

## DISCUSSION ON "WATER POWER DEVELOPMENT IN THE NATIONAL FORESTS. A SUGGESTED GOVERNMENT POLICY."

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**J. H. Finney:** Mr. Baum's paper is an interesting presentation of his views as a "power enthusiast and a believer in a cheap source of power," and his belief that "cheap power is vital and necessary to the present and future development of the country" will be, I am sure, supported heartily in this assemblage. We may also be classed as power enthusiasts. I think, however, that his presentation of the case is wrong from several standpoints:

1. In considering the national forests, wherever located, in the light of a local asset and not as a national asset, in which all the people should share.

2. In basing a power charge or franchise solely on the cost of forest conservation and not on the value of the grant fixed by the earning capacity.

3. In the attitude which assumes that a policy other than that outlined by him would put a tax on discovery, invention, and development, by ascribing to capital and genius, seeking legitimate investment and fair returns, attributes that indicate a selfishness fortunately not always true.

4. By a disregard of what might be termed the "rights of the people" in and to an asset of perpetual value, national and not local in character, a value that increases from decade to decade, as coal becomes scarcer and dearer.

Let us first see what the government's stand is on the question of charges. It can best be stated in a general way by quoting President Roosevelt's specific statement before the recent Conference in Washington.

My position has been simply that where a privilege, which may be of untold value in the future to the private individual granted it, is asked from the federal government, that the federal government shall put on the grant a condition that it shall not be a grant in perpetuity. Make it long enough so that the corporation shall have an ample material reward. The corporation deserves it. Give an ample reward to the captain of industry, but not an indeterminate reward. Put in a provision that will enable our children at the end of a certain specified period to say what in their judgment should be done with that great natural power, which is of use to the grantee only because the people as a whole allow him to use it. It is eminently right that he should be allowed to make ample profit from his development of it, but make him pay something for the privilege and make the grant for a fixed period, so that when the conditions change, as in all probability they will change, our children, the nation of the future, shall have the right to determine the conditions upon which the privilege shall then be enjoyed.

Where that policy can best be carried out by the state, carry it out by the state; where it can be best carried out by the nation, carry it out by the nation. My concern is not with the academic side of the question; my concern is in the employment either of the principle of states rights, or the principle of national sovereignty, as will best conserve the needs of the people as a whole,

This is a clear statement of a just and righteous intent, and who among us will question its honesty, or the wisdom and desirability of its proper and successful accomplishment? This policy has, I believe, been more specifically elaborated by the Forest Service in certain cases, involving governmental grants as a definite policy, namely:

(a). The charge for power permits should be based on the power value of the land occupied and the value of the services rendered by the government.

(b). The proceeds from any particular permit may legally be appropriated by the Congress for any public purpose, and, under the same policy, may properly be used for the expense of administering in national forests, or for the reclamation fund, or for the proposed inland waterways fund.

(c). The plan of calculating the maximum conservation charge upon the yearly cost of forest conservation to the government would be impracticable, for the additional reason that such cost ought to be vastly higher than it is now. In the European forests the cost is several dollars per acre, as against one cent per acre this year in this country.

(d). The question of the charge for power plants is a unit. In considering it, the rental value of the land and the value of the services rendered by the government in forest conservation should and must be considered together.

(e). The rental value for power purposes of the lands occupied should be paid by the permittee, not merely their value for forest purposes, farm purposes, and the like. The government is entitled to their value for all purposes, especially including the purpose for which they are actually occupied. This value must be fixed by the administrative officers of the government at such a rate as will encourage the taking of permits. But the government should retain permanent ownership, subject to the temporary right of the permittee to use the land.

(f). Practical considerations of administration make it desirable that the charge for power plants should be uniform. It has therefore been fixed at a rate which is believed to be sufficiently low not to check the development of any project.

While this policy may not be yet fully worked out, perhaps may not be the final word, it is, I maintain, in exact accord with the views and policy which the President seeks to establish, which in its final analysis is simply equal justice to both grantee and grantor, in rights which involve the use of the common property of the people as a whole, rights which are in their strictest sense, ours only as trustees and guardians for the future.

It may not be amiss to say here that this idea of trusteeship, while not strictly new, has in the past few years attained a new significance; and there are evidences of an awakening of the public conscience in respect to our guardianship and to our obvious duty to ourselves and to posterity in these matters that be-

tokens a better America. The whole conservation movement, crystallized by the notable conference just held at Washington, marks, I believe, a new era in American thought and American habit.

*Forests as a national asset.* The national forest in the West is the heritage of the whole people. No state or local boundaries were in the mind of the Almighty when the forests were first planted by him. No state boundary now confines their use or benefits or value to the state alone. The California forests serve other states in water conservation, in water power, in climatic effects, in supplying timber, grazing, etc., and the same is true of forests whether located in Wyoming or Washington or Idaho. They are public domain, belonging to the nation, not to the states containing them. They are, therefore, in all the benefits and profits accruing from them, the common property of the nation. The state fortunately containing them gains the greatest benefit, and rightly so, but no claim that they are the exclusive property of the state as regards benefits or profits is tenable. The nation is the sovereign, and as a matter of fact and right the profits from them, while in part shared with the state, are converted into the national treasury. They should be turned into a forest fund that could be used to establish other national forests.

In the east where the Appalachian national forest is projected, and so badly needed, the situation is different only in degree. The states agree to relinquish sovereignty, the title passing by purchase to the new owner, the federal government. The states will get their share of profit—the balance goes into the treasury. Nor can the forest here be considered a local asset. The states are manifestly unable to act effectively in its establishment. The very fact that the national government must act shows its interstate, its national character.

From the forested mountains of North Carolina flow streams that make power and navigation possible in streams in adjacent states—north, south, east and west. Some twenty states are directly, and the whole nation indirectly affected by what North Carolina does, should she denude or preserve her forests. It cannot be considered, therefore, as a local question, and I think Mr. Baum's view is narrow and untenable. Does the San Francisco post office expend its surplus only on San Francisco's postal service, or the New York post office on New York's? Is not the profit from these larger and more prosperous centers used to improve the efficiency and value of the postal service as a whole to the whole people?

Let us look into this a moment. The government at present sells the timber on the basis of its selling value, because the timber costs have been to the present time practically nothing, except the small value of the land set aside, and the maintenance and patrolling and similar charges. We have not begun to spend on our forests the amount of money which they should

have yearly for a definite reforestation policy. Will Mr. Baum advocate this charge against the power company, should we spend, as we some day must, large sums for reforestation?

The national forest, so far as the timber is concerned, was operated at a loss last year. Other forest products considered, there was a substantial profit, and this profit is increasing year by year, and rightly so. Forests become without impropriety a profitable investment to the government, without imposing any purposely designed hardship on the grazer or lumberman or miner or homesteader. If the government has instead of grazing privileges, or lumber, a water power to dispose of, in what respect does it differ from the other forest products? Is not its value what it is worth to the grantee, whether it be five thousand or fifty thousand kilowatts, and is not this value fixed solely by what it may be able to earn as a return on the investment? The 5000-kw. plant may be just as able to earn a fair return as the 50,000-kw. plant. The promoter or the developer might prefer the larger plant, perhaps, as offering more chance for profit, just as a street railway in New York might be a more attractive enterprise than one in Atlantic City, and yet both New York and Atlantic City have street railways, and it is barely possible that the smaller one is the more attractive investment.

It is largely a commercial problem. The 50,000-kw. plant would not be developed if no profitable market existed, even if there were no charges imposed by the government. Commercial considerations govern. There are plants operating and making money where fixed charges are abnormally high, costing \$200 or so per kilowatt installed, and selling power at a low price, too; there are others that have cost \$80 or less per kilowatt installed that are selling power at a higher rate than the other plant. They all fix what is claimed to be a reasonable charge for current, under the conditions existing in their particular field, and this charge varies quite as much and as radically as the installation costs. It is a reasonable charge at one cent per kilowatt-hour, or two or more, depending on local conditions. We cannot well object to a metered tax on production when we are at the same time through our public service companies, such as the power company, the telephone company, the gas company, and the water company, strenuously and persistently advocating a metered charge for consumption. It is not possible to impose an equitable tax in any other way.

The plant that has so narrow a margin between success and failure as to be seriously affected by the imposition of a fair tax, whether this tax be 1/1000 cent, or 1/100 cent per kilowatt-hour, or even more, perhaps, has small prospect of attracting investors. It is not at all impossible or difficult—we are doing it every day—to get at exact figures of development costs in any project contemplated, and accurately to

estimate its earning capacity. We are doing the latter, too, every day. One needs only to recall the engineering reports of the past and the present to see that it is done on the basis of "what the traffic will stand," nor is there impropriety involved in this. When this is done and the property cannot stand a reasonable tax on its output, that project is not a commercial one at the present time and under present conditions, and must await development, as does many another, until a more favorable season.

*A tax on discovery and invention.* There are no inherited or inherent rights in capital privately to exploit our remaining resources in mines and lands and forests, although this statement seems unduly optimistic in the light of past history. The Americans are over-patient and have been over-exploited, to put it mildly. There may be no power monopoly contemplated, though a water power company is by nature a monopoly *per se*. It is many times the only possible source of supply of a given market. The opportunity for monopoly unquestionably exists in many places now, and there are some striking examples of what might happen to water power in what has happened in the past in some notable combinations of certain railway and other large interests that can be readily recalled.

The government imposes a tax to-day on inventive genius by charging for a patent—the child of one's brain—a uniform charge regardless of the cost of maintenance of a patent office. It fixes also a limitation of the grant to seventeen years—but the Patent Office is full.

No fears are justified, however, that the imposition of a tax, which would net him forty-nine per cent. instead of fifty per cent., or five and nine-tenths instead of six per cent. on a solid investment, will curb either the American's ingenuity or his inventive genius, or his discovery of the quickest way to get the forty-nine per cent. or five and nine-tenths per cent., if he cannot have the larger returns.

*Disregard of the people's rights.* The real ownership of these natural assets in mines and forests and soil and water clearly lies in the people as a whole—a part of the nation's heritage, whether natural or artificially created through governmental agencies. Some profit therefrom belongs to the people, just as clearly and on the same broad ground as that some profit belongs to the capital and brains developing them. With this right of the people to profit, there exists and there is imposed the duty to fix reasonable restrictions on their use. Rights to exploit them properly should be granted on the basis of a definite term of years for the franchise; a definite basis of fair charge on the output; fair regulation by the government—a policy that is embraced in what is termed "a square deal" to all concerned; to the investor, to the corporation, to the power user and to the nation, and, incidentally, to posterity.

As engineers, knowing better, perhaps, than any other class

of observers the immense potential value represented by forty trillion cubic feet flowing annually within our borders, descending an average of twenty-five hundred feet to the sea, and what it means to present America and its future value to future America; dimly realizing the infinitely greater value and incalculable good of our waters in the light of the new concept of them in their substance, or corpus, we cannot go on record as indorsing any plan involving their exploitation and use, that does not have strictly in mind, not only their fullest development and conservation in the largest sense for power, for soil, for water supply, for the health and very life of the people, but the plan must be one that will do equal justice to all and contain special privileges to none.

No less an authority than Jefferson declared that "the earth belongs in usufruct to the generation at any time living upon it." This view is as true to-day and as free from demagoguery or socialism as when uttered. It is plain common sense and common honesty, and we as a people are at last beginning to realize it.

**E. R. Taylor:** I would like to see Mr. Baum's paper broadened out, and my criticism is mostly upon paragraph B, in which Mr. Baum says:

The proceeds from any particular privilege cannot be devoted to any other watershed or any other section, or for any purpose except the particular privilege.

I had the honor to read a paper on "Forestry, Water Storage, Power and Navigation" before the American Electrochemical Society a few weeks ago. In that paper I think I advocated the converse of that advocated by Mr. Baum in paragraph B. I said there:

Let each state or section develop one or two streams completely with forest and lakes (and even farmers' tributary brooks to be paid back at cost) as illustrations, and put them to work earning money to develop others later. Let coöperation be the watchword. Private interests cannot do it as it ought to be done; public interests must do it, and the doing will be immensely profitable and a benefit for all coming time.

All of us realize the great value of these water power privileges, if they are rightly developed, and I suggest that all who are interested in the subject get a copy of the Third Annual Report of the New York State Water Supply Commission, which deals with this subject.

**P. P. Wells:** I desire to explain briefly the forest service policy with regard to what used to be called the conservation charge. I am not a trained engineer and must ask your indulgence on that side of the question. The service is very much indebted to Mr. Baum for the careful consideration he has given this subject. However, we agree with the conclusions that have been expressed by Mr. Finney.

Mr. Baum's paper does not clearly distinguish between the

policy of Congress and the policy of the Service—the Administration. Of course, to find out about the policy of Congress we seek the statutes. In respect to the policy of the Forest Service as an administrative body I wish to say something about what its intentions are, what it has done, and what it would like to do.

In the first place, it does not like the present system of having permits for water power development revocable at the discretion of the secretary. That condition is imposed by the Act of Congress of February 15, 1901, in which it is expressly provided that they shall be revocable. The Forest Service would like to have authority to issue permits which would be irrevocable except for breach of conditions, for terms sufficiently long to guarantee security to the investor and a chance for full development.

At Mr. Pinchot's suggestion there was included in the Agricultural Appropriation Bill pending before the last session of Congress, a clause which would have given power to issue irrevocable permits for a term of fifty years. That clause, like all new legislation in appropriation bills, was subject to be stricken out upon a point of order raised by any one member of the House of Representatives. Two members made the point of order against this clause, and it was consequently stricken out.

As the law now stands, the service has gone as far as it can to give permanence. It cannot take away from the successor of the present Secretary of Agriculture the power to revoke the permit. It does, however, specify precisely, before construction begins, the maximum charge that is to be made in every case. This is fixed in every permit for a term of forty years, so that the service has gone as far as it possibly can to give certainty.

Secondly, for the reasons explained so well by Mr. Finney, the service stands for the permanent government control of its great natural resources, and as each fifty-year license expires, new conditions may be then imposed in accordance with the changed circumstances that face the men of that time.

Thirdly, the policy of the service is that no permit which is issued shall be held unused. Pressure is put upon the permittee to make full use of his permit, first, by making a preliminary small acreage or mileage charge pending construction; secondly, by fixing in the permit a specific time in which construction must begin and another specific time in which it must be completed. That time will be extended at the discretion of the Forester, if unforeseen physical obstacles are met with.

Fourthly, the service stands for a uniform small charge or annual rental based on the amount of power developed. The justification of this charge, as Mr. Finney has explained, is that the title of the government to lands in the national forest is unquestioned and absolute. They belong to all the people of the nation. Whatever value there is in them belongs to all. If you consider this value, there are three elements in it, bearing

on this matter, which we may call the land resources and the services rendered by the government. In these cases, with respect to water power, the "resources" of the forests may be taken to be the water alone, considered apart from the land itself. Our charge is not based on this element at all. The appropriation of water is made under the state laws. The second element is the value of the land as a power site. It is obvious that one piece of land may be very valuable for that purpose, and another piece of land less valuable, because either of advantageous reservoir sites for storage purposes, or because of a greater fall or head. The third element of value is the service of the government in maintaining a steady water flow by forest conservation. This last is the only element that Mr. Baum's paper considers.

In my opinion, Mr. Baum's analogies do not bear out his arguments. In the first place, it has been for many years the policy of the government to give free homes to settlers, and in furtherance of that policy the government irrigates arid lands at cost for homestead settlers. The present administration does not believe that that policy should be extended to large corporations, who use the public resources primarily for gain. So there is a broad distinction between the homesteader and the commercial user of natural resources that belong to the government.

Take the case of the mineral fuels. Two years ago the present administration definitely announced its policy as that of a lease system, rather than the present system of alienation of coal and oil lands in perpetuity. Take the case of railroad grants and free rights-of-way for railroads; that policy was initiated when the resources of the country were thought to be inexhaustible, and when the Pacific coast had to be connected with the East for political reasons. But the reasons for that policy no longer exist and they do not apply in the matter of water power. Take the case of timber. Timber is required by law, under Act of June 4, 1897, to be sold at public auction to the highest bidder, without regard to the cost of administering the particular forest on which it is sold. Railroad ties, which Mr. Baum's paper mentions, could only be sold in this manner, without any reference whatever to the cost of forest conservation. Grazing fees on the forests are an attempt to approximate the grazing value of the land. So with mill sites; if a man wants a saw-mill site, as Mr. Baum mentions, we vary the charge precisely in accordance to the capacity of the mill. Thus all the analogies, except that of the homesteader, are against the position taken by Mr. Baum.

A word as to what Mr. Baum says about deductions from the charge on account of private ownership of land. It is a settled part of the policy of the Forest Service, that if a power plant occupies unreserved public land, over which the Forest Service has no jurisdiction (private land), a deduction will be



made on that account, provided the patent by which the private land was acquired did not reserve to the United States a right-of-way for canals, etc., constructed under the authority of the United States. All patents for lands west of the one hundredth meridian, issued since the Act of 1890, do make such reservations.

Then as to water storage; the policy of the service is to encourage the conservation of water by storage, done by permittees, in such manner that they will not be charged for the conservation of the water they store. They will, however, be charged for the head which they get from the use of the forest lands, which makes this stored water valuable to them; in other words, there is a fifty per cent. reduction from the maximum charge on account of power produced by stored water which would not be produced by the natural flow.

In respect to what Mr. Baum says concerning the reward which should go to the enterprising discoverer of the best power sites, a uniform charge is made, believed to be low enough not to obstruct development on any practicable site. It therefore leaves a wide margin of profit for the enterprising discoverer of a better site, and that margin is the wider as the site is the better.

**A. H. Babcock:** Paragraph B of Mr. Baum's paper has caused considerable discussion. It is my opinion that Mr. Baum had in mind the fact that in the case of a water power development, the power must be utilized within a limited area. The consumers in the area must pay the government charge; hence they are entitled to the benefit. The charge should be made as low as consistent with the development of that district. Mr. Finney's analogy to the post office charges being distributed for the benefit of the whole country does not seem to me to be a happy one, for the reason that a two-cent stamp must carry the service into rural districts and other places, where an adequate delivery system otherwise could not possibly be maintained.

**President Stott:** Some very important points have been raised in the paper and discussions, which I would hear brought out at greater length.

**C. P. Steinmetz:** I hardly need to say that I thoroughly agree with the opinion, that the preservation of our national resources is a most important problem requiring energetic and prompt action. I am sorry to say, however, that with regard to the methods proposed by Mr. Baum I must disagree in almost every particular. The first argument made by him is that the different water power developments should stand on their own merits; that is, that the proceeds from any particular privilege cannot be devoted to any other watershed, or any other section, or for any other purpose except the particular privilege. He contends that the development of the watershed should be considered as a private matter in that particular locality.

I do not agree with that suggestion, as I believe that, if followed out, it would defeat the very thing we are trying to bring about. It is the same argument which can be made, and is being made, against setting aside and preserving these national resources, that they are not of general, but only of local interest. It is of no benefit, it is claimed, to the Central States, to set aside the Appalachian reserve, or the White Mountain reserve, and therefore the Central States say they do not want the national government, to which they contribute, to pay for doing it.

That is Mr. Baum's argument, but I believe his argument is wrong, and there is a contradiction in the very statement, which Mr. Baum has overlooked. He starts his paper by speaking of the preservation of the *national* resources, and then he says that these resources are only of *local* interest, and should be developed and paid for locally. If they are of local interest only, then they do not need the aid of the national government, but should be left to local enterprise. Under such circumstances I should prefer to leave them to private enterprise. The only reason for calling on the national government is that the subject is not of mere *local* interest, but of *national* importance.

It may appear at first sight immaterial to California whether the water powers of Maine are developed or not, but if the failure to develop the water powers in Maine results in an increased consumption, say, of one hundred million tons of coal, the coal famine resulting will increase the cost of pig iron or structural steel to California as well as to Maine, and so one part of the country will suffer by the destruction of our national resources, by the waste of our national capital, equally with every other part. Hence it is not a *local*, but a *national* problem.

If the problem were merely to develop water powers, then indeed it would be local; but the problem is much broader, it is the problem of preserving and protecting our national capital. Suppose for the sake of argument the cost of the development of the water power is charged to the individual location. Then there would be developed only those watersheds where the cost is lowest and the power greatest; that is to say, those cases where government aid is not needed, as private capital would sooner or later do the developing. But then the far more important problem would remain untouched; the problem where the watershed requires to be protected and would not be protected by private capital, because there is not enough power available in it to justify such protection. The destruction of timber and the erosion of hillsides at every rainfall would very soon be disastrous to the entire country. No effective protection or development can take place when this matter is considered as purely local. Such a policy would be very inefficient in carrying out our purpose of protecting and preserving the national resources, and would indeed be the surest way of defeating this purpose. As long as it is a national problem, the

nation stands or falls as a whole, is responsible as a whole, and has to take care of it or benefit by it as a whole.

Whether the payment for the work is made by the United States treasury, or by assessment on the beneficiaries of the development of the national resources, whichever it may be, remains for discussion, but certainly we cannot consider the development as a matter only of local importance.

Furthermore, it would be just as unfair to charge a high power cost to a moderate water power which may be very valuable and necessary, merely because the development of its watershed was rather expensive, while another water power may be developed almost free of charge where the watershed required very little attention. A part of the argument of the paper is that the proposed method of charge by the kilowatt output is unfair. Granting that, it should not be concluded that any other method proposed by the writer is therefore the proper method. If one proposed method is unfair, it does not prove the correctness of one other method; it merely means that we should find a fairer method than that which is proposed.

I agree with the writer that a fixed charge per kilowatt may not be fair. One thousand kilowatts of power developed near New York City is vastly more valuable than 5,000 kw. of power developed five hundred miles from nowhere. You may say we make the charge so low that every one needing the power can afford to pay the charge. That is unjust again, because we then fail to make a reasonable and fair charge on the profitable water power near New York City, and therefore fail to derive as much revenue for use in developing resources as the development of water power can stand.

The last point I desire to discuss is the feasibility of Mr. Baum's proposition, that the franchise privileges must be perpetual. He claims there is no franchise or privilege, but that the matter is the same as if I buy a piece of land and build a private residence. In the same manner those which develop the water power should buy the land. He does not believe in this argument himself, however, because in other parts of the paper he uses the term "privilege" and so signifies that there is a little more involved than buying a plot of land for a private residence. However, whether we think it desirable or not, we must realize that there is a very strong and growing sentiment against perpetual franchises, against giving away national property in perpetuity, or even for a long term of years, such as ninety-nine years or fifty years. Whether this is desirable or not, we must realize that the sentiment is growing and will not reverse, and will have to be dealt with as a fact, whether we like it or not, so that it will be increasingly more difficult to get perpetual franchises or privileges, or even long-term franchises. Whatever arrangements we so recommend, we will have to count on this condition—the lifetime of a franchise will be the lifetime of a generation, or something like twenty-five or thirty years at the most.

There are thus two features which we must keep in mind; to develop and protect as quickly and as completely as possible our national resources in forests and streams and mines, and to make the development such as to induce private capital to enter into it. The problem which we have to solve is how to combine the short-term franchise with such conditions, so that private capital will invest in these water powers.

Now to induce private capital to enter this field requires that capital must be guaranteed against confiscation, direct or indirect; that is, there must be a guarantee that at the termination of whatever franchise there is, there shall be no confiscation, that the value of the plant shall be preserved as a tangible asset of the investor. As soon as we guarantee that, I do not see that it matters very much whether the franchise is perpetual or whether it is relatively short, the only just objection against a short-term franchise is that the investor has to face the condition that he must get his full capital returned with interest within seventeen or twenty-five years, because he has no guarantee or protection of the investment beyond that time. The value of the investment must be guaranteed in any limited franchise.

There is however a franchise or monopoly very much stronger than any other franchise ever dreamed of by anybody, whether a water power franchise, or a city railway franchise, or anything else. The strongest indeed of all privileges, franchises, or monopolies is the manufacture of a patented invention. There is no restriction; you may develop the invention or not, you can give the public the benefit or not. You can throw it away, and no one has any right to object. You can charge ten thousand per cent. profit if you choose, but after a limited time, seventeen years, this monopoly expires. But there is no confiscation. Whatever factories, whatever plants you have erected to carry out this invention, they are still your property, except that now this invested capital has to compete on even terms with all other industries; that is, it is entitled to a fair rate of interest, but no more fancy profits. So I believe some similar method could be developed for the similar problem of creating values, where values did not exist before, in the water powers, forests, and mines, and *unlimited* franchises for a limited time; that is, unlimited regarding restrictions, price, time of development, etc., might and should be given, because it is necessary to have the possibility of unlimited profit to compensate for the chances, which are not small, of complete loss in the failure of the power development. But that should be for a limited time only, say the same seventeen years the letters patent has to run, and after that time the franchise expires, and either the government can take over the plant at its actual value, or renew the franchise with such restrictions, limitations, or conditions, as may seem to it desirable, provided these conditions do not constitute a confiscation of invested capital.

I think this would take away the reasonable objections to the short-term franchise, and would make it feasible, by holding out chances of very large returns during the unlimited period, to take the risk of complete loss. After all, this idea of the water powers being very valuable is a misconception, derived from looking at those powers which have been a commercial success, and forgetting to look at those many other franchises, city railways, etc., which have been developed and capital sunk into them without return.

The development of a water power is just like the exploitation of a letters patent, in the fact that the success of the two is a matter of some doubt—they are properties of questionable value. The water power may be, when fully developed, of extreme value, or it may be an entire loss. It is not an unquestionable asset, like United States bonds. If you desire to get the water powers developed, and desire to interest private capital therein, you thus cannot expect to limit the returns to the moderate values of the usual conservative commercial enterprises, because you cannot limit the chances of failure, and where there is a chance of loss you must compensate for it by the chance of more than normal gain or profit.

**Wm. McClellan:** I think we all agree that the word "national" strikes the keynote of this whole discussion. Those who realize the importance of this badly misunderstood question, and have taken the trouble to investigate the conditions, have found opinion is very likely to vary according to locality. In various parts of the West and South, great water powers exist more or less in their natural state. Whatever deficiencies or irregularities they have are natural. When we come to the East, however, we find a large number of valuable water powers which may be called "spoiled water powers." This has occurred on account of the denudation of forests at the head waters. During this last winter I have had occasion to examine a number of these eastern water powers, many of them of comparatively low head. It is surprising to find how many places there are where not more than 500 h.p. can be developed at present, and yet records show that years ago, before natural conditions had been changed, there would have been at times as much as 5000 to 6000 h.p. Steps are being taken by several state commissions to determine plans and the cost for overcoming these deficiencies by making the flow of the river as uniform as possible throughout the year.

These great natural water powers of the West, needing in many cases comparatively little assistance, and the great spoiled water powers of the East, needing in some cases a large amount of assistance, all make up the heritage of the nation. The fallacy is very subtle, nevertheless it is an absolute fallacy, that these resources should be developed for the benefit of the immediate community or state. In the opinion of the speaker, these resources should be considered as a whole, and charges

for development and assistance should be made in every case from the standpoint of general utility. The government, like an individual, should so manage its resources that all are brought up to as efficient a condition, with as great earning capacity as possible.

It is for engineers to say whether a good water power is a real asset of the government, and is worth developing. They are best fitted to examine the local conditions in each case, and see what change is advisable for a water power.

It is safe to say also that if this matter is not taken up on a national basis, there will be difficulties later, inasmuch as a large part of the water power of the country exists at present in locations which come under the national government, and in many other cases, where strictly speaking it is a state matter, attempts will be made to transmit power between the states. This will probably become a matter for national control some time later.

**C. H. Porter** (by letter): It seems to me that every one who considers this question must agree with Mr. Baum that the regulations of the government with reference to the granting of power permits in national forests should be such as to encourage the development of water powers and that the present regulations are unsatisfactory. That the Forest Service recognizes this is shown by the following extract from a letter signed by Mr. Pinchot, and dated May 5, 1908:

I wish to say now that I have never advocated revocable permits. The Act of February 15, 1901, expressly requires that all permits shall be revocable. I have consistently advocated legislation to authorize the issue of permits irrevocable for a fixed term, which should be sufficiently long to give reasonable security to investors—say fifty years. During this term the permittee, so long as he fulfils the conditions expressed in his permit, should be as independent as the holder of any other property. Moreover, the conditions of the permit should define with as great accuracy as possible the maximum burden placed upon him. He would then be in a position to solicit investment in his enterprise by offering certainty and security to the investor.

For these reasons I secured the insertion by the House Committee on Agriculture in the agricultural appropriation bill, now pending, of a clause authorizing the issue of irrevocable permits for fifty years. This clause was stricken out in the House. I believe that it would have been enacted into law if it had received the support of the friends of the power companies and that the companies have themselves only to blame if they are now suffering from the fact that permits are revocable.

A conference between representatives of the government and representatives of the power companies and of banking houses interested in financing power projects was held in Washington in February and March. The government opened the conference by proposing legislation of the character above indicated. The companies were unwilling to accept that unless they also got much more. The administration cannot therefore be held responsible for the fact that this legislation has not been secured.

The real question under discussion, then, is whether the government should grant very valuable privileges to the power

companies upon conditions more favorable to the latter than are necessary to insure the development of water powers. The power companies are justly entitled to a rate of interest on their investment proportional to the initiative required and risk involved and one which will make the proposition attractive to capital, but why are they entitled to anything more?

It is stated in the paper that the reserves or national forests were created primarily for use and not for profit, but if there be profit involved in the administration of the reserves why should it not go to the government, representing the public rather than be handed over to a few corporations? The fact that the government has in the past practically given away for private exploitation by far the greater part of the natural resources of this country is not, it seems to me, an argument for giving away the small remnant the legal title to which still remains with the government.

If the granting of permits for 50 years, irrevocable except for breach of conditions, will result in the development of water powers with its many obvious concomitant benefits, what is to be gained by the granting of permits in perpetuity, except the enrichment of a few individuals? If there is any question as to whether 50 years is a sufficiently long period to induce the desired result, it would seem to be a reasonable method of ascertaining the facts for the government to offer to grant permits for this length of time and then, if permits are not applied for, the granting of permits for a longer period can be authorized. In any case the government should retain permanent control of all water power resources now in its hands, and issue permits for development under conditions fixed for a definite period, at the end of which time the government should be free to make new stipulations and adjust the conditions to the circumstances then existing.

Mr. Baum raises the question of monopoly, and while a monopoly of the water resources of this entire country may, as he says, be absurd, a monopoly of the water powers of a given locality is certainly possible and in many cases probable. Even where there is not a monopoly of the sources of power there may be a monopoly, through exclusive franchises or otherwise, of the power market practically available in a given district. Whatever the cause, the resident of a city in California confronted with a local power monopoly will derive no advantage from the fact that Niagara power, for example, is controlled by entirely independent financial interests.

In the paper it is stated that the profits of a national forest in California should *not* be used to maintain a reserve in Maine, but the proceeds from the sale of the public land included in the national forest would, if the reserve had not been created, have been turned into the national treasury, and not turned over to the state of California. Why should not the same course be followed with any profits which may arise from the admin-

istration of the reserve? Both before and after the creation of the reserve the land belonged and belongs to the nation.

It is true that settlers in the vicinity of a reserve should be given first consideration in the disposition of the products of the reserve, but, in general, water powers are not developed on a coöperative basis by the people who use the power, but by bondholders and stockholders at a distance. The price of power will always be determined by the cost of competitive power, or by the price at which, with the corresponding amount of business, the profits will be a maximum, not by the actual cost to the company of the power sold the consumer. The amount of the government charge affects the last item only, but the two determining factors are entirely independent of it.

Furthermore, while it is the policy of the government that settlers in the neighborhood of any one forest be preferred to people at a distance, so far as the right to use the land and resources of the forest is concerned, it is also its policy that,

They should pay a fair price for all exclusive commercial privileges which they get. In other words, they should not be preferred to others as to price but should be preferred to others at the same price. This is the rule in the case of grazing permits, which are further restricted to prevent monopoly by large owners.

Whether it is "only fair that the government charge against the power privileges should be based on what the government furnishes", depends upon whether the cost or the value of what the government furnishes is meant. As an analogy the case of railroad ties is mentioned, and it is claimed that the value of these should be calculated on the yearly expense of maintenance and the number of ties the reserve can produce annually. As I understand the meaning of the word "value" it is the amount of money for which a thing can be sold. As a matter of fact, in disposing of any of the timber products of a reserve, it is the market value, determined by sale at public auction after advertisement, not the cost of maintaining the reserve, which fixes the price at which the timber is sold. An exception is made in the case of the small homesteader in the immediate vicinity of the reserve, who is given free certain forest privileges for personal and non-commercial use. Thus he can have without charge a small amount of timber, \$20.00 stumpage annually, and is allowed to graze free six milk or work animals. When the timber is sold to a railroad or lumber company, the government receives the market price of that kind and grade of lumber. It would, it seems to me, be absurd for the government, representing the public, to sell timber from national forests to lumber companies for a nominal sum in order that the lumber companies might make an excessive profit in reselling it to the public.

While the charges of the government to the power companies should not be excessive and should not exceed a definite maximum set in advance, in order that the fixed charges on a development may be accurately foreseen, nevertheless I see no



reason why the value of the power privilege rather than the cost of maintaining a given reserve should not be taken account of in determining the government charges, just as the market value of the timber is considered in fixing its price.

The value of the land for power purposes is approximately measured by the amount of power actually developed each year. It is also an inverse function of the cost of development per kilowatt and the distance from a market, but the obvious practical difficulties in the way of taking account of these and similar factors are such as to leave the amount of power developed as the only practicable basis upon which to evaluate the power privilege. Mr. Baum says very justly that the power man who discovers a better power development than another man should have the benefit of his enterprise, and it would therefore seem to be fair that the man who discovers a power having a low development cost per kilowatt, or one near a market, should pay a less percentage of his profits to the government, as he would with a uniform government charge per kilowatt, than a man who can only find a power which must be developed at high initial cost, or which is three hundred miles from a market.

As Mr. Pinchot says:

Any private land owner having a power site on his land would refuse to rent it for its value considered as a wood lot, but would insist on its power value as the basis of the annual rent. If his property were to be taken from him for power purposes by condemnation he would be entitled to its value for such purposes.

The principle involved has been affirmed by the Supreme Court of the United States. Why should the fact that the renter in the case we are considering happens to be the national government, make any difference? The power privilege is worth just as much to the power company whether it is secured from a private individual or from the government.

To summarize the difference between Mr. Baum's point of view and my own: he believes that water power development should be encouraged as much as possible; I believe that it should be encouraged only so much as is necessary to insure development. Beyond this the interests of the public, not those of the water power companies, should determine the government's policy.

**J. A. Britton** (by letter): I believe that the United States should grant to all bona fide hydroelectric corporations permanent rights-of-way and grants of government land without any tax whatever being made therefor, other than the cost of the land, fixed by the government on the same basis as valuation is fixed for homesteaders. Such rights, when granted, to become permanent only upon the expenditure of a sum of money representing four or five times the value of the land, and to provide therefor that upon cessation of use for a period of one year, except in case of unavoidable accident or destruction by elements of the improvements, the grant should revert to the United States.

The protection of a watershed should be a matter within the province of the United States, without imposing any tax upon the users of the land. The resultant benefits gained by the United States and the several states in which these patents would be used, and the taxes derived therefrom, are, in my opinion, sufficient to warrant the government in taking care of and protecting watersheds utilized, as such care and protection results as much to the benefit of the entire community through which the streams may flow, as it does to the company utilizing the water for power purposes. I am unalterably opposed to the levying of any tax by the state, or by the United States, where forest reserves are concerned, against enterprises of this character. To subject an investment of this kind to the whims of the legislature of any state and the Congress of the United States would be to invite confiscation of property, and would result in eventually paternalizing, and would, if neither of the above occurred, bankrupt any corporation, as it has no redress. Nor can it in California now, nor will it hereafter, be permitted to increase its rates, due to the trend of the present legislation in the matter of such close regulation of corporations. If any law is to be made, it should be a discriminatory one, choosing between the bona fide enterprises and those which are organized purely for the purpose of enriching the organizers.

I shall be very glad indeed to see a state or Coast convention held to discuss this subject. I believe it very vital to the welfare of those who have, in good faith, invested their money in water power propositions in California and other states.

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