

Secretary Plant Section—N. E. Hansen, Brookings, S. Dak.

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CHAS. B. DAVENPORT

INLAND WATERWAYS¹

To the Senate and House of Representatives:

I transmit herewith a preliminary report from the Inland Waterways Commission, which was appointed by me last March in response to a wide-spread interest and demand from the people. The basis of this demand lay in the general and admitted inability of the railroads to handle promptly the traffic of the country, and especially the crops of the previous fall.

This report is well worth your attention. It is thorough, conservative, sane and just. It represents the mature judgment of a body of men exceptionally qualified, by personal experience and knowledge of conditions throughout the United States, to understand and discuss the great problem of how best to use our waterways in the interest of all the people. Unusual care has been taken to secure accuracy and balance of statement. If the report errs at all it is by over-conservatism. It contains findings or statements of fact, a number of specific recommendations and an account of inquiries still in progress, and it is based in part on statistics and other information contained in a voluminous appendix. The subject with which it deals is of critical importance both to the present and to the future of our country.

¹ Message from the President, delivered to the Senate and House of Representatives on February 26, 1908.

Our river systems are better adapted to the needs of the people than those of any other country. In extent, distribution, navigability and ease of use, they stand first. Yet the rivers of no other civilized country are so poorly developed, so little used, or play so small a part in the industrial life of the nation as those of the United States. In view of the use made of rivers elsewhere, the failure to use our own is astonishing, and no thoughtful man can believe that it will last. The accompanying report indicates clearly the reasons for it and the way to end it.

The commission finds that it was unregulated railroad competition which prevented or destroyed the development of commerce on our inland waterways. The Mississippi, our greatest natural highway, is a case in point. At one time the traffic upon it was without a rival in any country. The report shows that commerce was driven from the Mississippi by the railroads. While production was limited, the railroads, with their convenient terminals, gave quicker and more satisfactory service than the waterways. Later they prevented the restoration of river traffic by keeping down their rates along the rivers, recouping themselves by higher charges elsewhere. They also acquired water fronts and terminals to an extent which made water competition impossible. Throughout the country the railways have secured such control of canals and steamboat lines that to-day inland waterway transportation is largely in their hands. This was natural and doubtless inevitable under the circumstances, but it should not be allowed to continue unless under careful government regulation.

Comparatively little inland freight is carried by boat which is not carried a part of its journey by rail also. As the report shows, the successful development and use of our interstate waterways will require in-

telligent regulation of the relations between rail and water traffic. When this is done the railways and waterways will assist instead of injuring each other. Both will benefit, but the chief benefit will accrue to the people in general through quicker and cheaper transportation.

The report rests throughout on the fundamental conception that every waterway should be made to serve the people as largely and in as many different ways as possible. It is poor business to develop a river for navigation in such a way as to prevent its use for power, when by a little foresight it could be made to serve both purposes. We can not afford needlessly to sacrifice power to irrigation, or irrigation to domestic water-supply, when by taking thought we may have all three. Every stream should be used to the utmost. No stream can be so used unless such use is planned for in advance. When such plans are made we shall find that, instead of interfering, one use can often be made to assist another. Each river system, from its headwaters in the forest to its mouth on the coast, is a single unit and should be treated as such. Navigation of the lower reaches of a stream can not be fully developed without the control of floods and low waters by storage and drainage. Navigable channels are directly concerned with the protection of source waters, and with soil erosion which takes the materials for bars and shoals from the richest portions of our farms. The uses of a stream for domestic and municipal water-supply, for power and in many cases for irrigation, must also be taken into full account.

The development of our inland waterways will have results far beyond the immediate gain to commerce. Deep channels along the Atlantic and Gulf coasts and from the Gulf to the Great Lakes will have high value for the national defense. The use of water power will measurably

relieve the drain upon our diminishing supplies of coal, and transportation by water instead of rail only will tend to conserve our iron. Forest protection, without which river improvement can not be permanent, will at the same time help to postpone the threatened timber famine, and will secure us against a total dearth of timber by providing for the perpetuation of the remaining woodlands. Irrigation will create the means of livelihood for millions of people, and supplies of pure water will powerfully promote the public health. If the policy of waterway improvement here recommended is carried out, it will affect for good every citizen of the republic. The national government must play the leading part in securing the largest possible use of our waterways; other agencies can assist, and should assist, but the work is essentially national in its scope.

The various uses of waterways are now dealt with by Bureaus scattered through four federal departments. At present, therefore, it is not possible to deal with a river system as a single problem. But the commission here recommends a policy under which all the commercial and industrial uses of the waterways may be developed at the same time. To that end, congress should provide some administrative machinery for coordinating the work of the various departments so far as it relates to waterways. Otherwise there will not only be delay, but the people as a whole will fail to get from our streams the benefits to which they are justly entitled.

The commission recognizes that the cost of improving our inland waterways will be large, but far less than would be required to relieve the congestion of traffic by railway extension. The benefits of such improvement will be large also, and they will touch the daily life of our people at every point, uniting the interests of all

the states and sections of our country. The cost and the benefits should be equitably distributed, by cooperation with the states and the communities, corporations, and individuals beneficially affected. I heartily concur in the commission's recommendation to this end. Such cooperation should result in united effort in carrying out the great duty of improving our inland waterways. While we delay, our rivers remain unused, our traffic is periodically congested and the material wealth and natural resources of the country related to waterways are being steadily absorbed by great monopolies.

Among these monopolies, as the report of the commission points out, there is no other which threatens, or has ever threatened, such intolerable interference with the daily life of the people as the consolidation of companies controlling water power. I call your special attention to the attempt of the power corporations, through bills introduced at the present session, to escape from the possibility of government regulation in the interest of the people. These bills are intended to enable the corporations to take possession in perpetuity of national forest lands for the purposes of their business, where and as they please, wholly without compensation to the public. Yet the effect of granting such privileges, taken together with rights already acquired under state laws, would be to give away properties of enormous value. Through lack of foresight we have formed the habit of granting without compensation extremely valuable rights amounting to monopolies on navigable streams and on the public domain. The repurchase at great expense of water rights thus carelessly given away without return has already begun in the east, and before long will be necessary in the west also. No rights involving water power should be granted to any corporations in perpetuity,

but only for a length of time sufficient to allow them to conduct their business profitably. A reasonable charge should of course be made for valuable rights and privileges which they obtain from the national government. The values for which this charge is made will ultimately, through the natural growth and orderly development of our population and industries, reach enormous amounts. A fair share of the increase should be safeguarded for the benefit of the people, from whose labor it springs. The proceeds thus secured, after the cost of administration and improvement has been met, should naturally be devoted to the development of our inland waterways.

The report justly calls attention to the fact that hitherto our national policy has been one of almost unrestricted disposition and waste of natural resources, and emphasizes the fundamental necessity for conserving these resources upon which our present and future success as a nation primarily rests. Running water is a most valuable natural asset of the people, and there is urgent need for conserving it for navigation, for power, for irrigation and for domestic and municipal supply.

The commission was appointed to obtain information concerning our waterways as related to the general welfare. Much work was done, but more remains to be done before a plan for their development can be prepared in detail. We need additional information on the flow of our streams, the condition of channels, the amount and cost of water traffic, the requirements for terminals, the area in each watershed which should be kept under forest, and the means of preventing soil-waste and the consequent damage to our rivers. But it is neither necessary nor desirable to postpone the beginning of the work until all the facts are obtained. We have suffered heavily in the past from the

lack of adequate transportation facilities, and unless a beginning is made promptly we shall suffer still more heavily in the future.

Being without funds or an expert staff, the commission has confined itself to principles affecting the whole problem and the entire country. Its report is a plea, in the light of actual facts, for simplicity and directness in dealing with the great problem of our inland waterways in the interest of the people. It submits no specific plans or recommendations concerning even the most important projects. The first of these, of course, concerns the Mississippi and its tributaries, whose commercial development will directly affect half our people. The Mississippi should be made a loop of the sea and work upon it should be begun at the earliest possible moment. Only less important is the Atlantic inner passages, parts of which are already under way. The inner passages along the Gulf coast should be extended and connected with the Atlantic waters. The need for the developing of the Pacific coast rivers is not less pressing. Our people are united in support of the immediate adoption of a progressive policy of inland waterway development.

Hitherto our national policy of inland waterway development has been largely negative. No single agency has been responsible under the congress for making the best use of our rivers, or for exercising foresight in their development. In the absence of a comprehensive plan, the only safe policy was one of repression and procrastination. Frequent changes of plan and piecemeal execution of projects have still further hampered improvement. A channel is no deeper than its shallowest reach, and to improve a river short of the point of effective navigability is a sheer waste of all it costs. In spite of large appropriations for their improvement, our

rivers are less serviceable for interstate commerce to-day than they were half a century ago, and in spite of the vast increase in our population and commerce they are on the whole less used.

The first condition of successful development of our waterways is a definite and progressive policy. The second is a concrete general plan, prepared by the best experts available, covering every use to which our streams can be put. We shall not succeed until the responsibility for administering the policy and executing and extending the plan is definitely laid on one man or group of men who can be held accountable. Every portion of the general plan should consider and so far as practicable secure to the people the use of water for power, irrigation and domestic supply as well as for navigation. No project should be begun until the funds necessary to complete it promptly are provided, and no plan once under way should be changed except for grave reasons. Work once begun should be prosecuted steadily and vigorously to completion. We must make sure that projects are not undertaken except for sound business reasons, and that the best modern business methods are applied in executing them. The decision to undertake any project should rest on actual need ascertained by investigation and judgment of experts and on its relation to great river systems or to the general plan, and never on mere clamor.

The improvement of our inland waterways can and should be made to pay for itself so far as practicable from the incidental proceeds from water power and other uses. Navigation should, of course, be free. But the greatest return will come from the increased commerce, growth and prosperity of our people. For this we have already waited too long. Adequate funds should be provided, by bond issue

if necessary, and the work should be delayed no longer. The development of our waterways and the conservation of our forests are the two most pressing physical needs of the country. They are interdependent, and they should be met vigorously, together and at once. The questions of organization, powers and appropriations are now before the congress. There is urgent need for prompt and decisive action.

THEODORE ROOSEVELT

SCIENTIFIC BOOKS

Darwinism To-day. A discussion of present-day scientific criticism of the Darwinian selection theories, together with a brief account of the principal other proposed auxiliary and alternative theories of Species-Forming. By VERNON L. KELLOGG. New York, Henry Holt and Co. 1907. Pp. 403.

Undoubtedly the best book of its kind, and cordially to be recommended to the student or layman who struggles with the fluctuations of evolutionary belief. This commendation, however, will not seem extreme when it is pointed out that this is practically the only book of its class! For few indeed are the authors who have attempted the herculean task of sifting out the vast literature which has accumulated around the problems of evolution during the past two decades. The present book then is one which fills a decided need. It is brief, clear and contains summaries of general and technical interest which are elsewhere not to be obtained in the English language. Indeed nowhere else will one find attractive digests even of the classical work of Roux, Naegeli and Weismann. The nearest approach to it is Plate's "*Über die Bedeutung des Darwin'schen Selektionsprinzips*," of which a translation has never been published. And to this work Professor Kellogg acknowledges frankly his great indebtedness.

Particularly to be commended in the present book is its style. It breathes of the open air, and leads one, oftener than usual in these

days, away from the click of the microtome. The main text of the book is interesting, its illustrations—there are no pictures, by the way—are chosen discreetly, and technical summaries and discussions are usually tucked away in the form of appendices.

The author has brought together the objections to old-fashioned natural selection (which have become a lengthy part of post-Darwinian writings) with a fair degree of completeness. Such objections, off-hand, are these: that natural selection makes for constancy not variability; that it produces changes quantitative not qualitative; that it can operate only on great averages, not on individuals; that it does not account for continued degeneration; that small variations give no "handle" for selection; that sexual selection is impotent; that it explains the survival not the arrival of new variations; that the struggle for survival of one set of characters leaves the others to fall effectually to panmixia; that great variations are apt to be eliminated by panmixia; that plural variations are necessary to insure the origin of species; that correlated variations are excessively difficult to explain; that there is weakness in the evidence as to the elimination of the unfit. And these objections are threshed out in adequate detail.

On the other hand, the author considers, but rather incompletely, the replies of the neo-Darwinians to their critics. He examines, for example, the question of the rise of qualitative differences by correlation; the importance of the principle of change of function, and the demonstrable value of small fluctuating variations in certain cases.

In a book of this kind the critical reader is always interested in determining the point of view of the author himself, and in this regard Professor Kellogg is entitled to hold views by virtue of his own valuable studies on matters evolutionary. Professor Kellogg, it appears, feels keenly the criticism directed against the Darwinian factor and pronounces early in his work that "each naturalist for himself must decide how vigorous is selection." Withal, however, he realizes the particular lack of and weakness in substitutional explanations. His