powers, it is great; and I wanted to know if it could be done and how it could be done. He described to me how these little collateral powers could be stepped into a principal transmission line and thus strengthen the main line for its distribution. He further described mountain streams at different elevations—spoke of them as turbine wheels set like tops at different elevations, coming down, and one boy superintending the whole series. I have seen that. I have developed such a power—small power—where a high school boy looked after a plant that sent back to a greater producing power.

Then it went on to the question of electrification of main lines of railroads, and I have been interested to investigate to see what has been done since then, and I find thousands of miles of main lines of railroads so equipped. I could give you

a list of them but it would be too burdensome, and I will speak only of one conspicuous example, and that is the Chicago, Milwaukee and Saint Paul, which having equipped 690 miles, further voted on January 17th last to equip 250 miles more. That brought me to thinking about what the future of the Maine Central Railroad will be, fifty per cent. of whose product is timber, moving timber—lumber. Deforestation is constantly going on, and unless there is re-forestation, it must have another product made for it to move or else it goes into bankruptcy. That is perfectly evident. That product of course must be manufactured in this State. I have no doubt that the Maine Central Railroad has under its thumb somewhere, somehow, something to meet this problem. If it is sent out of this State, labor goes with it. Labor goes to the point where the manufactured product is produced, and the State becomes depopulated. As a further impending condition the day of farm power and heat under improved conditions is absolutely in sight, and a little further on are the nitrogen plants for fertilizing. But when? Gradually, with the development of hydro-electric science. No unfavorable administrative comment should be viewed as impairing the forecast of the expert who has reported to the Public Utilities Commission on the value of our storage reservoirs and water powers in this State. The scope required of the expert was colossal, perhaps with colossal figures in view to frighten the State into a passive course; but the colossal benefits are certainly indicated and they should be preserved to this State and its people. There is an enormous

difference as between the economy of the steam produced plant and the hydro-electric plant, and the divergency is growing very rapidly—the great economies—as between the uncertainties of coal production and the Almighty's distribution of the rainfall. Now how, you might say, can these things be brought about? Not in my opinion by State ownership. I am opposed to State ownership except in certain details, possibly, but by a reasonable control of big business facilitated as follows: You should grant long charters affording a handsome rake-off of profit to those making the investments, but a specific termination of them should be made, and, finally, a reversion of certain values to the State and not to the chartered company at the then going value of their plant. I refer to the interregnum of the development incidental to the hydro-electric science. They had nothing to do here; it is laboratory, an experimental station development, and its legatee should be the people of the State, and the opportunities of re-chartering and a profit to the State occur.

My vision in 1908 was on storage reservoirs; it was the name of our commission. Of course the bill included researches of storage reservoirs, just the same as this present bill. Water powers include the reservoirs. I had seen the beneficent effect of storage reservoirs, I knew about them. We have in the State the wonderful development of the Presumpscot river, likewise the wonderful development of the Androscoggin, with its head waters, and of the Kennebec with the reservoir at Moosehead, and the Penobscot, all by private parties. Now

we want to facilitate such developments. All of that kind of development should be facilitated by the State; it has been done by private parties. A commission and State government friendly to the above purposes can make a reality of that vision, and I am assuming that this bill that is before you is for that purpose, and, if proper, I urge upon you its final success.

The foregoing is a correct transcript of my stenographic notes of the testimony given by Hon. Edward C. Jordan at the hearing before the Judiciary Committee on the water power bills on January 29, 1919.

CECIL CLAY, House Reporter.