

FORESTRY.

The Annual Session of the American Forestry Congress.

A REPRESENTATIVE GATHERING.

Addresses of Welcome by Hon. Geo. L. Becker and Gov. Hubbard.

ADDRESS OF PRESIDENT LORING.

An Able Exposition of the Advantages Derived from Tree Culture.

FACTS FOR FARMERS' DIGESTION.

Papers on the General Subject of Tree Planting Read at the Evening Session.

The American Congress of Forestry met in the house of representatives at 10:30 a. m., and was called to order by Gen. Loring, United States commissioner of agriculture, who stated the object of the early meeting was that business might be expedited, and the session concluded as soon as possible. The attendance was small, only about twenty, many members not having yet reached the city.

Upon motion of Mr. Baker, of Kansas, the chairman appointed the following committee on business: H. B. Baker, of Kansas; George W. Miner, of Illinois; and H. G. Joly, of Canada.

On motion the chair appointed ex-Gov. Furnas, of Nebraska; B. G. Northrop, of Connecticut; and J. H. Morgan, of Canada, a committee on organization.

H. G. Joly, of Canada, moved the following: That a committee be appointed with instructions to draft resolutions concerning the great loss sustained by the American Forestry congress by the death of Dr. F. A. Warden.

It was suggested that the name of L. B. Hodges, of St. Paul, recently deceased, be added to the resolution. It being stated that Mr. Hodges was not a member of the association, the suggestion was withdrawn, with the understanding that resolutions in reference to the death of Mr. Hodges and other workers in the cause could be presented to the committee with appropriate eulogies.

Mr. Joly's resolution was then adopted, and the chair appointed as the committee, H. J. Joly, of Canada; Dr. T. P. Hough, of New York; and N. H. Eggleston, of Washington.

Upon the motion of ex-Gov. Furnas, of Nebraska, amendments were made to the by-laws of the society, as follows: Making the executive committee consist of the president, vice president, secretary and treasurer, and five members at large, and also changing the time of the election of officers to any time during the session of the society when most convenient.

On the motion of Mr. Knapp, of Florida, J. Fletcher Williams, of St. Paul, was appointed temporary chairman.

President Loring called attention to the fact that he had been presented for use of the presiding officer, a gravel by ex-Gov. Furnas, of Nebraska, of which the handle was hickory, the body oak, and the two ends Osage orange, a most happy combination, and making an instrument which he should appropriate to his own use.

Mr. Baker, of the committee on order of business, made the following report, which was adopted on motion of Mr. Knapp, of Florida:

1. That until all work be disposed of the Forestry congress meet every day at 10 in the forenoon, 2 in the afternoon, and 7:30 in the evening.

2. That all the papers prepared by members present be read according to the alphabetical order of the writer named.

3. That the titles of the papers sent by absent members be read, and that, on motion of any member, the congress will decide whether such paper be read at length or not.

4. After the reading of each paper the subject matter will be open to discussion, and members being permitted to occupy the attention of the congress more than ten minutes.

5. That privilege be granted to this committee to make any further report, should it be deemed necessary.

having arrived by the noon train, while many residents of the state not members, but interested in the subject, were also present, several ladies also gracing the occasion with their presence.

WELCOME OF HON. GEO. L. BECKER. Called to order by President Loring, he introduced Hon. Geo. L. Becker, president of the Minnesota State Forestry association, who welcomed the congress to St. Paul and Minnesota, and said it seemed that somebody had announced him to welcome the congress to Minnesota on behalf of the State Forestry association. It is both a privilege and a pleasure to greet such an assembly. You are on the border of what was formerly known as the great American desert. We have lived to see the iron rail and electric wire traverse this great stretch of country, once considered desolate wastes, peopled with thriving communities and dotting in every direction with growing crops. When I came to Minnesota I started out with the proposition that God never made such a country without providing means for the betterment of human race upon it. I also believed that in time coal would be found to supply the want occasioned by the lack of growing timber. Thirty years have passed since then, but coal suitable for fuel has not been found, and whether the means of furnishing heat and light are to be found in the bowels of the earth, or are produced through forestry cultivation, remains a question. The Minnesota State Forestry association is young in years, and as yet has only been teaching the A. B. C's of the subject. At first the prairie farmer would not believe that forests could be successfully cultivated. But that idea has been dispelled, mainly through the teachings of the State Forestry association. The message I bring you, gentlemen, is tinged with sadness. The founder of the state society is dead. The author of our motto, "The Forestry Association," is no more. He was the author of our motto on tree culture, an able, an honest man, and an energetic worker. His body lies in our beautiful cemetery, but his monument, more enduring than marble or brass, is found in the long lines of trees along some of our prairie railroads, and in the many groves of trees that are found scattered upon our prairie farms. And now, gentlemen, I refer to you as the Minnesota State Forestry association, and give you a hearty welcome to Minnesota. I will now introduce our chief magistrate, Gov. Hubbard, who will say a few words to you as the representative of the state.

GOV. HUBBARD'S WELCOME. The remarks of Mr. Becker were received with hearty applause, at the conclusion of which Gov. Hubbard was introduced and addressed the society substantially as follows: Gentlemen of the American Forestry Congress: We extend to you a hearty welcome to our state. We assure you gentlemen, that you have come among a people who appreciate the great importance of the interest for which you are laboring, and who earnestly desire to aid you in your efforts as well as to profit by them. It is most appropriate that Minnesota should be designated the place of your meeting at this time. Our people have the past few years given much attention to the subject of tree culture, and the prairies of our state to day bear witness to what may be accomplished by earnest and systematic effort to preserve and perpetuate the growth of our forest trees. The encouragement given by legislation, national and state, to the promotion of timber culture, supplemented by the intelligence and energy of our citizens, has made forestry a feature of our agricultural industry in many localities, and has rendered habitable and even hospitable many an otherwise bleak and dreary waste. Your efforts, gentlemen are deserving of cordial recognition. Your work is a great public benefaction. The people of the northwest, and of Minnesota especially, realize the value as I have said, of the interest you seek to promote, and they will not cordially to our state whose broad area already illustrates the great good you are doing.

PRESIDENT LORING'S ADDRESS. At the conclusion of Mr. Hubbard's remarks, Hon. Geo. Loring, president of the society, delivered the annual address, which he preceded with the remark that he was sure he expressed the sentiments of all members when he said the cordial reception accorded the congress was most gratefully received. He also said that it was most appropriate that the session of the congress should be held in Minnesota, as no other state had a more vital interest in the subject. Gen. Loring then proceeded to read his address:

Commencement Loring commenced by stating that a former address he had dwelt largely upon the value and importance of providing for the gratification of our refined tastes by the ornamentation that comes from the planting of trees. He now proposed to confine himself to the condition of our forests, and to make certain suggestions relative to their increase, preservation and economical use. In their increase both nature and art were engaged. The cultivator's first work was to remove vegetable growth, and when he pauses the forests return to their place. The acreage of woodland is increasing in those sections where farming has become unprofitable, and this is also true of the lumbering districts. In still other sections lands exposed to annual prairie fires, and formerly bare, are now growing up to wood under man's protection.

Reference to this natural increase, which has been done in many of the states, in tree planting, and much more ought to be done. The establishment of arbor-days, and the inducements held out by legislation, have operated very favorably on the work of what is called village improvement, and on an agricultural attention to the collection of trees as a crop. And this business has increased with very considerable rapidity. In Minnesota, for instance, the number of acres planted on arbor-day in 1878 was \$11, in 1882 the number was 1,184; and the whole number of acres planted increased from 18,029 to 38,465 in 1882. Work similar to this is done in Iowa, Nebraska and Dakota, as well as in Ohio, Michigan, Illinois and Kansas. In Nebraska the number of acres of cultivated wood land has reached 443, and in Michigan 19,675 acres of natural increase.

These are small beginnings, it is true, but they are entitled to our most careful consideration as the commencement of an enterprise which, when properly conducted, will undoubtedly constitute an important branch of American agriculture. Tree culture ought now to receive our most careful attention. It is time that the skill which has been applied to the culture of our great cereal crops, to cotton, rice, tobacco, and all the profitable products of the soil, such as grass and vegetables and fruits, every description should be applied also to the growing of wood as a farm product. To the choice of forest trees adapted to each locality; to the selection of land which can most properly be devoted to tree culture; to the selection of seedlings for any other crop on account of the soil and situation, whether near to or remote from the farm buildings, whether useful or not for pasture or tillage; to the best methods of cultivation; whether by seed-

ing or planting from nurseries; to the best method of securing a speedy return; to all these points the attention of practical and investigating farmers should be carefully and systematically turned. The profit of the crop can, I presume, be no longer questioned. Waste lands released and left to nature, and the wood crop and very large return for the investment. Why should not land subjected to the well directed art of the cultivator produce just as good a result? For the purpose of encouraging this enterprise it is important that government should lend its aid in every legitimate way, until the wood crop is recognized exactly as are the great staple crops of the country. If a bounty is granted and used in any country but this, it would be in this. The protection against lawless invasion thrown around our grain fields and gardens should also be extended to our woodlands—protection against depredation, wanton fires and stray cattle. The riding of a forest should be as penal an offense as the riding of an orchard. Over forest-covered public lands and over forest plantations, against the careless destruction of the timber, the standing timber of the country can be considered an obstruction to be removed by fire or the axe, to make way for crops of another description. There is a value attached to the tree crop which should be considered in the transfer of public lands to settlers. Whenever thus recognized its protection becomes a natural sequence.

The timber culture act was passed March 3, 1873, amended March 13, 1874, and again amended March 2, 1875, when the act became a law. Since that time, however, no real advance has been made. What shape legislation should take he would not pretend to say, but as a step in the right direction it appeared to him that the government should make timber a source of revenue or profit. Early in the history of the country public lands were sold, as in the case of the sale of the Ohio company in 1877 for the replenishing the public domain. The timber of the country can be considered an obstruction to be removed by fire or the axe, to make way for crops of another description. There is a value attached to the tree crop which should be considered in the transfer of public lands to settlers. Whenever thus recognized its protection becomes a natural sequence.

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IN MEMORIAM. Hon. H. G. Joly, chairman of the committee appointed to submit resolutions in memorial of deceased members, and others prominent in forestry work and teaching, submitted the following resolutions, which were adopted:

On the death of Dr. John A. Warden, of South Bend, Ind. That the American Forestry Congress has suffered an irreparable loss by the untimely death of one of its vice presidents, Dr. J. A. Warden. That while Dr. Warden has endeared himself by his genial and hearty manners to all those who have had the privilege of knowing him personally, he has, at the same time, gained their admiration by his untiring energy and great talent which he has dedicated for so many years past the cause of forestry.

That the loss of such an earnest and devoted man can be considered as a public loss, and that while his colleagues lament it as such, they feel at the same time that a void it must have left in his home circle, and daily sympathize with his family.

Resolved, That the recording secretary of the Forestry congress be requested to forward a copy of the foregoing resolutions to Dr. Warden's family.

On the death of Hon. L. B. Hodges, of St. Paul, Minn. Resolved, That the Forestry congress desire to express their sense of loss in the death of the Hon. L. B. Hodges, of this city. Mr. Hodges had been known for many years, not only as one greatly interested in the subject of forestry, but as one who, by his earnest activity, had done much to interest others in the subject. He was the pioneer in the forestry movement in the state of Minnesota. He was also one of the first to propose and aid in the organization of the Minnesota Forestry association. By his writings and his practical exemplifications of tree planting, he had become a recognized authority on the subject, both in this country and in Europe. His death was a loss to the country at large, but his labors in behalf of forestry will speak for him and bear good fruits long after his personal labors were brought to an end.

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On the death of Arthur Bryant, Sen. of Princeton, Ill. Resolved, That this congress feels it to be a duty it owes to men, who, like the late Arthur Bryant, have forethought to discern and courage to express their convictions in the conservation of our forests for the benefit of their children, and in this we feel that men of his age have done their work, we nevertheless deplore the vacancy in our ranks.

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Hon. J. B. Grinnell, of Grinnell, Ia., followed in a similar strain, speaking most eloquently and touchingly of the lovely character and grand work of Mr. Bryant. Prof. Warren Higley, of Cincinnati, followed and bore testimony to the loss Ohio had sustained in the death of Dr. Warden, and paying great tribute to the work he had done in forestry cultivation and his great personal worth.

Dr. Hough, of Lowellville, thought such a plan should have a strong claim upon the leading educational institutions of a state, which could most profitably conduct the experiments mapped out.

Prof. Lazenby, of Columbus, O., said experiments were being conducted and outlined at the Agricultural college at Columbus, but it was too early yet to speak in detail of the results.

Dr. Loring had no doubt that the stations provided for would prove a success in the great state of Ohio, but he thought the establishment of such experimental stations should be as closely allied with our colleges as possible. Time was when the mention of a college in connection with agriculture was regarded as a thing not with ridicule. But that time has passed, and as a rule legislators, backed by public sentiment, stood ready to grant all reasonable aid to such institutions, and he argued that the true road to final success in agricultural and forestal development was these institutions, and as necessary means he urged that the best of talent be sent to such institutions, and the highest cultivation be secured.

Dr. Northrop, of Lowellville, N. Y., moved a committee of three be appointed to prepare a certificate of membership and society seal or badge. Adopted, and the chair appointed Dr. F. B. Hough, of Lowellville, and Dr. B. G. Northrop as said committee.

Elizur Wright, of Boeton, called attention to the reservoirs being constructed on the head waters of the Mississippi, and moved the appointment of a committee to report at the next congress, as to the probable effect of such work upon the forests of the section and below. The motion was adopted, and the committee Loring appointed as said committee Messrs. E. Wright, Massachusetts; Geo. L. Becker, Minnesota, and J. B. Grinnell, Iowa.

The committee on organization made a report recommending the following officers, which was adopted: President—Geo. B. Loring, Massachusetts.

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other hard woods are abundant through the northern border of the wooded district. Gen. Loring then took up the matter of fuel supply and showed that in the area south of Maryland and the Ohio river there were 500,000,000 acres, containing nearly 400,000,000 acres of forest lands. In large portions of this area of forest surface, the spring up spontaneously and grow rapidly. When nature is so kind and prolific, cannot the supplementary hand of man aid in providing a sufficiency of fuel for the coming generations.

He then referred to the great and useless waste of timber, and advocated local and federal legislation to check and cure the evil. Often has the remedy been pointed out, and often have laws been passed which seemed to offer a remedy, but no real advance has been made. What shape legislation should take he would not pretend to say, but as a step in the right direction it appeared to him that the government should make timber a source of revenue or profit. Early in the history of the country public lands were sold, as in the case of the sale of the Ohio company in 1877 for the replenishing the public domain. The timber of the country can be considered an obstruction to be removed by fire or the axe, to make way for crops of another description. There is a value attached to the tree crop which should be considered in the transfer of public lands to settlers. Whenever thus recognized its protection becomes a natural sequence.

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followed by a reference to the influence of forests on rainfall and the mean temperature, citing the little island of Curacoa, the coast of the Mediterranean and other sections in the old world, in illustration of the general poverty of soil that followed the removal of the timber.

Dr. Loring concluded as follows: The necessity of a careful and accurate cultivation and restoration of our forests is now recognized by all. For three-quarters of a century we have been busily engaged in the business of lumbering; the time has now come when we must turn our attention to the business of forestry. The great wood crop which nature lavished on our ancestors has been so diligently gathered that all our ingenuity will be taxed to provide the necessary supply for the growing wants of a rapidly increasing population. It is to this point that this association should especially turn its attention. It is to this point that I have directed the work of the forestry division in the United States department of agriculture, for the development of the forest industry of this country. (Applause.)

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Corresponding Secretary—B. F. Fernon, Pennsylvania. Treasurer—Charles Mohr, Alabama. Executive Committee—B. G. Northrop, Connecticut; Warren Higley, Ohio; J. G. Knapp, Florida; J. S. Hicks, New York; J. L. Budd, Iowa. The congress then adjourned to 7:30.

Evening Session. The evening session was devoted to the reading of papers. The attendance was somewhat smaller than in the afternoon. The session was called to order by Hon. H. G. Joly, of Ontario.

FOREST PLANTING AS AN INVESTMENT. The first paper was upon "Forest planting as an investment," by Dr. C. B. Burren, of Topeka, Kas. The writer held that as with other business the matter of tree planting must be considered as a money investment, and then went on to show that as great returns could be secured from judicious tree planting as from any other investment. The returns were slow but sure. As an example he cited a supposed investment of \$5,000, one-fifth of which he expends in the purchase of one acre of land and putting in a fence, leaving \$4,000 for the growth of his crop of Catalpa trees. In sixteen years the crop is ready to harvest. In that time a loss of 25 per cent. is allowed, leaving 80,000 thrifty trees on the 40 acres, which can be converted into ready cash, bringing him at a low estimate \$40,000, or over 40 per cent. on the investment, or four or five times as much as would have been realized from an investment in bonds.

Mr. Sewell Foster, of Muscatine, Ia., in a few remarks, endorsed the general statements of the paper, and especially recommended the Catalpa variety of tree for cultivation.

Mr. Geo. W. Miner, of Illinois, also expressed his gratification with the paper and endorsed its statements.

Prof. Lazenby, of Columbus, O., took exceptions to the other two speakers as to the Catalpa tree, giving the preference to the Yellow Locust, as being a more rapid grower and of at least equal solidity, citing experiments at Columbus in support of his position.

FORESTRY EXPERIMENTAL STATIONS. The next paper was upon "Forestry Experimental Stations," by Mr. Adolph Lobe, of Cincinnati, Ohio, which he sets forth the aims and objects of forestry, and discussed the means of developing a system of forestry adapted to the wants of the land. "One of the most conspicuous tendencies of advancing civilization," he said, "is to place the various mechanic arts upon a scientific basis. The beneficial influence of this tendency is most strikingly seen in the history of the development of agriculture. From the earliest time up to the present the present century it was a mere empirical art resting solely upon the traditional maxims of experience, without any signs of progress whatever. Husbandry was a mere drudgery. But when in the first part of this century, Liebig and others subjected those ancient traditional maxims of experience to a scientific investigation, a new era began to dawn upon this most important occupation of man. Since then such investigations have been carried on in the schools of agriculture, and have reached the highest point of perfection in the agricultural experiment stations. The result has been most gratifying, for by reason of these scientific investigations and exact experiments, agriculture has been elevated to the dignity of an exact science. This history glance at the history of agriculture plainly indicates the course to pursue in the attempt to place forestry upon a scientific basis.

The professor then described what has been done in Ohio for the establishment of forestry experimental stations, which was listened to with the greatest attention and as a conclusion he said we claim the following essential points and are nearly to stand by them until convinced that we are mistaken.

1. It is adapted to our circumstances.

2. It enables us to perform the experiments when they are most needed.

3. It gives us the very best force attainable both for the primary as well as the secondary state.

4. It is cheaper than anything that has yet been proposed.

5. It fills all the demands that can reasonably be made on the station.

6. It is a plan that makes a simultaneous development of practical and scientific forestry possible.

Mr. N. H. Eggleston, of Washington, and Mr. Minica, of Illinois, endorsed the paper very heartily, as a simple, practical plan that, it seemed to them, would recommend itself to general favor.

Prof. Higley, of Cincinnati, briefly explained how the plan came to be adopted by the Ohio association, detailing the efforts of the society to get state aid for forestry culture under the head of a state forest, and the failure of which came the plan outlined in this paper, and which, he said, was meeting with much better success than was anticipated.

Dr. Hough, of Lowellville, thought such a plan should have a strong claim upon the leading educational institutions of a state, which could most profitably conduct the experiments mapped out.

Prof. Lazenby, of Columbus, O., said experiments were being conducted and outlined at the Agricultural college at Columbus, but it was too early yet to speak in detail of the results.

Dr. Loring had no doubt that the stations provided for would prove a success in the great state of Ohio, but he thought the establishment of such experimental stations should be as closely allied with our colleges as possible. Time was when the mention of a college in connection with agriculture was regarded as a thing not with ridicule. But that time has passed, and as a rule legislators, backed by public sentiment, stood ready to grant all reasonable aid to such institutions, and he argued that the true road to final success in agricultural and forestal development was these institutions, and as necessary means he urged that the best of talent be sent to such institutions, and the highest cultivation be secured.

Dr. Northrop, of Lowellville, N. Y., moved a committee of three be appointed to prepare a certificate of membership and society seal or badge. Adopted, and the chair appointed Dr. F. B. Hough, of Lowellville, and Dr. B. G. Northrop as said committee.

made toward solving the problem, to solve which is the purpose of this and similar organizations. Prof. J. L. Budd, of the Iowa Agricultural college, in commenting on this and the preceding papers, said he had been somewhat surprised that no one had recognized the great work the horticultural societies of the land were doing in the way of demonstrating the proper varieties of trees suitable for cultivation in different localities. In Iowa these societies had been the pioneers of the tree culture movement. He then briefly explained the workings of the forestry department of the agricultural college, showing the institution to be accomplishing a great work.

At the conclusion of Prof. Budd's remarks the congress adjourned until 10 o'clock this morning, when the reading of papers with discussions will be resumed, reports of committees received, and such general business transacted as may come up. It is expected the session of the congress will be concluded to-day.

WELL'S "ROUGH ON CORNS." Ask for Well's "Rough on Corns." 3