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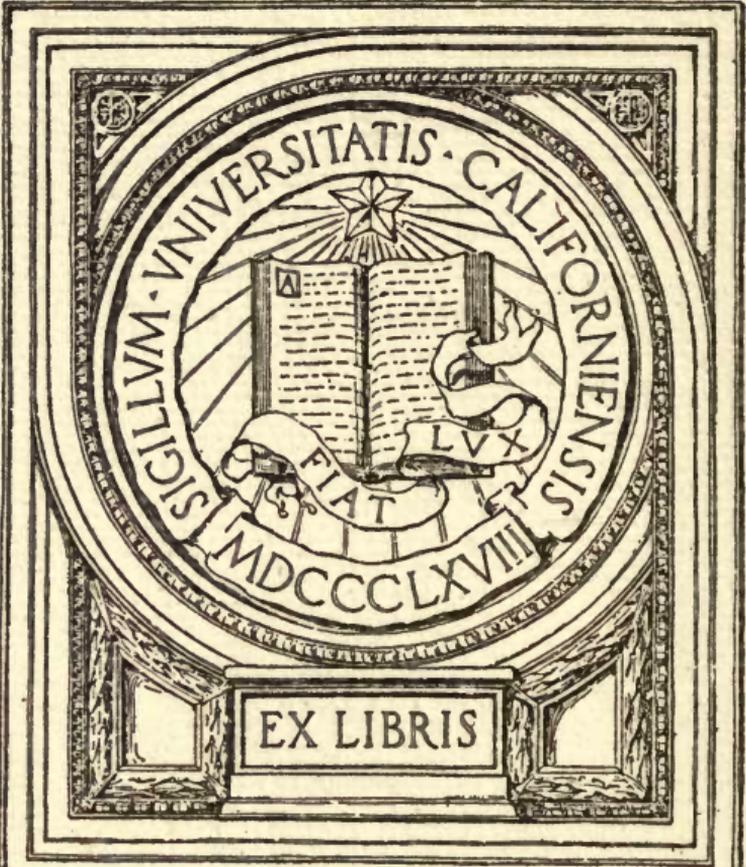
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THE ADVANCE MOVEMENT
IN
MICHIGAN FORESTRY

MICHIGAN FORESTRY COMMISSION

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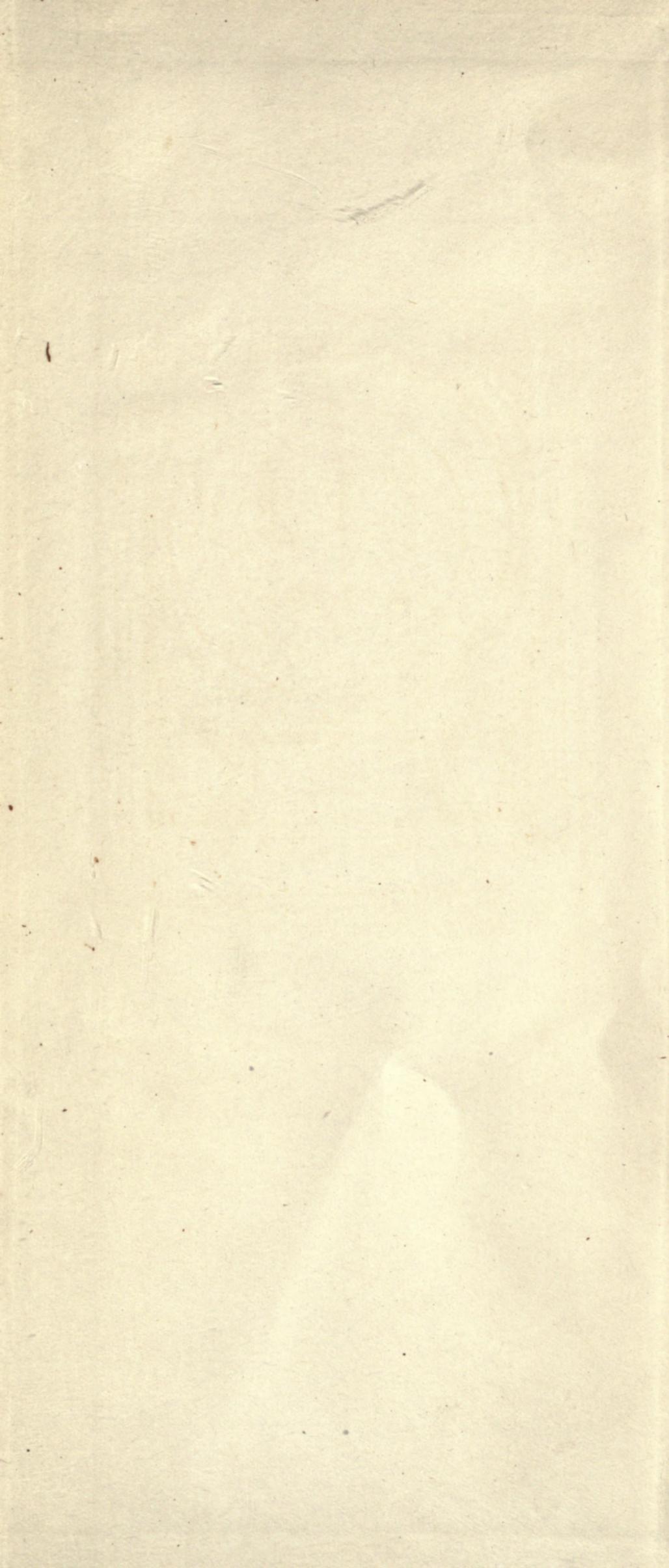
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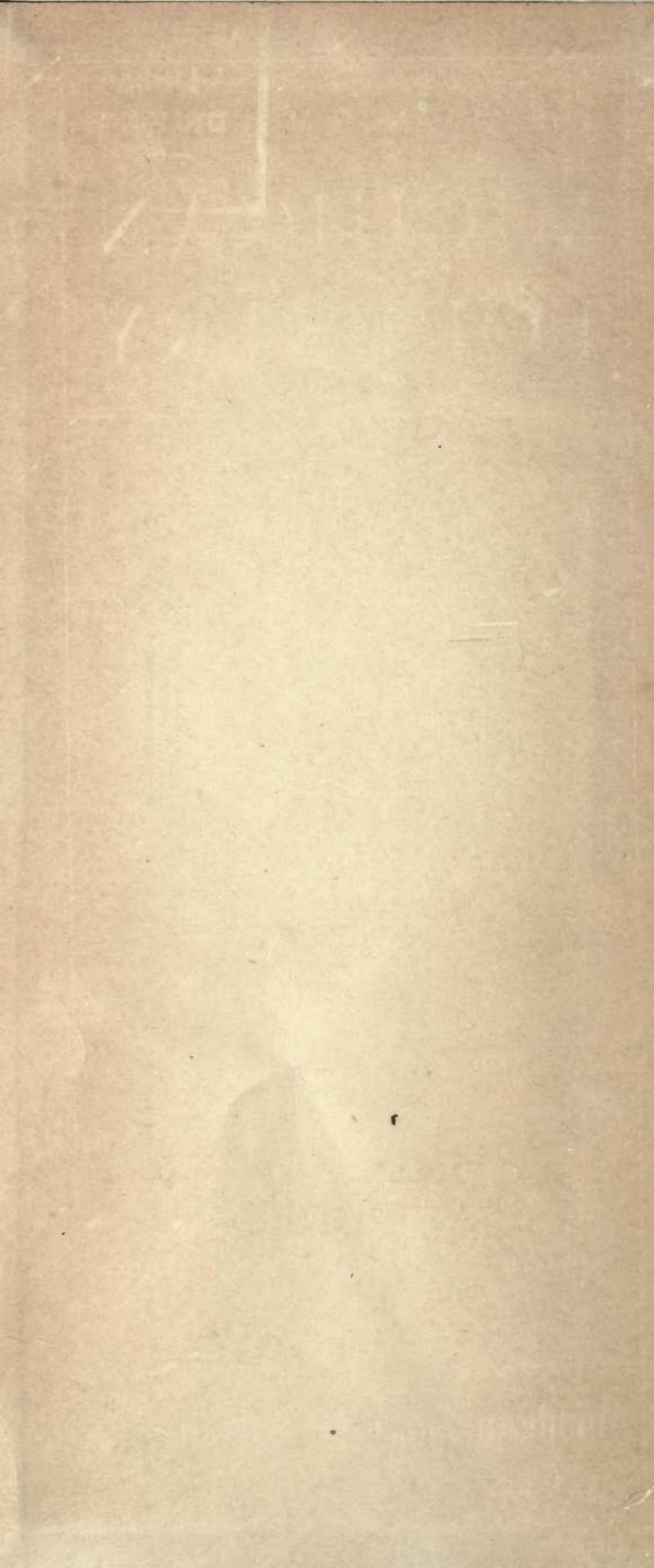


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THE ADVANCE MOVEMENT
—OF—
IN
MICHIGAN
FORESTRY



DEPT. OF
AGRICULTURE

Michigan Forestry Commission

- CHARLES W. GARFIELD, Grand Rapids
ARTHUR HILL, Saginaw
WM. H. ROSE, Lansing
FILIBERT ROTH, Forest Warden, Ann Arbor

Prefatory Note

The Forestry Commission has from its organization arranged to make a formal report to the Governor just previous to the biennial session of the State Legislature, for the purpose of calling attention to such matters requiring legislative action as the Commission finds necessary or desirable. Ad interim, in the alternate years, something in the way of a report of progress has been issued. The first brochure of this kind was entitled "A Little Talk on Forestry." The second one was entitled "Steps of Progress in Michigan Forestry." This little volume is the third one in the series, issued under the title of "The Advance Movement in Michigan Forestry."

The forestry movement has forged ahead very rapidly in 1905, and rather culminated in the organization of the Michigan Forestry Association the last days of August. The report of this convention which led to the permanent organization, is given in this little volume, together with the formal report of the Forest Warden concerning the work in the two Forest Reserves.

The demand for literature of forestry has been so great upon the Commission that the limited number of reports which is provided for by statute does not meet the wants, and this volume has for one of its objects the answering of questions from school men, literary societies, farmers' institutes and individual interrogations in the simplest and most satisfactory way. The publication of the State Review, which is the official organ of the Michigan Forestry Association, will aid very materially in the dissemination of facts and methods worked out under the auspices of the Michigan Forestry Commission, and we are more hopeful than at any time since the State took hold formally of the forestry movement, that rapid advances will be made in reforestation which will meet the requirements of a progressive State.

In presenting this booklet, the Michigan Forestry Commission invites correspondence upon any matter suggested by the text, and will be glad to render any assistance within its power to either corporations or individuals who have in mind experiments in forestry or the planting of large areas of cheap lands to forest trees having in view commercial results.

CHAS. W. GARFIELD,
ARTHUR HILL,
WM. H. ROSE,
Michigan Forestry Commission.

November, 1905.

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THE MICHIGAN FORESTRY ASSOCIATION

Initial Meeting at Grand Rapids, Michigan.

For some years the friends of the forestry movement in Michigan have had in mind the organization of a body of people who should utilize the Association in the interests of reforestation in Michigan along the same lines of work which have been accomplished in the State by the Horticultural Society and which have re-

Preparing the Way

sulted in developing such a tremendous commercial and amateur interest in horticultural progress. The work of the State Horticultural Society had led up to this by inserting forestry subjects into its programs from time to time, and even giving up whole sessions of its conventions to forests and forest management. It remained for Mr. Thornton A. Green, of Ontonagon, Michigan, to actually initiate the movement which led to the formation of the Michigan Forestry Association, on the 29th and 30th of September, 1905. Mr. Green, through correspondence, acting as provisional secretary, had canvassed the State for membership and secured something over 300 members upon which the society should found its structural work. The first thought was to hold the initial meet-

Place of Meeting

ing at Mackinac Island, so as to be convenient to both Peninsulas. It subsequently developed, however, that so large a portion of the membership was in and about Grand Rapids, and the season of the year at a time when it might be difficult to secure a large attendance from outside the immediate locality in which the meeting should be held, that Mr. Green and his associates decided it was best to launch the organization at Grand Rapids, Michigan. Mr. Chas. W. Garfield made local arrangements for holding the day part of the meeting in Park Congregational Church; and upon invitation of the Grand Rapids Board of Library Commissioners, the evening session was held in Ryerson Library.

Prof. Filibert Roth, of Ann Arbor arranged the details of the provisional program, and it was printed and sent out over the State. A literary bureau was opened at Grand Rapids previous to the meeting, and circulars and letters were sent out in large numbers, the Grand Rapids newspapers taking hearty interest in the

A Literary Bureau

undertaking and devoting a good deal of space in their columns to the work of advertising the convention. The Michigan Tradesman which has a large circulation in the State, published for several weeks previous to the Convention articles upon the subjects which would naturally come before the Convention, which were prepared by Prof. Roth and Mr. Garfield.

Mr. Sargent, curator of the Kent Scientific Museum, kindly consented to make a forest exhibit in adornment of the vestry at Park Church, with material which had

been a part of the Michigan World's Fair exhibit at St. Louis, Mo., in 1904. The arrangement of cross sections of logs and boards was very artistic and the room was decorated with numerous photographs of lumbering scenes. Mottoes upon the walls indicated the importance of forestry and outlined the needed work to be accomplished through a Michigan Forestry Association.

Prof. Bogue of the Agricultural College had brought very interesting specimens of seedlings of various species of forest trees of different ages, to illustrate their rapidity of growth from the seed.

Committee on Reception A local committee from the Grand Rapids Board of Trade consisting of Saml. M. Lemon, Amos S. Musselman, Jas. R. Wylie, Danl. McCoy and Robt. D. Graham, was in evidence on the morning of the Convention greeting friends from outside and making people acquainted with each other who had never met before, and paving the way for the opening of the Convention.

Promptly at 10 o'clock on the morning of Sept. 29, 1905, Chas. W. Garfield called the Convention to order in the vestry of Park Congregational Church, and introduced Mr. A. W. Bell who led the congregated people in singing America. Every voice seemed to be in evidence and the music put the membership of the Convention in hearty sympathy with each other. Dr. R. W. McLaughlin was next introduced and led the assembly in a most appropriate prayer service. Again Mr. Bell, who had distributed copies of the verses in advance, led in singing Michigan, My Michigan.

On motion of Prof. Roth, Hon. Arthur Hill, of Saginaw, was made temporary chairman of the meeting, Mr. T. A. Green, of Ontonagon, acting as temporary secretary. Mr. Hill, in taking the chair, spoke strongly of the needs of Michigan in matters of reforestation and stated that we were ripe for the organization of a society which should devote its best endeavors in creating an interest in reforestation and especially in the matter of rehabilitating State lands which were not only a menace, but a blemish upon the fair fame of our State. He stated that there was really no set program of speeches, and it was expected that from the abundance of the heart the work of the Convention would develop. He then called upon Mr. Green to make a statement to the Convention

Mr. Hill Chairman concerning the preliminary work which had been accomplished through his interest and exertion. Mr. Green in a very pretty speech, recounted the story of how he became interested in the forest movement and how successful he had been in gathering membership for the opening of this Convention, stating, however, that his optimism had received something of a check because he had laid out to start this Convention with the statement that 1,000 people had already enrolled themselves upon its roster of members. While he had not reached this number, he hoped that very soon after the Association should be organized, people would rally to its support and the thousand names would be in evidence.

On motion of Prof. Roth, the chairman was authorized to name a committee on permanent organization, whose duty should be to present articles of association and nominate a roster of permanent officers; also a committee on resolutions, who should prepare a state-

ment of principles upon which the organization should be founded. The chairman named as Committees the first committee, Messrs. Geo. Named P. Wanty, Edwin A. Wildey, Wm. H. Rose, J. S. Porter, W. I. Latimer; and as a committee of resolutions, Messrs. Geo. B. Horton, Walter C. Winchester, Chas. E. Bassett, Saml. M. Lemon, W. J. Beal. The chairman then stated that he should take the liberty now to call on various gentlemen to express briefly their thought with regard to the necessity of a Michigan Forestry Association in our State.

Upon his call, Dr. Beal responded and gave a resumé of his knowledge of the early forest conditions of Michigan during his boyhood and the gradual changes which had come about through the clearing of the land for farms and the subsequent rapid elision of timber by the lumberman. He spoke of the early agitation of forestry in Michigan Horticultural Society, and the establishment of a sort of section of forestry in the department of botany at the Agricultural College, saying that it was practically due to his interest in forest matters that the Board of Agriculture took this action. In connection with his botanical work, he had gathered a large amount of material for a forestry museum and started an arboretum, giving some class instruction and speaking to the people at various conventions, upon forestry subjects. He had been pleased, subsequently, to have an independent department of forestry organized at the College, thus relieving him of this particular responsibility and carrying on the work in a more systematic way. He expressed his satisfaction in being able to be a part of the initial movement which should lead to the organization of a forestry association in the State.

Mr. Samuel H. Ranck, of Ryerson Library, called attention to the section of forestry in the library, and particularly to the beautiful set of volumes, The American Sylva, edited and published by Sargent, which had been given recently to the library by Harvey J. Hollister, of this city, and invited the members of the Convention to be perfectly at home in the library and in the use of the forestry section during the days of the Convention.

Mr. Geo. B. Horton, of Fruit Ridge, Master of the State Grange, responded to the call of the chair in a very interesting talk upon the usefulness of the farm woodlot in connection with the agriculture of our State. He expressed an interest in the problem of the northern cut over lands, but said that his larger interest lay in the woodlot as a factor of Southern Michigan. He had tried at farmers' clubs, meetings of the Grange, and other rural conventions, to awaken an interest in farm forestry, and had found many things in the way of a successful promotion of practical forestry, one being our method of taxation, which was really a premium on cutting off the forests, rather than preserving them. While he had no clearly defined method in mind, he hoped that this Association would crystallize some form of legislation which would be protective in its leading features, and which would be an inducement to have the average farmer in the southern part of the State make his woodlot a prominent feature in his farming methods.

Mrs. Francis King, of Alma, Mich., was invited to say a word and she responded in a very frank way, ex-

A Word From Mrs. King pressing her interest in the purposes of this Convention and saying that although she supposed women would not be very prominent in carrying on the work of the organization, she thought they could, in their own localities, awaken an interest which would be very helpful, and pledging herself to take an active part in the work which this Convention should outline.

Regent Knappen Talks Regent Loyal E. Knappen, of the Michigan University management, expressed strongly and forcefully his interest in the formation of an organization which will take up systematically a very needed work in Michigan, and create public opinion which shall stand behind the Forestry Commission in its efforts to rehabilitate a large portion of our State which at present is a menace rather than a credit.

Prof. Roth's Hope Prof. Filibert Roth outlined what he expected the Convention to do, saying that he hoped it would be a business men's Convention and characterized by perfect freedom of expression on the part of those interested in Michigan forests, as lumbermen, as manufacturers and as educators. He especially hoped that during the sessions of the Convention there would be a free interchange of thought with regard to delinquent tax lands, farm woodlots, protection from fires and trespass, and a reasonable system of taxation which should foster rather than discourage reforestation.

Pres. C. J. Monroe Says A Word Hon. C. J. Monroe, President of the Michigan Board of Agriculture, said that he was born about the time that Michigan as a State was born, and he had been identified more or less with the clearing up of a portion of it. In his younger days he did some surveying at a period when men employed surveyors to run lines for the purpose of including as large values within their holdings as possible. He had known of pieces of land which had been gone over at six different times by lumbermen, each time cutting a little closer, and each time getting good value out of the property. He was greatly impressed by the rapidity with which ground would rehabilitate itself with forest cover if given a fair chance, and he welcomed a movement which would foster a State plan of reforestation.

Porter Speaks for Lumbermen Mr. Porter, of Saginaw, followed Mr. Monroe with a word concerning the changed attitude of lumbermen with reference to the volume of forest products in the State. Only a few years ago the pine was considered practically inexhaustible, and when that was nearly gone, the hardwoods were represented to be sufficient in quantity to last for generations. Before the woodman's axe, however, the virgin timber of Michigan had disappeared so rapidly that even lumbermen were looking for other fields to conquer, and were beginning themselves to be interested in some plan of creating a supply in our own State to fill their demands.

A Landscape Gardener's view Mr. O. C. Simonds, of Chicago, whose interests have been always very largely in Michigan, spoke very delightfully of the beauty of our State as expressed in its forest cover, and that any movement which would protect it or add to it, would be welcomed by the lover of trees. He men-

tioned an incident with regard to the prices of various kinds of woods used in rebuilding his house which was very pertinent to the subject of reforestation. The large prices which were paid for the woods which were selected to match those already used some years ago in the original building, indicated how rapidly these products had disappeared in the market. One example was that of black cherry, which was required to increase the area of a bookcase, the contractor excusing himself for using as good an imitation of birch as possible, on the ground that the cherry could not be had at less than \$160.00 per thousand. Forestry has demonstrated that these woods can be grown within a man's lifetime, so as to produce lumber to take the place of that which has been taken off, and the prices ought to be attractive to the investor.

Mr. Hill then called upon Mr. Hubbell, of Manistee, who said that it is practically impossible to preserve and continue the present stand of virgin timber of Michigan in the northern part of the State, at least, under our present system of taxation, and it is

**Taxation
by Hubbell**

clearly impossible for private enterprise to attempt a second growth, if it is to be subject to the same conditions. It is charged that the high assessed value of timber has been brought about by the special tax commission. That is not so. The high value of timber was installed many years ago by the local assessor in the northern part of our State. It has been a practice for years to put a high valuation upon timbered lands belonging to lumbermen and non-resident companies, who were going to cut that timber and the counties and the townships were going to lose it, and they must be quick to get anything out of it. If you are going to bring up the subject of taxation, bring it up for the whole State, applicable to the lumberman and the farmer and have it on the same basis.

Mr. Hill then called upon Mr. Rose and asked him why it was the population in the northern part of the State objected to having the barren lands in that part put into forest cultivation.

**Rose
Tells of
State Lands**

Mr. Rose replied that there were a number of reasons for the obstructions which were thrown in the way of the Commission in its contention that a large part of the northern part of the southern peninsula should be permanently in forest. In the first place, there were men who were making their living in connection with handling this land. There were certain emoluments associated with the keeping of lands upon the tax roll. There was some misapprehension with regard to the purposes of the Forestry Commission, and there certainly was one reason that had a fair basis of fact behind it, and that was the objection made by local residents to having the State tax lands taken off from the rolls permanently and with no possibility of securing any help in connection with local taxation. A remedy in this direction might possibly be instituted by the State which would really quell all opposition based upon good reason. At present there was a disposition on the part of the Auditor General to deed these lands over to the State rapidly, and in his own mind there was no question but a very large portion of them should be in permanent forest growth, owned by the State, and the product to be sold as distinct from the land. Mr. Rose emphasized the importance of protection from fire, saying that everything depended upon this in connection with permanent State Forest Reserves. He spoke of his own second growth that he had taken care of for more than a quarter of a century, and in which he had taken a deep interest, by keeping out fires and refusing to pasture, so that the renewal would be unhampered. The question of tax-

ation sometimes bore pretty heavily upon him because he was getting no income from the property, but it was growing into value satisfactorily, and if there could be some modification of taxation upon forest property which was maintained purely for forest purposes with no income from it, so that men would be stimulated to retain larger areas for this purpose, he felt that the State would be the gainer thereby.

Secy.
Bassett
Approves

Mr. Chas. E. Bassett, Secretary of the State Horticultural Society, spoke of the relationship of his Society to progressive forestry, calling attention to the fact that the initial movement in the agitation of the great question was made by the State Horticultural Society, and that from the very outset the Society had fostered the movement; scarcely a meeting was held without having a forestry feature in its program. It maintained a permanent committee on forestry and regular reports were made, and he felt perfectly safe in saying that he came to this organization with the backing of all the membership of the State Horticultural Society, and the new Association would find in his Society a strong and active ally.

Mr. Quinn
Speaks of
Safeguards

Mr. Maurice Quinn, of Saginaw, having been called out, responded with some stupendous figures covering the output of lumbering for the State of Michigan. He spoke particularly of the region tributary to Saginaw and to Muskegon, and mentioned the area of pine in the State which had been the basis of the great fortunes gathered, and called particular attention to the improvidence of the State, while it was providing for its schools by setting aside a section to be sold for the endowment of a common school system, that it didn't also set aside 640 acres in each geographical township as a permanent forest preserve, the title to remain forever in the township. The State could well afford, even at this time, by purchase, to do this in the interests of the long future. He dwelt upon the devastation which had followed the lumberman's axe, and spoke of the safeguards which the State ought to place about its holdings, mentioning particularly how rapidly deforested areas grow again into value if the fire and thieves are kept out.

The morning session was closed by a brief resumé of letters received from prominent people in the State by Prof. Roth—people who could not be present and expressed their warm sympathy with the movement and a desire to be identified with the organization.

Afternoon Session

Just previous to convening in afternoon session, a local photographer gathered the members of the Convention together in front of Park Church, and again in front of the Ryerson Library, and put into a permanent picture the men and women who later in the Convention organized the Michigan Forestry Association.

Address
of
Welcome

The session was called to order by Mr. Hill, and Acting Mayor, Mr. Elvin Swarthout delivered a very earnest and attractive address of welcome in which he expressed the large interest of Grand Rapids in any plan which would further the progress of forestry in the State. We were going further and further for the raw material to keep our manufactures in operation, and a movement which will create this raw material near at hand will be welcomed by our citizenship. Mr. Hill, in responding,

**Response by
Chairman
Hill**

called attention to the marvellous growth of timber originally covering Michigan, and the rapidity with which it had been turned into lumber, giving in large figures the amounts that had gone out from the various gateways of the State. For fifty years this process had been going on, and nothing has been done to take the place of this forest cover which has been removed. He saw more timber and young pine growing in a trip between London and Southampton than there is anywhere in this country, as a result of artificial plantations; and upon a recent visit in Southwestern France he traversed nearly one hundred miles through solid plantations of trees rapidly growing into mercantile timber. Fortunately these countries appreciate the importance of reforestation and by various means are increasing the area of forest cover in proportion to the arable land. In our country we are reaching further and wider now for timber to support our industries, and still thousands of square miles that might be growing timber are a barren waste. Considering the needs, it is a crime to allow these lands to continue not only a waste, but a menace.

In speaking of natural reforestation, he called attention to the rapidity with which poplar covered the land, saying that while this looked very poor and thin to many people, the fact that poplar is so valuable in the manufacture of wood pulp, makes this forest cover of no inconsiderable importance. Poplar has a stable commercial value at the pulp mills and because of the rapidity of growth will compare favorably with any other crop for our northern so called "pine barrens."

He also spoke of the Chandler Marsh near Lansing and its possibilities in growing a crop of willows, mentioning the fact that the willow has fine qualities as a pulp wood tree. He believed in twenty-five years that great marsh which is practically valueless today, under a systematic planting of willow, would, as a result of the growth, be worth \$200 an acre. The rapidity with which our best spruce is being cut off indicates what an important matter it is to have some substitute coming on to take its place.

Mr. Hill expressed his pride in being a lumberman. He considered the business a legitimate one and an important one. While there had been a great deal of waste in lumbering operations hitherto, the progressive men who were engaged in lumbering enterprises today, were impressed with the importance of saving on every hand. The planting to replace original forest is a long range proposition, and people who are used to making quick dollars must be educated with regard to forestry in order to put their good money into it. But there is no question whatever but there is money in planting almost any kind of commercial trees. The lumber famine, at present rates of consumption, is certain to come, unless reforestation takes a strong hold of the people, and men with money are induced to invest their capital in growing timber.

He thought Grand Rapids an appropriate place to launch the new Forestry Association because of its progressive methods and warm interest in industrial enterprises.

**U. S.
Forest
Service** Mr. Alfred Gaskill, representing the United States Forest Service, addressed the meeting on the relation of the Bureau of Forestry to State work, and expressed the warm interest of his Bureau in the forestry movement in Michigan. The Bureau is always ready to assist any commonwealth which makes a move itself in matters of forestry. It sends its experts out and is glad to have its representatives

meet conventions and commissions, giving such advice as is needed along any line which any State undertakes. In speaking of the work that the Association can do, he mentioned proper legislation with reference to fire protection as the most important element connected with successful reforestation. Closely following this is the proper method of taxation, so as to stimulate planting rather than induce the rapid demolition of timber areas. He cited the work of the Pennsylvania Forestry Association as immediately along these lines. As a result of its work, guided by Dr. Rothrock, an immense work had been done in the Appalachian region of Pennsylvania. While the problems connected with Michigan are entirely different because we lack the mountains here, the questions involved are fully as important and require as great thought and careful business management.

Other Men Approve Hon. John Patton was called upon and responded in a very sympathetic, brief address, expressing his desire that the Association should succeed in what he believed was a most important work to be done in the State.

Hon. W. I. Latimer, of Big Rapids, had been connected with State interests for a good many years, and had watched with sorrow the gradually decreasing forest area in the State, and was glad to be identified with a movement for restoration.

Judge Riley, of Detroit, in response to a call, said that he had taken an academic interest in forestry under the inspiration of Prof. Roth's effective addresses, and was surprised to learn of the wonderful things which had been accomplished in the way of reforestation in foreign countries, and the opportunities which we possessed of successfully following similar methods of activity in Michigan. He had come out here from Detroit to show his loyalty to Prof. Roth, and the other gentlemen who were so earnestly advocating principles in connection with a cause which meant so much to Michigan.

Jas. R. Wylie, of Grand Rapids, gave a somewhat caustic criticism of the methods which had been adopted by lumbermen and the effect of clearing the lands of valuable timber and allowing them to go back to the State for taxes, and the effect of this method upon the morals of the people who had to do with State lands. In connection with the rapid deforestation, our drainage laws had in their administration succeeded in creating a condition the disastrous results of which had been apparent in the floods at Grand Rapids during the last few years.

Prof. C. D. Smith, of the Michigan Experiment Station, expressed his warm sympathy with the organization of a Forestry Association, saying that the Experiment Station was ready to co-operate in any possible way, indicating that along the line of insect ravages and the injurious effect of tree diseases the station could be useful in making observations and experiments and would be glad to extend to the Association its good offices along these scientific lines.

A Commercial Proposition Mr. H. H. Gibson, of Chicago, representing The Hardwood Record, expressed in a very effective way his interest in the reforestation enterprise in Michigan. His position had rendered it possible to secure something of an idea of the rapid deforestation to supply the many demands for lumber material in our State. He loved trees, and enjoyed the discussion of the sentimental side of tree growth, but reforestation must be a commercial propo-

sition in Michigan, owing to the conditions of demand and the immense area of cheap lands that could be utilized in a movement of this kind.

A Lumberman's Confession Mr. Walter C. Winchester, of Grand Rapids, expressed his satisfaction in becoming identified with the Forestry Association, saying that he pleaded guilty to being one of the tree butchers and had been a party to the devastation of large areas of splendid timber. He regretted the slipshod methods of the earlier lumbermen, and was impressed strongly with the importance of the later movement which utilized what had long been considered waste products, in the manufacture of commercial commodities of great value. The margins in the purchase of hardwood lands for lumbering purposes were largely in the utilization of the waste. He didn't know how he could be of help to the Association, but his attitude of mind was all right, and he would willingly give time and assistance to any plan which had for its purpose the growing of timber to supply the great demand.

The afternoon closed with a brief word from President C. W. Garfield, of the Michigan Forestry Commission, who said, substantially:

"I have talked trees and forestry in season and out of season, and buttonholed men and women so much upon this subject, that I have the name of a forestry crank, and I am proud of it. I think my forestry intelligence dates from the time I was three years old, when I assisted my father in planting a honey locust tree in our front yard in Wauwatosa, Wis. I have been trying to be a tree-planter ever since. After I became secretary of the Horticultural Society, it seemed to me that one of the things that ought to be taken up in connection with horticulture was this matter of forestry in its relationship to horticulture and agriculture. And now when we are gathered together in this first meeting of the kind in the State of Michigan, I say it is a historic meeting, it is the beginning of the solution of this problem, and you will be proud to be a part of it. It seems to me that there will go out of this convention an atmosphere which will pervade the whole State of Michigan."

Evening Session

Agricultural College Forestry At the opening of the evening session in Ryerson Library, a few moments were taken by Prof. Bogue, of the Agricultural College, who spoke in some detail of the experiments at that institution in growing forest trees from the seed, explaining the handling of conifers and the success which had been attained in this preliminary field of forestry. He exhibited seedlings of various kinds, showing the length of growth in one to two years. He spoke of the College woods and the plans which had been worked out with reference to making them useful not only as an arboretum, but as an example of forestry.

Tax Land Discussion The general subject of the evening, The Business Management of Michigan's Large Holdings of Delinquent Tax Lands, was introduced by Prof. Filibert Roth, of Ann Arbor. The Professor gave some startling figures concerning the volume of these lands, and compared their quality with those in Continental Europe which had been set aside for permanent forest purposes, saying that the quality of soil was about the same, not being fitted

for successful agriculture, and still it had been demonstrated that lands of this quality could be economically used in growing timber. He spoke of the fact that here was a great investment that the State of Michigan was simply not looking after; that in it were great possibilities. By simply keeping out the fires, every acre of this land would each year add a dollar to its value in timber growth. He explained that while on so large an area the expense of successfully combating the fires seemed a considerable amount, still, considering the vast results, it was really a very small investment for the State to make. He put great emphasis upon the practical partnership that the State had with a lot of men who were using these lands for speculative purposes and defrauding people through misrepresentations. In these transactions the State was in fellowship with what seemed to him to be the borderland of crime. The importance of dealing with this problem in a business way could hardly be overestimated.

Mr. Wildey's View Hon. E. A. Wildey followed, giving the results of his experience as Commissioner of the State Land Office and Secretary of the Forestry Commission, in connection with these lands. He thought the delinquent tax lands, as soon as they became the property of the State under the statute of limitations, should be reviewed carefully, and all that were merchantable for agricultural purposes, put on the market in the same kind of a way that an individual land holder would do, securing as prompt and large results for the State as possible. The remainder of the land would far better be permanently in forest than for any other purpose.

Perry Powers' Speech Former Auditor General Perry F. Powers, spoke from his experience, intimating that the volume of land in round figures which had been given as delinquent tax lands, might be misinterpreted, for there were only 800,000 acres that actually had been deeded to the State and were in condition to be treated with upon some comprehensive plan. In answer to inquiries, however, he said that it was true that the volume of lands on the way to the State as a result of delinquent taxes had not been materially lessened in a good many years.

Method in Taxation Mr. John J. Hubbell, in response to a request, reported his plan of taxation which had been incidentally mentioned in one of the earlier meetings. He had some doubts about the modern forestry method as applied to lumbering off the virgin forests. He rather thought from his experience and observation, that it was better to make a clean sweep of the forest, and then handle the lands upon the most advanced forestry methods, by keeping out fire and doing a reasonable amount of sorting, at a minimum expense. A rapid growth would result, which in a man's lifetime would be worth more than the virgin forest, with the appreciation in prices for forest products. He believed that a system of taxation could be evolved which would not hamper local enterprise in the development of the country, and still would induce people to leave considerable areas of land in permanent forest growth. By refusing to tax timbered lands at a greater rate per acre than the average farm land in the vicinity, and then at the time of harvesting the timber levying a small specific tax, he felt that the desired result would be accomplished. This might require a constitutional amendment, but some plan should be worked out at once which would in its development put a premium upon reforestation.

During the evening many questions were asked and answered connected intimately with the general topic of the evening. The session proved to be a very profitable one.

Adjourned.

Wednesday Morning Session

The final session of this first meeting of the Michigan Forestry Association convened promptly at 10:00 o'clock, in Park Congregational Church.

State University Will Help Regent Barbour, of the Michigan University, spoke briefly upon the interest which the Michigan University had in the organization of this Association, and in the general solution of the problem of forestry in Michigan. He spoke of the organization of the Department of Forestry in the University, and the desire of the management to co-operate with the Forestry Commission and the State Forestry Association in accomplishing the best results along forestry lines for the State.

A Minister's Hearty Interest The Rev. F. P. Arthur, of Grand Rapids, then addressed the Association briefly and very effectively upon the moral influence of the practical discussions of forestry which were now enlisting the interests of thoughtful people in Michigan. In a similar way he was himself trying to work out by experiment a little problem in reforestation, and he had made the subject one of thought and study. He thought the subject involved questions which could be very appropriately dealt with from the rostrum and the pulpit because their solution had so largely to do with the development of character among the people of the commonwealth.

An Educator's Word Prof. D. B. Waldo, of the Western Michigan Normal School, of Kalamazoo, spoke of his interest in the work of the Association from the educator's standpoint, expressing his desire to be identified with the movement, and to as far as possible engraft its work into the influences of his own institution.

Practical Forest Planting Mr. T. F. Borst, of Massachusetts, gave a very earnest address upon the practical side of reforestation. He was engaged in growing seedling forest trees and in planting out on a large scale in the East for forestry purposes. He believed that we were on the right track and that it was perfectly practicable to aid nature in reforestation in a very forceful way. From his knowledge of Michigan conditions he believed that the investment in cheap lands for the purpose of reforestation would be a very attractive one for capital if men could well understand how rapidly the initial investment would develop into large values.

Articles of Association The committee entrusted with the duty of formulating the articles of association and nominating the permanent roster of officers, made the following report of articles of association, which were unanimously adopted:

Article 1. The name of this association shall be The Michigan Forestry Association.

Article 2. The object of this Association shall be the promotion of a rational and practical system of forestry in Michigan, recognizing it as a most impor-

tant branch of agriculture which furnishes raw material for our leading manufacturing industries, regulates our water supply, grows an endless supply of fuel without impoverishing the soil, gives to our State an embellishment that attracts the most useful citizenship, and fosters that diversity of industry which is indispensable to progress and contentment in life.

Article 3. The management of the affairs of the Association shall be in a president, vice-president, a secretary, a treasurer, and six directors, which shall constitute an executive board of ten members. The officers and directors shall be chosen annually and their term of office shall expire upon the election and induction into office of their successors.

Article 4. The expenses of the Association shall be met by membership fees and annual dues. Any person may become a member by the payment of one dollar to the treasurer. This membership shall entitle to all the privileges of the Association for one year, and the annual dues thereafter shall be one dollar. One-half of all the fees and dues shall be expended by the executive board for giving information at regular and stated times upon forestry subjects to the members.

Article 5. The president shall perform the duties usually pertaining to this office, and shall at the annual meeting present to the Association a message outlining his views with regard to the future plans and duties of the Association. The vice-president shall perform the duties of the president in his absence. The secretary shall keep the records of the Association and shall have in charge the correspondence and shall edit all circulars, bulletins and pronouncements of the Association; he shall make an annual report of the doings of the Association to the membership at least one month before each annual meeting. The treasurer shall collect all membership fees and dues and receipt for the same; he shall be custodian of all the funds of the Association and shall disburse the same upon order executed by the secretary. He shall be prepared to make a report of the condition of the treasury at any time when requested by the president or board of directors. The board of directors shall have charge of the affairs of the Association, with full power to act ad interim. The Board, upon its organization each year, shall select from the membership of the Association a committee on legislation whose duty shall be to formulate plans for proposed legislation and present the same for the approval of the Association.

Article 6. The annual meeting of the Association shall convene on the second Tuesday in November in each year, at a place to be determined by the board of directors, provided the first annual meeting after this date of organization shall occur in 1906.

Article 7. Amendments to these articles of association may be made at any regular or special meeting, provided notice of purpose and scope of any proposed amendment shall be sent to each member at least four weeks previous to the meeting which shall act upon it.

Mr. Garfield, who acted as clerk of the committee, was asked by the chair if the committee had not performed the balance of the duties imposed upon it and made recommendations concerning the permanent officers of the Association. He replied that the committee did not wish to take the responsibility of naming a list of officers, but would recommend a number of names to the convention, as appropriate ones to consider in connection with the various official positions.

Officers Elected One by one the following members of the board of directors were unanimously elected:

Mrs. Francis King, Alma; Chas. J. Monroe, South Haven; Lucius L. Hubbard, Houghton; Walter C. Winchester, Grand Rapids; H. N. Loud, Au Sable; Geo. B. Horton, Fruit Ridge.

Following the selection of the board of directors, the following executive officers were unanimously chosen:

President, John H. Bissell, Detroit; vice-president, Thornton A. Green, Ontonagon; secretary, T. M. Sawyer, Ludington; treasurer, John J. Hubbell Manistee.

Prof. Filibert Roth, who had acted as clerk of the committee on resolutions, made the following report, which was unanimously adopted:

General Resolutions Whereas, The Michigan Forestry Association is deeply impressed with the fact that:

The forests of our State have largely disappeared and the remnants are rapidly disappearing;

Many millions of capital formerly invested in lumbering and other wood-working interests have left and (more) are leaving the State;

The State is paying large sums in importing lumber and timber, materials which our State should grow in abundance;

Large areas of our lands are in a cut or burned-over wasteland condition involving a loss to our people of millions of dollars every year;

The present policy and laws of our State act in a way to discourage the holding and reforestation of these lands;

Unfair taxation and the lack of proper protection of forest property have prevented even the conservative management of the woodlot or farm forest;

The State neglects its own lands and thereby hinders the improvement of lands by private effort;

The present system of dealing with the Tax Title Lands acts in the direction of further timber denudation;

And, Whereas, The Michigan Forestry Association has for its object the promotion of forestry in all directions:

Therefore, be it resolved:

That this Association use its best efforts to secure:

1. Modification of our laws which will enable the holding and the reforestation of forest lands, and encourage the conservative management of our farm forests, as well as the restocking of denuded lands.

2. The improvement and strengthening of our laws for the protection of forest property against fire and trespass.

3. Modification of our laws dealing with the disposition and management of our State lands so that correct principles of forestry may be applied to all wooded areas not distinctly agricultural.

4. The continuation and extension of the work of the Forest Commission, and that it be provided with ample funds to carry on a more extensive campaign of education among the people, in forestry matters, in order that the people themselves shall enter into the work of forestry.

Resolved further:

That it be made a prominent part of the work of this Association to urge the establishment and perpetuation of a general system of farm forestry throughout the State; and

That this Association act in harmony with the American Forestry Association and with the National Bureau of Forestry, realizing that in so doing we will further the cause of forestry in general and in this State.

Special Resolutions The Michigan Forestry Association expresses its hearty thanks: To the City of Grand Rapids for its generous hospitality, and its active interest as shown by its large membership and attendance.

To Park Church for kindly and liberally providing a comfortable and convenient place of meeting.

To the Library Commission for the use of the Assembly Room of Ryerson Library, and the special exposition of books dealing with forestry and allied subjects.

To the Kent Scientific Museum for the loan of the beautiful material, and the valuable assistance in the decoration of the convention hall.

To the United States Forest Service for sending its able representative, Mr. Alfred Gaskill, to assist in the Convention.

Especial thanks are due to the members of the press for their able and active assistance in acquainting the public with the objects of the Convention and in the faithful report of its meetings.

Editors Made Members Mr. Perry F. Powers, of Cadillac, spoke of the invaluable work of the press of Michigan in supporting the contentions of the Association, and assured the membership that the editors of Michigan could be counted on as a strong ally in furthering the business of the Association. After some comments by several members on motion of Mr. Powers, the editors of Michigan, upon application, will be made active members of the Association, without payment of dues.

Complimentary remarks were made by several gentlemen referring to the active work of the temporary chairman of the Convention, of Prof. Filibert Roth, Mr. Thornton A. Green and Chas. W. Garfield.

Following which the Association adjourned, sine die.

Opinions of Prominent Michigan Men

The Duty of the State Mr. Benton Hanchett, of Saginaw, in commenting on the meeting in Grand Rapids said:

"It was impossible for me to be present at the organization of the Michigan Forestry Association, but I desire not to be understood as indifferent to the objects of the Association or to the work of reforestry which the Association seeks to promote. The restoring of the same barren lands now held by the State from which the former growth of timber has been removed and which have returned to the State from the owners who removed the timber as not worth the State taxes on them, seems to me to be of very great importance to the people of the State. That large portions of these lands are unfit for agriculture is shown by the efforts which have been made to farm them and which have proved to be failures. The evidences are certainly satisfactory, that

with proper care to protect from fires, the same lands will again become covered with valuable timber. It seems to me to be a work of such interest to the public at large that the State should adopt a system by which a proper selection of the lands for reforestation shall be made and the work carried on as experiments and experience shall suggest. The work of the Association should command the generous support of all public-spirited citizens."

Legislation Needed W. G. Mather, President Cleveland Cliffs Iron Co., writes:

"Public sentiment must be worked up in order to bring pressure to bear upon the legislature to pass proper laws on the subject of taxation and forest culture. I think among the first things to be worked for is proper fire warden regulations. In a rough way, I think it would tend to economy and effectiveness and practicability to have the offices of fire and game warden consolidated. The deputy wardens or rangers can easily attend to both kinds of duties. The members of this service should have a kind of uniform, be subject to an examination, in other words, be a select body of men who would be respected by the community and who would take pride in their work. They should be self-respecting and as respected a corps of men as, for example, the firemen in our cities. In order to do this, the appointments must be absolutely divorced from political influence, not only the deputies and rangers, but also the chief fire and game wardens. It might be opportune, at this initial meeting, for the Michigan Forestry Association to appoint a proper committee to plan a new statute or modification of the present statute, which would put the fire and game wardens and fire and game laws on a modern and effective basis. Such a commission should study the best provision for such service, not only in this country, but abroad, and frame their law accordingly. They must also see that the people who serve under this law shall be so selected and adequately protected that they shall be, as it were, a corps d'elite. There should be, of course, sufficient compensation for this service. The State of Michigan can well afford to properly pay for such service. It is well recognized, I think, that the State loses a great deal of property every year by fire, and consequently the income from taxation on the same, besides much indirect loss which it is difficult for me now to calculate. Only a portion of this loss, if applied to the fire service, would thus save much property and revenue to the State.

"The game laws should also be more effectively administered. The value of proper preservation of game and the income derived by the State and its citizens from the proper preservation of game, is well known, and in our country Maine and northern New York are good examples of this. In Europe it has been recognized as a factor of income for generations. Let the Commission at least make a move in this direction. There is much public opinion already in favor of such improved regulations and therefore I believe they could be readily carried through the Legislature."

Something Must be Done J. D. Hawks, President D. & M. Ry. Co., Detroit, Mich., says:

"I beg to say that my connection of over thirty years with railroads handling forest products, has made me very familiar with the country from which such products have been taken and the horrible destruction and devastation that have followed lumbering enterprises in Michigan. I have seen the pine exhausted in the lower peninsula of Michigan to such an extent that the railroads running through the so-called pine country are now getting car sills from Florida and

obliged to use tamarack for car floors. The destruction of the cedar is so nearly completed that a very few years more will exhaust the supply of ties, fence posts and telegraph poles. It is a grave question as to what the railroads are to do for track and car material—to say nothing of the effect on the revenue of the railroad companies by the stopping of freight revenue from logs and lumber which they have depended on for so many years. So far as I know not one single thing has been done to provide for the maintenance of the forest on any of the land in lower Michigan. The State seems to have been content to allow the forest to be stripped from the land and the fires to follow up the destruction, so that thousands of acres which should have been growing timber for the last forty years are now growing nothing but sweet fern and weeds of various kinds. It seems to me the State has a duty to perform in this connection, and that no time should be lost in performing it. Our company had a forestry man from Washington, who looked over some tracts of country with a view of giving us advice as to what should be done in the way of planting trees, etc., so as to get timber started, both as a commercial proposition and as an object lesson in getting others interested in timber culture. After this gentleman looked over lower Michigan, he advised us that it was the height of folly for anybody to spend any money in reforestation, as the danger from loss by reason of fires started on State land was so great that it would be foolish for private individuals or for corporations to spend a dollar in putting out trees. The State should stop fires and pass a tax law that would not over-tax timber land and should put a good share of the cut over lands into forest reserves. It is as easy to raise pine trees from seed in a nursery as it is to raise carrots in a garden, and they are cheaply planted and after say ten or twelve years will grow in height from two to three feet a year. With the fires stopped ten to fifteen years would give us a forest cover for our waste land that would help our climate and our streams. In twenty to twenty-five years we could begin to get a revenue that would increase yearly from that time on, and all this without a cent of expense to the State except for stopping fires.”

**Fire and
Stream
Protection**

Wm. H. White, of Boyne City, writes the president of the Forestry Commission:

“This is a grand and good work which the Michigan Forestry Association is organized to accomplish, and should have the co-operation of the lumberman and timber land holders of the State. There is no individual who can do anything. It must be done by the State and nation. Our cut-over lands that are not suitable for agriculture should be cared for. That is, the small trees that are left after the lumberman’s axe has gone through, should be protected from fire and allowed to grow. As it is now, after the land has been logged and the dry spell comes on, the fire goes through and most of the small timber is killed before any undergrowth comes up to check the flames. If the land can only be cared for a few years after it is logged, it would then be protected from fire by the undergrowth, and then the dead brush would rot down. It is the first year after logging that the great risk comes. I would also advocate protecting the forests at the heads of streams so as to protect our water supply. Anything affecting our water supply affects everything else, namely, fish, stock raising, irrigation, etc. We have a few thousand acres at the head waters of the Boyne river, and this land should be protected after the saw timber has been taken off. It would be very necessary to have this protected on account of the water supply as there are so many small streams coming out of the

hillsides entering into the one great stream which forms Boyne river. However, no individual can do anything with this. It will have to be done by such strength as the State or nation can give. We have such lands as are not suitable for agriculture, stock grazing, etc., which should be owned and protected by the State, to be held as timber reserves. The dead timber, brush and logs that are left on the ground by the lumberman, should be cleaned up so as to give protection against fire to small standing and growing timber which in twenty-five or thirty years will be very valuable to our country. I shall be very glad to give any assistance I can to this important work of the Association."

An
Instance
Given

Prof. James Satterlee, formerly of Greenville, now of Lansing, gives this illustration from his recent experience:

"When we bought our new place in town, there were a couple of Norway spruces standing where they were a source of discomfort, so I decided to cut them. They had been trimmed up twelve feet or more and were far from ornamental. It required quite a lot of courage, too, to cut a fine tree that you know someone had set for shade and ornament and cared for with tenderness for many years. I should hate very much to see the beautiful pines in the front yard of our old homestead cut and hauled away for lumber, which will undoubtedly be their fate sooner or later. My own remembrance of having watched their growth from puny seedlings to fine trees of forty-five years' growth will have no weight with some one that will come after me and who 'knew not Joseph.' But laying all sentiment aside, what were these two Norways worth for lumber? Cutting them a few inches above the ground I found there were twenty-six annual rings. They had made a fine growth and one measured fifty feet in length and the other fifty-one feet. One was fourteen inches in diameter and the other sixteen where they were cut off. Each made two twelve foot logs and I had them sawed into bill stuff. The upper logs each made a fine 4x4 and inch boards, and the butt logs made some fine strong 2x4's, besides some inch boards—162 feet in all. I cannot buy such lumber in our yards at Greenville for less than fifteen dollars or sixteen dollars per thousand feet.

It is easy to compute the value of an acre of such timber, for on ordinarily good land two hundred such trees could be grown to the age of twenty-six years on an acre. Counting the trees at eighty-one feet each, there would be 16,200 feet of lumber. This at \$15.00 per thousand feet would have a value of \$243.00. The firewood obtained in cutting the timber would more than pay for the work. If one chose to cut but one-half the trees and leave the balance for another twenty-six years there would be much of the lumber worth far more than \$15.00 per thousand feet, for many of the outer boards of the lower cuts would be nearly clear stuff. Could a farmer make any better investment for his children or grandchildren than the planting of a few acres of Norway spruce or white pines? Aside from the money value of such plantations for lumber, a great scarcity of which we are very soon to face here in Michigan, there would be the value to the country in the way of beauty and in lessening the ever increasing sweep of our winter and spring winds. It is time for us to look at the matter of tree planting squarely on its merits as a source of wealth, to our country, as well as on its sentimental side, and I thought perhaps the above item might be of value in your work."

A Practical Example A member of the Michigan Forestry Commission gathered this interesting bit of information upon a visit to Rhode Island:

The forest belonging to Mr. H. G. Russell, of Providence, R. I., is situated at East Greenwich and is in charge of James G. Mathewson, of East Greenwich. Mr. Mathewson is a member of the board of control of the Rhode Island Agricultural College. Mr. Russell began these plantations in 1877. The white pine is the leading species used, although there are considerable areas given up to spruces, the larch, the catalpa and locusts. Everywhere young oaks are springing up throughout the plantation which is perhaps three hundred acres in extent. These oaks are from acorns which Mr. Russell has put in from time to time, scattered through the forest area after the other trees had attained some size. He is doing some thinning now and the pines which have never been pruned at all until last year have had all their lower branches removed for about six feet or more from the surface of the ground. He says that these limbs should have been removed at a very much earlier period and then there would have been a considerably larger proportion of the body wood good enough for the better grades of lumber. The pines are from a foot upward in diameter and are thrifty and promising. It is Mr. Russell's intention that eventually it shall be an oak woods, relying on the oncoming young oak to occupy the area, lumbering off the earlier timber. The soil is very thin and poor over most of the area covered by the forest, the forest having purposely been placed upon this ground for a double purpose. One is to occupy a poor soil with some cover that would make it seem more attractive; the other, for the purpose of protecting the large area of the farm devoted to agriculture, which consists of a far better soil and needs the protecting belt of timber on the coast side in order to secure the best results in farming.

Importance of Timber In an interview, Mr. C. K. Warren, president of the Featherbone Company, Three Oaks, Mich., said: "After giving mature consideration to the value connected with various crops in our country I am satisfied that the most important crop is the timber crop. We have been so careless in our methods of timber harvesting that we have been unmindful of the future and we shall understand more and more the enormous values connected with a crop of timber as our supply is shortened. In looking to the future, I know of no form of agriculture more promising than that of growing timber. Wood, posts and ties are commodities having a considerable value. They never will be worth less, and you can bank on these values in planning your dealings with the land. The utilization of what have been called waste lands in the production of timber is a very important agricultural problem. I have a large orchard in Texas on what has been denominated 'The Staked Plain' and I have been impressed with the importance of raising fence posts for that country, and my eyes have turned toward the osage orange as a possible solution of the question of posts and stakes in connection with cheap fences upon our cattle ranges. I have also some ideas with reference to the importance of planting timber on the sand dunes of Western Michigan. The possibilities are wonderful here for all forms of tree growth are made rapidly and it will take but a short time under a rational system to have a forest cover over what is now a waste that is a menace to the agricultural lands in the vicinity. I have been planting locusts and I see no reason why we should not raise basswood and maple and whitewood and cherry, in truth, all of the valuable timbers that are indigenous to our climate."

Growth of Maples During a recent discussion of the question of supplying the demands of our small wood manufactures, Mr. Benjamin Wolf, a lumberman of Grand Rapids, said: "I am impressed with the rapid growth of young maples. In connection with our Cadillac factory we desire raw material in the form of second growth maple, and I made many inquiries as to where we could get what we wanted. A friend called my attention to the fact that upon the lands in Montcalm county, from which we stripped the pine some years ago, there had been a rapid growth of maple, and I went over these lands and found in the last twenty years there had developed a crop which today is as valuable as the original one. I am impressed with the importance of thinking more about the succeeding crop when we cut off the timber in lumbering and the adoption of methods that will comport with rational forestry, which shall take the place of our careless methods of slaughter."

Fuel Easily Grown Mr. Voorhees, of Oakland county, at the Farmers' Institute at Grand Rapids, gave an illustration of the value of the white willow for fuel. He said that on one farm sixty rods of hedge was planted, with the idea of using it for fencing as a hedge. This was a good deal of a failure but incidentally the row of willows became of value to the farm first as a protecting barrier from the prevailing west winds, and second as a source of fuel for the homestead. By gradually cutting off this row of willows and allowing the sprouts to grow, renewing the hedge sufficiently, fuel has been continuously obtained to satisfy the wants of the home.

Two Forestry Notes Mr. A. S. Cramer, of Coopersville, suggests that the pathmasters' warrant shall contain a clause embodying the requirements of the law which protects trees planted or preserved along the highways; also that the State in deeding delinquent tax lands to homesteaders make some requirements concerning the planting and maintaining of a certain per cent, say 5 or 10 per cent of the area in permanent forest.

James R. Wylie remarked in connection with the recent Forestry Convention: "We have authority enough under our constitution to prevent this great waste in timber. But authority means nothing without public opinion to enforce it. The whole State should be aroused on this most important question of being saved from ourselves in this forest problem. The man who is careless with fire must be shown that he borders on criminality."

A Practical Thought The Hon. Henry Chamberlain, a leading public-spirited citizen of our State, in a letter to the president of the Michigan Forestry Commission, introduced the following suggestive word: "I am of the conviction that timber growing can be made profitable, but good sense must be put into this as into any other agricultural product. I have been led to criticize the advice given by some thoughtless people concerning the growth of black walnut. I have cut down black walnuts sixty years old, that were simply white walnut because the colored pigments had not been developed and so the timber was no more valuable than any other ordinary varieties. On the other hand, cherry gets its special value as connected with its color, in the early days of its growth, and is a more promising species to use for timber purposes. The white pine grows very luxuriantly in Western Michigan. I know of specimens fifty or sixty years old that are three feet

in diameter. We have a most serious problem to solve in Michigan and some individual and some party must arise to the situation. The immense area of lands which is owned by the State through tax title acquirement, must be handled with reference to the long future of Michigan, and it requires a knowledge of statecraft rather than of politics to take care of this very important matter."

**How to
Meet the
Want**

A resident of the furniture city puts the case in this way:

"Forestry is rapidly reaching a position of vital importance in our State. Men are beginning to appreciate that it supports industries that stand second in importance only to agriculture. Men interested in forestry in the State have learned that the forests furnish the only crop, the growing of which constantly increases the fertility of the soil, and the price of the crop itself can be determined with accuracy as to its minimum. Forestry means more to Grand Rapids than to the average city in Michigan because of the large volume of the industries supported by the products from the woods. With black walnut lumber worth \$100.00 per thousand, and cherry lumber almost impossible to get at \$150.00 per thousand; with the price for railroad ties rapidly increasing and post timber growing rapidly less so that our farmers and telephone and telegraph companies are wondering where the future supply is coming from, the question is of vital importance. What can we do to recover our forest resources?"

It is perfectly practicable to connect with farming something of forestry so as to add one more means of securing a farm income. The crop is certain and the prices are, in advance, a known quantity. The crop will grow upon the poorest lands, and the only weak point in the minds of many is the time required to produce a crop. We are learning, however, that a crop of fence posts can be grown in twelve years; a crop of railroad ties can be grown in twenty years; that ash and hickory and basswood logs large enough for merchantable purposes can be grown in a quarter of a century. And these crops can be so arranged as to utilize the waste places on the farm. Every man interested in the forestry of our State and in the maintenance of our wood industries should take a deep and abiding interest in the progress of the forestry movement that is now on. A State Forestry Association is organized and its membership should include thousands of interested people. The legislature is already providing for covering the thinner lands of the State with a forest cover. Everybody should support the movement."

**The Farm
Woods**

Secretary I. H. Butterfield says:

"A forestry plan that provides only for large forest areas in unsettled portions of the country is far from complete. Such a plan may provide timber for commercial use, and when forests are located to cover the sources of streams they may to some extent conserve the water supply, but the farm woodlot must be maintained to provide wood for home use, to protect from the sweeping winds, to conserve moisture for the adjacent cultivated areas.

"The farm woodlot maintained on each cultivated farm would accomplish all these ends, and with no diminution in production—quite probably an increase. Rough hillsides and low places may be more profitable for timber growing than to attempt cultivation. It may be that people become too strenuous in draining all the lowland, and that some portions would better be left undrained, or at least drained only to the extent that timber may be grown on them."

**Trees a
Factor**

Prof. C. D. Lawton puts the case well as follows:

“One of the important facts about the farmer’s life is, or should be, its independence; is the fact that, beyond any other calling in life, the farmer is sufficient unto himself; that is, that he can raise upon his farm, cause his farm to yield to him, so much that is essential for the support and comfort of himself and family. Eliminate this fact, have the farmer where others are, and you abstract from his calling one of its chief charms. The farmer’s life should be an independent one. He should ever plan that his estate yield him as many of the necessities and the luxuries of life as the conditions will allow; and among the chief of these is fuel. His farm should contain a good woodlot. If there is one on the farm, he should care for it; and if there is not, it is his duty to raise one. This can easily be done in Michigan. Trees grow very rapidly. The years come and go in quick succession, and if but one takes the initiative and plants young trees, the time will seem to be but short ere they become of considerable size. How fortunate it would be for the people of our State if the farmers would seriously take hold of this most important matter of preserving the timber which they have on their farms and planting out to supply, when they have it not.”

**How to
Do It**

Dr. W. J. Beal, the persistent pioneer in Michigan Forestry has this practical word:

“What is to be done with that twenty acres which is reserved as a woodlot? Keep out all grazing animals, encourage young trees to come in thickly. If necessary, plant seeds or young trees about the thin places of the margin. Do not be worried if the young trees crowd each other; this is necessary to make the stems run up tall. Low beeches, blue beeches, basswoods, box elders, or shrubbery are desirable to shade the ground, hold dead leaves in place, and keep out the sun, but they should not be permitted to extend their tops as high as the tops of trees that are to be allowed to remain. A tall beech is not a tree that any farmer should care to grow. The timber is not very valuable, the tree grows too slowly, and the dense shade of the leaves smothers other trees.

“The minute a farmer begins to study and to practice on his patch of forest trees, that moment he begins to observe what others are doing, and he becomes interested in the cut-over land that belongs to the State, and can be depended upon to do his part in securing proper legislation, including appropriations, to help carry out the improvements. Henceforth, how many owners of land here present dare commit themselves on this question of making a diligent effort to obtain a woodlot that shall be a perpetual satisfaction to its owner and a model for the whole neighborhood? Please think of your woodlot, and do the best you can to improve it.”

The following letter was written by Mr. H. N. Loud, of Au Sable, to John H. Bissell, president of the Michigan Forestry Association, and was suggested by the outline of work proposed for the Association by the president:

**Member-
ship**

“The suggestion for a large membership is entirely in line and this work must be carried on especially in the forest counties themselves, and the supervisors and county and township officers should be interested in the movement and realize that there is as much benefit to the counties themselves in the raising of forests where forests alone are to be grown, as to attempt to induce a farming proposition on sandy

plains where they have seen farmers abandon their farms after years of fruitless labor, and where nothing but a meagre existence is to be obtained from the soil. Many of these counties export nothing, and it will require all of their labor and produce to support the forestry proposition itself, furnishing a market for their produce and labor for themselves; so that instead of antagonizing the proposition, they will accept it as the logical and proper field of labor.

Taxation “I would start this movement with a plain, straightforward proposition that anything that the citizens themselves of these counties pay for, they should have; but the proposition that they can levy taxes running from three to twenty per cent, against forest lands, is an entirely wrong one and one which must be entirely abandoned if forestry is to have any consideration whatever. Under the present tax laws enforced and construed by the local officials, the only proposition a man can consider is to strip the land of its trees as fast as possible. The Turkish government placed a tax upon every tree in Palestine; the result was that the olive and the palm trees were cut down, and the lands seen by Caleb and Joshua as flowing with milk and honey, and known as the Garden of Cleopatra, covered with groves of palm and olive, are almost a barren waste.

“The question of taxation entirely takes care of itself in State forestry, but in the question of personal initiative, which is considered of greatest importance by President Roosevelt, the question of taxation becomes paramount. The assessment of these lands should be, in their present condition, on absolutely wild lands. All taxes levied against them, whether special, township, State or county, should be held in a special fund devoted exclusively to the protection and preservation both from destruction and trespass. This could be devoted to payment of forest wardens. These officers should all be hired by the State and not local officers. The farmer's woodlot should be assessed as wild land, for their protection. This should be worked out along the lines that have been found most successful by the General Government and by the several States.

“The State Tax Commissioner reports the average rate of taxation in the following counties:

| | | | |
|---------------|-------|------------------|-------|
| Alcona..... | 4.135 | Missaukee..... | 3.363 |
| Alpena..... | 3.265 | Montmorency..... | 3.344 |
| Arenac..... | 3.450 | Ogemaw..... | 3.039 |
| Clare..... | 4.015 | Otsego..... | 2.727 |
| Crawford..... | 2.221 | Roscommon..... | 4.589 |
| Gladwin..... | 3.341 | Iron..... | 4.029 |
| Iosco..... | 3.135 | Ontonagon..... | 4.324 |
| Lake..... | 3.241 | Kalkaska..... | 2.984 |

In some townships, the rate of five and six per cent is not uncommon, and the extraordinary rate of twenty per cent has been assessed and paid.

“The lumberman has paid and is now paying in taxes ample money to reforest all the lands that he cuts over. The State with its overflowing treasury certainly does not need the tax, but it does need the forests. The townships with the liberal donation of the State special tax, do not need it for school purposes. The same or more money could be spent carrying forward the forestry work, as is now collected in taxes on forest lands, in the several counties. Education along these lines of taxation would lead to an acceptance of the proposition of forestry.

State
Forest
Land

“The only land which the State owns or has title to through delinquent tax, is the land thrown away by the lumberman as worthless and on which he has refused to pay taxes for a long period of years, and such lands have been in the market for forty years without a buyer. It is an absurd proposition and unworthy of the State of Michigan, to attempt to locate farmers on such lands, and unworthy of the best business interests of the State that thousands of dollars should be spent in advertising and re-advertising, selling and re-selling these worthless lands. Its tax sales are an abomination savoring only of Shylock, and the farming out of the collection of its taxes to men who have absolutely no interest in the development or sale of these lands; but merely to get one hundred per cent blood money from some individual unfortunate enough to have missed paying his taxes for any special year. If a person neglects to pay his taxes for five consecutive years, this land should become the property of the State. Ten dollars per acre represents only a fair valuation for farming lands suitable for agricultural purposes. All other lands should be held by the State for forestry purposes. The State Land Office, which in the past has been run for the purpose of selling lands, should be used for the purpose of acquiring lands, and forests and forest lands should have a very large part of its care and consideration. There would be no less number of State appointees under the new regime than the old, except that there would be a change of location. Instead of clerks sitting in Lansing and large fees paid to the press for advertising and re-advertising worthless lands, this money would be spent in a small army of foresters.

Publicity “This committee would certainly have a wide field, and it is one of the most important. The dense ignorance on the forestry proposition of the citizens of Michigan must be overcome. Michigan was practically the first State in the Union with its magnificent forests; it is the last to take any action whatever looking to the replacing of these forests. A crop of trees will grow as well as a crop of corn, and is worthy of the consideration of every citizen in the State, whether he be located in the forest counties of Michigan, or whether he be located in the fertile fields of southern Michigan. Every farmer’s woodlot can be made to produce at least ten times as much wood as it is at present doing, with almost no effort on the part of the farmer; and the consideration and study of the forestry proposition by the farmer would convince him that he could raise on the same land, for lumber, trees of double the value that he is now using for wood only. A legacy of rough and poor land, covered with growing forest trees, is just as good a legacy to leave as a deposit in the bank.”

Annual Report of Forest Warden

By Filibert Roth, Ann Arbor, Mich.

The following report on the conditions of the Michigan Forest Reserves and the work performed on these Reserves, covers the fiscal year 1904-05; but since the forester’s year, like that of the farmer, really ends with the growing season, the statements concerning the condition of seed beds, nursery and plantations as well as the growth of timber on the Reserves, on the whole, cover all of the growing season of 1905 and thus brings this matter really up to present date.

Location and general description of the Reserve lands, as well as the more detailed description of the

forest and forest trees, were submitted with the report of 1904, now published in the report of the Commission, so that a brief resume must suffice in this connection.

The Michigan Forest Reserves are located in Roscommon and Crawford counties. District No. 1, about the north end of Higgins' Lake, lies half in Crawford and half in Roscommon, bordering on the west on Kalkaska and Missaukee counties; while District No. 2, south of Houghton Lake, forms the southwest corner of Roscommon county, bordering on Clare and Missaukee counties. The Reserves form a large expanse of sandy pinery lands, once heavily forested, but now practically all denuded and largely "stump prairies" or "plains" and rather slow to settle as would appear from the following figures taken from the Census of 1900 and the report of the Auditor General for 1903, and the report of the State Tax Commission for 1903-4.

| | Ros- common. | Craw- ford. | Kal- kaska. | Mis- saukee. |
|---|-----------------|----------------|----------------|-----------------|
| a. Area, in 1,000 acres..... | 342 | 368 | 367 | 360 |
| b. Per cent of all land settled or in farms..... | 7% | 8% | 15% | 28% |
| c. Per cent of land improved | 1% | 2% | 7% | 9% |
| d. Per cent not even settled. | 93% | 92% | 85% | 72% |
| e. Per cent unimproved..... | 98% | 98% | 93% | 91% |
| f. Per cent of all lands "de- linquent for taxes" or reverted to State..... | 55% | 46% | 53% | 53% |
| g. Average tax rate per \$1,000 assessed..... | \$45 88 | \$22 21 | \$29 84 | \$33 63 |

The Reserves are part of a large plain forming the divide between the drainage basin of the Muskegon and Manistee rivers on the one hand and the Au Sable and Tittabawassee on the other. Practically all of the Reserve lands are drained by the Muskegon river and hold considerable part of the headwaters of this important stream, a fact which alone justifies their setting aside as forest lands.

Throughout, but more especially in District No. 2, located south of Houghton Lake, the county is dotted by swamps which occupy from 8 per cent to 30 per cent of the area.

The entire area was once a magnificent forest of white pine and Norway pine, with the swamps stocked with tamarack, cedar and spruce. None of the land was real hardwood forest such as occurs throughout this region on all heavier lands. Today this district is estimated to have scarcely 10 per cent of forest, so that we have here a large area in which over 90 per cent of the land is still wild, unsettled land, and about 98 per cent unimproved and still supplied with less real forest than some of our most densely settled counties in the southern part of the State.

More precisely, the Reserve lands are "all of the State lands" located in Town 21 N. Range 3 and 4 W.; and the N. 1-2 of Town 24, N. Range 4 W.; and the S 1-2 of Town 25 N. Range 4 W.; thus all of the State lands in an area equal to three surveyed townships. Since considerable areas have been deeded to the State since the last report, the area now actually Reserve lands is about 39,000 acres, of which about 9,800 acres are located in District No. 1; and 29,200 acres in District No. 2. The Reserve lands are not in solid bodies but more or less interrupted by private holdings and form about 60 per cent of all lands within the limits of the Reserves. This relation is nearly as reported before, or:

| | |
|------------------|-----|
| In T 21-R 4..... | 75% |
| T 21-R 3..... | 57% |
| T 25-R 4..... | 27% |
| T 24-R 4..... | 17% |

Only about 190 acres have thus far been added to the Reserve lands by purchase of desirable pieces. A number of additional tracts were offered for sale to the Commission, but a lack of funds made their purchase impossible even though the prices were for the most part reasonable. The purchase, especially, of cut-over swamp forests would certainly prove a good investment and it seems a pity that more of this class of lands can not be acquired when offered.

No lands have been sold or exchanged as yet and the only application to purchase any of these lands came from a man who does not even live on the farm he owns, but resides in town and subsists by teaming.

As in the past, the principal work on the Reserve consists in:

Protection of the land, principally against fire.

Reforestation and improvement.

Survey and classification of the lands.

Protection of the Lands

The question is often asked: "What is the use of protecting these lands when all the forest is cut and burned off?" To understand this condition it is necessary to trace the history of these lands since the forest was cut and also keep in mind the character of the lands themselves and their value.

After fire followed the lumbering operation and killed the greater part of the smaller and less valuable material left in lumbering, sun and wind had access to the ground, which, itself was freshly fertilized by wood ashes and there was still abundance of seed distributed by the remaining large trees and groves of trees to seed the land. Soon there sprang up a growth of aspen or poplar and sprout woods of oak and in many, probably most places, the thickets of aspen and oak soon were dotted by thousands of young pine which on account of their slower growth were hardly observed at first. In this re-seeded or re-stocked condition these lands were easily worth \$10.00 per acre to the State of Michigan, but unfortunately the value of these lands was not recognized, they were given no protection whatever, and thus in a few years a second, often more serious fire, swept over the land.

This second fire not only destroyed practically all young growth but usually burned down what remnants of defective trees survived the first fire and thus left the ground without seedling as well as without trees to get new seed from. In addition the second fire usually burned the organic material on the ground to a very serious extent and thus sadly impoverished the soil.

After the second fire re-stocking was quite slow and yet Nature made renewed efforts. The persistent oak, though killed back to the very roots, sent up new sprouts and the light seed of the aspen was blown in from many miles away, but the pine was no longer to be found all over the burns, but occurred sparsely and in only a few spots where even the second fire had not killed all there was. Even in this condition there was hope of a new forest cover. There was abundant growth to warrant protection and care. But the same policy continued. The State and county did not see fit or did not feel able to protect the millions of dollars worth of property. As soon as enough dry leaves and twigs accumulated on the ground to make another fire possible, there was plenty of carelessness to supply the match. This third fire and like it the fourth and fifth (for many spots on the Reserve have seen at least that many) was a mere "surface fire"; a fire which bears hardly a semblance to the regular for-

est fire, and which in the parlance of the district "does no harm." But like the second, so the third fire killed the beginning of a new forest cover and left Nature to "try again."

Nevertheless, the third fire and the later comers of this sort differ very materially from fire Nos. 1 and 2. There is no longer the large amount of material, the thousands of cords of resinous tops all dried to tinder, the fire is a mild affair, runs along slowly and fails to cover large areas at a time, nor any area as thoroughly, since it lacks the intense heat necessary to create the strong draft or accomplish complete destruction. It is a matter of a few acres here, a couple of hundred at some other place and a large proportion of the lands often remains unharmed for considerable length of time, say ten years and more. In such places Nature succeeds in restoring considerable cover. After this has continued for considerable time and a semblance of forest cover is restored, these very places become danger points and the native of the region speaks of such places as "needing fire" needing "burning over" to avoid more serious conditions and dangerous conflagrations. "I have had practical experience with these fires all my life and I find that the only way to fight fire is with fire; the thick woods need burning over if you want to make them safe." This statement was made to the writer only a few months ago by one of the residents of this section and illustrates the perverted notions regarding forest property which the indifference on the part of the State and county have gradually brought about. Here we have a sane, well disposed, law abiding citizen recommend in good faith to burn a crop in order to secure it.

The amount of lands thus saved from fire for a reasonable time differs with many conditions, notably wet and dry seasons, length of time since large fires have occurred, number of people engaged in little wood cutting operations, berry picking, hunting, etc.

It is in this condition that we find the lands of the Reserves today. The real forest is gone; the estimate of 10 per cent forest according to the usual standard is correct; the country is and looks denuded; a visit in April reveals a landscape far from inviting; but with all, there are thousands of acres where a little respite from fires has led to a partial re-stocking. According to the old standard of estimating timber there is *no* merchantable timber on the land; according to the present standards as set by the inhabitants of these sorely devastated districts, there is *but little* merchantable material and this is restricted to the swamps. But there is a *new forest* cover; there are millions of young trees from the little seedling to young trees twenty and even thirty feet in height covering thousands of acres of this Reserve, all growing as fast as a rugged climate and a sorely impoverished soil permits them, with thousands upon thousands fast nearing a size where they will be merchantable.

To replace these millions of young trees would require many thousands of dollars, to protect them requires but a mere trifle.

It is these trees, it is their growth, it is the wood which they are making every year, that is to be protected.

Does it pay?

The survey covering a part of this land indicates that in District No. 2 the following conditions were found:

Of 986 acres surveyed, 44 per cent of the land was returned as upland woods where the young growth over 5 feet made woods dense enough to cover over twenty per cent of the ground. In addition there was

found 12 per cent of the area in swamp woods with distinctly forest character, forming at present the most valuable part of the Reserve. We have here then young growth varying from 5 to 50 feet in height, from open Jack Pine and oak groves, to dense thickets of tamarack, cedar and spruce, covering fully 56 per cent of the total area. Assuming only 50 per cent of the Reserve area thus stocked with young growth, we have 19,500 acres of land with about eight million trees from 5 to 50 feet in height, growing and making wood as long as they are protected from fire. Assuming that the yearly growth of these wooded areas is worth only 20 cents per acre, the value of the total growth per year sums up to \$3,800, or more than four times the amount of money actually spent in the protection of the lands. In this estimate the growth on the other 50 per cent of the land, the constant betterment of the forest, the steady increase in the rate of growth, the better quality of the material grown on larger timber and the increase in price of wood, all have been left out of consideration.

Turning now to the character of the land, it will suffice to say that these lands have long been logged; have long been in the market at almost any price; that in the fall of 1903 over 80,000 acres of the neighboring lands were offered by the State Land Office and only about 10 per cent of the lands could be sold, and even this picked 10 per cent only brought about \$1.20 per acre, or less than half what the Federal Government sells arid lands for in New Mexico, Wyoming, Montana and other remote mountain districts. And after all these years of effort, Township 21-N, R 3-W has but a single settler and he is a bachelor homesteader, having homesteaded a "Cedar Claim" as he naively admitted himself. It is land which has remained without settlement, unsightly, blackened, stump waste for a quarter of a century; which for lack of a little protection has been unproductive, of no value to town, county or State. If on such lands it is possible to produce even but ten cents worth of the much needed timber, does not this protection promise to pay?

Valuing the land at \$1.00 per acre, as is now the rule, it is necessary only to produce three cents worth of timber over and above the expense of protection to make it pay better than the average farm pays in Michigan. Is this visionary, theoretic or extravagant?

In carrying on the work of protection, all efforts are made to prevent fire rather than to fight it. The ranger patrols the district daily and whenever the season is especially dry and fire risks therefore great, the ranger is given authority to employ extra help. The experience of the last two seasons fully demonstrates that extra effort must be made directly after the snow leaves in spring and usually after the heavy fall frosts have browned the great mass of bracken, sedges and other ground cover. At such times as many as four men per township are desirable, though of course, their presence is needed but a short time, the first rain doing away with extra help.

The results of the protective work were excellent. There were no fires of any consequence during the fall of 1904. Early last spring, however, a spell of dry weather brought abundance of trouble. Numerous fires were burning all about the Reserves, in a number of places farm and other property was burned or defended with difficulty and east of Roscommon several villages were reported in danger. Day after day the sun was obscured by smoke and would set a deep, red ball of fire in a haze of smoke. A fire with a front over a mile in length came from Kalkaska and threatened to invade District No. 1. It was successfully fought with plough and shovel by the planting crew under Ranger Hatch, so that not an acre of Reserve land was scorched.

In the District No. 2 a number of smaller fires were promptly extinguished by Ranger Emery and only one fire covered a considerable area and required extra help in fighting it. Fortunately rain set in the end of April and put an end to this danger.

The summer and fall of this year (1905) were wet and therefore practically without any tribulations from fire.

As suggested in plans formerly submitted, it is the intention to extend the series of fire lines, thus far merely begun and thereby make the matter of fire patrol easier and more effective.

The protection of the Reserves against fire and still more against trespass emphasize the need of a survey and a clear demarcation of boundary lines and monuments. A fire may cover twenty acres of land, but it is impossible for the ranger to know whether the fire is on Reserve lands or not, and in order that he may properly report the fire it is necessary that he should spend no inconsiderable amount of time (exceedingly precious just about this time) to "locate" this twenty acres. In many cases where the lines and section corners have practically disappeared, this location with ordinary compass is impossible for untrained men and the report must remain uncertain, unreliable and useless.

With regard to trespass, it was hoped that a regular patrol of rangers would entirely eliminate this mischief, something very much to be desired, for a better understanding and relation between the Forest Reserve and the surrounding people.

As matters stand it is fair to say that seven of the eleven cases thus far experienced were directly due to a lack of demarcation of the lands, and were error rather than bad intention and even those cases where evil intent was evident would, in all probability, not have happened had the lands been clearly marked.

Of the six cases which happened within the year, only one was of a serious nature, involving the destruction of a considerable amount of thrifty, live timber, and this case is now before the court for decision. The other five cases involved but few trees each and in not case led to the destruction of any young growth or valuable green timber.

In this connection it seems proper to mention the change of sentiment and attitude of the people about the Reserves and to acknowledge the helpful spirit with which they have assisted in the matter of protection, notably the protection against fires. Men who at first bitterly opposed the creation of these Reserves have helped for days and free of charge in preventing and fighting fires. Town officials and other representative citizens speak their approval of the protective work of the Commission and have offered their help. Much of this change for the better in attitude and sentiment is undoubtedly due to a better understanding of the real objects and methods of the Reserves; but much also is due to the fact that, at last, the State of Michigan itself appears to care something about this matter. As long as the State did not see fit to even examine the lands and learn what it had, as long as these lands were a sort of football to be kicked about any way at all, as long as no value was placed on the land nor the cover of woods, so long the people could not help but think these lands valueless. And years of this kind of carelessness on the part of the State have developed and fixed a very serious state of mind among the people of our north counties, a feeling which sanctions fire and trespass, much to the detriment not only of the property of the State but also of private owners. In a district where State woods are a proper thing to burn and plunder,

the woods of a private owner is not likely to fare much better.

Reforestation

The work of re-stocking denuded portions of the lands was continued both along the regular (practical or commercial) as well as experimental lines. The idea of re-clothing the lands with a valuable forest has received first attention but all along it is realized that much may be gained for the Reserves and for other enterprises in this region, by trying species not native to the locality and by various ways of propagating the species at home on these lands. Plantations were made in the spring of 1904 and 1905. These plantations, as reported before, were all made in Section 36 of T 25 N, R 4 W, near Higgins' lake. They were made on ordinary cut and burned over pinery lands, covered to quite an extent by great quantities of debris, old rotten logs and stumps and by a broken ground cover of small shrubbery, together with patches of larger shrubs and small trees of oak, few poplar, maple, cherry, etc. Both years the plants were set out by a crew of men working in pairs, one to cut open a spot about 18x18 inches and dig the hole for the tree, and the other man, with the small trees in a pail to do the planting.

The material used was all purchased from different nurseries and therefore suffered from handling, counting, packing, shipping, etc. This material consisted of:

| PLANTATIONS. | 1904. | 1905. |
|--------------------|------------------|------------------|
| | 1,000 plants. | 1,000 plants. |
| White pine..... | 30 | 30 |
| Scotch pine..... | 10 | 10 |
| Norway spruce..... | 10 | 10 |
| Black locust..... | 1 | 10 |
| Austrian pine..... | | 5 |
| Catalpa..... | | 5 |
| Cottonwood..... | | 9 |

Besides these there were planted in the nursery:

| | |
|-------------------------------|-------|
| Douglas spruce (red fir)..... | 1,000 |
| Western yellow pine..... | 1,000 |
| Blue spruce..... | 500 |

and a few of the different kinds listed above.

Of the trees set out in 1904, the Scotch pine did best, full 90 per cent being alive and this year's growth averaging about six inches for each plant. The white pine and Norway spruce had suffered in handling and the harm was increased by a dry planting season. The white pine made little growth, but still about 60 to 70 per cent are alive at present. The Norway spruce fared hardest, not over 50 per cent being alive at present, but those which survived made generally a pretty fair growth. Black locust all lives, and though it killed back during the winter, it promises fair to make wood.

The plantation of this year (1905) fared better than did that of last year, the plant stock with the exception of cottonwood, suffered less in handling and the season was better, both for planting and after. In this year's planting the white pine held its own with the Scotch pine, the per cent of living plants being high for both. The catalpa, of special interest here on account of climate and soil, both being very severe

for this species, did not do well. The plants live, but the growth and foliage both indicate a severe struggle. Whether they will improve with time is impossible to foretell.

The cottonwood was largely a failure in the field, chiefly due to poor quality of plant stock. Those planted in nursery fared somewhat better.

In the nursery the black locust made a fine growth and fully demonstrated what it can do. The nursery was intended to serve several purposes, but principally to furnish larger plants for special cases and to check the field plantations by showing, in close compass, what the different species may be expected to do in this region.

In the seed beds, as in the plantation, chief attention is paid to white pine and other species whose value for these pinery lands is beyond question.

Thus far twenty-five species of trees are represented here, namely:

White pine, Norway pine, Scotch pine, Jack pine, Western yellow pine, pitch pine, sugar pine, nut pine, Western white pine, Norway spruce, white spruce, blue spruce, Sitka spruce, white cedar, Western arbor vitae, silver fir, balsam, hemlock, Deodar cedar, cryptomeria, big tree, catalpa, black locust, honey locust, walnut.

Most of these trees are well known, a few need some explanation. The Scotch pine is used here because of its enormous range throughout the north of Europe and its frugal habits on the poorest of sands, would indicate it to be a valuable tree for this region. The Western yellow pine is a tree common all over the West, except portions of the west and northwest of Oregon and Washington. It is a tree of hot and cold districts, of dry and moist localities and seems to get on with a great variety of soils. Pitch pine, the small pine of the North Atlantic coast, notably New Jersey, also is a tree of poor sandy soils and may possibly prove of some value. The sugar pine and Western white pine resemble our own white pine in size, growth and wood and may possibly prove of value. The Norway spruce, white and Sitka spruce have all proved their worth in the forest districts of North Germany, and the Norway spruce has been demonstrated by Dr. Beal's experiments at Grayling to make good growth. The Western white cedar, the Deodar, a native of Judea, and the cryptomeria, the common Japanese timber cedar, are all trees of good growth, good size, fine wood, and used to rugged climate, so that these, too, may prove valuable.

The catalpa and locusts are intended for quick producers of small timber, post and tie material. The big tree is tried here as a curiosity as well as experiment. Should it thrive it could not possibly be excelled for growth or value of timber.

Generally the plants have done well. There has been but a little damping off among the pines; the Scotch and white, Norway and pitch pine sown in 1904 are ready to go out next spring. The spruce needs one more year in seed bed. Catalpa and black locust did well, honey locust came up sparingly. All three are ready for the field. Walnut planted in 1903 is still small and with little promise. All conifers are raised under screens; the hardwoods without. Of screens various forms are used. Large 4x12 feet screens were largely used in 1904; this year mostly lighter frames were made; the spruce were grown under overhead screens with bush cover. A pump with windmill and tank erected in the nursery this spring has saved almost its entire cost in the first year, the watering being more regular and satisfactory and cheap. A conservative estimate places the number

of plants at about 1.5 millions and about half a million of these now of two years growth.

The season of 1905 was a most excellent one, not only for nursery and plantations, but also for the natural re-stocking which is taking place all over the Reserve. Young trees are springing up everywhere in surprising number, though unfortunately the reproduction of pine and other conifers (except Tamarack, cedar and other swamp timbers) is still quite slow owing to the lack of seed trees, practically all of the old trees having been removed or destroyed by fire.

The growth of existing timber, benefited by the good season, and acres of land where but a sparse growth of small, scattering sprouts of oak existed a few years ago, are fast growing into compact stands of decidedly "woody" appearance.

As offset to the excellent season, came considerable insect depredation. The oaks suffered from leaf-eating insects in nearly all parts of the Reserves, and the Tamarack was seriously infested by the larvae of the Tamarack saw-fly which practically defoliated many of the older stands. This latter trouble is likely to return and steps are taken to begin the exploitation of such stands as seem especially exposed to this danger.

The question is sometimes asked, Why plant, why not sow? Why not leave the matter to Nature altogether? As regards sowing and planting, it may be said that both methods will be used as soon as good seed can be had cheap enough to make sowing the cheaper method. With Norway pine seed quoted at \$7.00 per pound, one is slow to scatter pounds and pounds of seed per acre with the full understanding that about 95 per cent of the seed is eaten up or falls where it can do no good.

As regards the artificial re-stocking, on the whole, years of observation have convinced everyone at all conversant with the conditions here dealt with that the law was wisely framed when it demands that active effort be made to help Nature. Man has destroyed here long enough; it is time to help. Of the thousands of acres practically bare of any forest growth, a large part would remain bare and unproductive for many decades and yet every section of bare land requires protection against fire, costs money to survey, to travel over, to build roads through, in short, adds to the cost of management. It is clear, therefore, that the sooner these lands be made productive, the better and the more economical. It is exactly the case of the farm; neglected fields, patches of wasteland save lots of money, they cost no plowing, no sowing; but they also cost no reaping and the farmer owning them is rarely praised for his economy.

Survey and Classification of the Lands

The law creating the forest reserves prescribes that the lands shall be surveyed and examined. Occasionally the wisdom of doing so is called in question. "What is the use of spending money to survey lands that have so little value?" To appreciate this work it is necessary to keep in mind the present condition of the lands and the work to be done in their care and improvement. The survey of most of these lands was made about fifty years ago. At that time the lines were amply "blazed" on the forest trees abundant everywhere. The corners were set and witness or bearing trees were given the large, conspicuous marks prescribed by the U. S. Land Office rules and laws. After this came the era of lumbering, the large trees were cut, the cutting had little or no regard for line trees and monuments, for in only too many cases

the matter was left in careless hands, to say the least. Then came fire, and usually a second fire and by this time there was but little left of any of the land marks. Today there is no section line which might be traced by the land marks or blazes and there is not one corner in twenty in which is even approximately complete in its marks. The merest remnants must suffice for clues and no spot, no line, no corner can be located without instruments and considerable skill and experience. To the ordinary man standing in the midst of one of the large denuded areas, the idea of exact location is positively bewildering. Nor does the initiated fare so much better. "Oh, yes, Mr. X knows every corner in that town," the writer was informed but when Mr. X was taken out to locate them, he knew not a single one. Nor did anyone else know any corner of the town so that one could really be certain with regard to the matter. But the care of the Reserves requires that the ranger protect the W 1-2 of Section 6 of T-R-, or it requires that he assign the timber on the S. W. 1-4 of N. E. 1-4 of Section 7, T-R-. But how is he to do this if the section lines and corners are gone? Why, he must *survey*. After that it may happen that a fire breaks out, that trespass occurs on this same section and the question is: Is it on Reserve lands? To ascertain, he again surveys. And it is in this way that all of the north of Michigan has been located and re-located, most of it many times and no end of money wasted in surveying and re-surveying, to say nothing of the hundreds of lawsuits; all because there were no land marks kept up by which people could go. But the Reserve work requires more. The land shall be re-stocked, fire lines shall be built, roads and trails established, and all should be planned to do the most good to the lands in hand. To do any of this work as it should be done, the lands must be located on the ground and the maps made to show the land on paper. Such marks are not in existence and such maps must yet be made; and it is to supply this most urgent need that the survey is made.

For three seasons during the months of July, August and September this work has been carried on. Thus far about 28,000 acres have been surveyed at a cost of about 7 1-2 cents per acre. The work was mostly done by forestry students of the University and Agricultural College receiving \$20.00 and board per month, since some training in botany, forest description as well as mapping is essential and experienced men of this kind are not easily nor cheaply procured.

In working, one crew locates the section lines and corners, blazes and erects monuments along these lines. This was done with large compass the first two seasons, with transit in 1905. Two crews do the interior work of mapping and describing. They work north and south and each "forty," or forty acre tract, is examined along the east and west lines and along a line running through the middle. This covers the area in such a manner that in mapping and describing the crew never describes forest or land more than 110 yards from the line along which they travel, so that it is literally true that they "see every acre" (a phrase so much used and so rarely true). The distances are measured (not paced) and the changes in level are taken with a height measure. The lines are run with sight compass with three and a half inch needle levels and mounted on Jacob staff.

The section is divided into eight lots by lines blazed by this mapping crew, each lot forming an 80 acre tract and either the east or the west half of the regular quarter section.

The mapping is done on a scale of 1 to 5,280 (1 foot

to 1 mile), occasionally 1 to 2,640. The map shows the boundaries of lots, sections, topography, streams, roads, buildings, clearings, denuded lands, wooded lands, bare swamp, wooded swamp, burns; and by special characters the kind of timber, conifer or hardwoods, and by figures and letters the quality of the land, the density of the woods and the proportion of different kinds, such as pine, oak, poplar, etc.

The description and maps were made in note books the first two seasons, but special sheets for maps and descriptions were used this season (1905). The following is a sample and indicates the information collected. The timber is estimated, occasionally measured.

The final maps are made on a scale of 1 foot to the mile (1—5280) so that the ordinary section appears as a map of 1 square foot. The descriptions are copied and tabulated so that each lot receives its own description. For convenience, a summary is made for each section.

Grazing, Grass and Sale of Timber

In view of the fact that a large portion of the Reserve lands is still in a truly denuded, non-wooded condition, covered with a growth of small shrubbery, notably sweetfern, honeysuckle, huckleberry, etc., together with bracken, sedges and some weeds and grass, it was decided that a limited amount of grazing might be very properly permitted. This seemed all the more feasible since but a small number of live stock is kept by the scattering settlers in and about the Reserves. Accordingly the rule was established to allow any settler to graze his stock free of charge, as long as the number of animals was twenty or less, and to charge a moderate fee per head if the number was greater. The understanding is that the ranger shall see to it that a proper distribution of the animals be made, that they are not "bunched" and thereby cause damage; and also that the ranger shall incidentally assist the settlers by keeping an eye on the stock and prevent their injury or loss. Only one large herd of cattle has thus far been allowed on the Reserves and this largely for the reason that these animals graze a large part of the time off the Reserves.

So far no evil effects have been noticed from grazing except in parts of District No. 1 where the herd just mentioned were "bunched" in the spring of 1904 in order to feed them hay hauled in at great expense. This was a case of emergency, proving a great loss to the owner and may not repeat itself in many years. Otherwise the few cattle scattered over the large area find plenty of feed and have as yet done no serious harm. Nevertheless, it should not be inferred that grazing is harmless to tree or forest growth. Every cow on the Reserves injures every year hundreds of little trees, especially poplar, etc., by browsing and trampling, and wherever cattle begin to make a regular run the forest cover suffers. That this is worse on plantations is self-evident and it is one of the questions whether any grazing should be allowed in the vicinity where planting is carried on. Only six permits were issued in 1905, five of them free of charge, one for the sum of \$100. The time is usually from April to October and permits are good for one season only.

The grass growing on the wet, open marshes unfit for tree growth is occasionally applied for by the neighboring settlers. This grass is of some value as feed and if not cut, merely dies down and gradually develops a dangerous mass of fuel. Moreover, these marshes are capable of considerable improvement and

it seems desirable to have them utilized and cut regularly. Accordingly some of this grass has been given free of charge to neighboring settlers; in other cases where competition exists a small charge is made, and in one case it was cut on shares. During the year two permits were issued free of charge and one for a nominal fee; and in two cases hay was sold which had been cut on shares.

Timber has been applied for from time to time by people of the district, who still look to the forest (or rather, the remnant still left) for the major part of their support. The material under consideration consists largely of the dead cedar of the swamps and the dry old pine "stubs" scattered about the upland. Both pine and cedar were killed by fire and are now in all conditions and stages of decay. This material is exploited in this district in a small way by small crews, often only three or four men together, and the work is largely by hand, in a manner suggesting European methods. There is no slashing of broad avenues to admit the large teams and sleighs; four foot paths suffice for the little "travois" and everything is carried by hand to these little paths. In this way old sticks of cedar, dead and blown down, twenty and more years ago, are carefully picked out of the thickets of young timber and the woods are left in better shape and far more safe from fire. The cedar is worked up into 8 foot lengths, the pine into regular logs.

So far eighteen applications have been made, six were refused, one abandoned and eleven were granted. These eighteen applications, eleven fall to the fiscal year 1904-05, indicating that the people are just beginning to avail themselves of these methods. The timber is sold in two ways as per regulations approved by the Commission and contained in the Forest Reserve Manual. Smaller cases involving values of \$50.00 and less are granted by the warden, larger cases are approved by the Commission. Full jurisdiction and control is reserved and in cases of violation of the rules of the Reserves, the forest officer is authorized to stop further cutting.

All timber is scaled or counted and stamped by the ranger and is paid for before removal. During the last fiscal year \$731.81 were received from this source from District No. 2, this amount more than covering the regular expenses of this part of the Reserves. This fact is very important and suggestive, for it clearly teaches that if the State had begun fifteen or twenty years ago when so much more material was still on these lands, and handled its tax title lands in this manner, that the income could easily have paid for a thorough fire protection and thus saved the burning of hundreds of thousands of acres of woodlands.

Permanent Improvements

The headquarters at Cold Springs was cleaned up and the tract (over 60 acres) fenced. A frame shed 50x26 was built for the care of wagons, tools and seeds; and also to serve for seed cleaning; and as "men's quarters" for the accommodation of planting crews. A much needed barn has just been completed. In District No. 2 some money was expended in the improvement of the rangers' headquarters and also in the construction of a piece of road extending south along the range line between T 21-3 and 21-4, from the middle of Section 6 southward to connect the rangers' quarters with the upland to the south and thereby facilitate patrol work.

The equipment of the Reserves has not been increased materially during the year.

The expenses of the year were as follows:

| | |
|--|------------|
| Salaries of warden, forester, and two rangers..... | \$2,820 00 |
| Materials and labor on reserves as submitted in 44 bills.. | 3 959 93 |

The remaining \$720.07 of the appropriation (\$7,500 per year) were almost entirely expended in printing the forms of report, contract, permits, etc., and for the issue of the Forest Reserve Manual.

Classified, the above expenses, exclusive of salaries of warden and forester, were as follows:

| | |
|---|----------|
| Administration..... | \$245 11 |
| Protection, rangers and extra help..... | 1,284 08 |
| Reforestation, plants, provisions, labor..... | 1,386 94 |
| Survey of lands..... | 506 26 |
| Equipment, sleighs, tools, etc..... | 116 03 |
| General expenses, horse feed, etc..... | 360 32 |
| Permanent improvements, roads, and buildings..... | 892 19 |
| Purchase of lands..... | 200 00 |

The *General Plan* for the near future as outlined before and approved by the Commission, contemplates the following:

1. Continuation of the protective work and its improvement by increase in help and the construction of fire lines.

2. Continuation of the work of reforestation and its extension as fast as the funds, thus far needed in purchase of lands, in building and survey, can be diverted to this most important work of re-stocking and improving the lands.

3. The continuation and completion of the survey and the gradual improvement of lines and monuments by the protective force.

Ann Arbor, November 1, 1905.

The Prophecy of the Tree

O, thou wondrous being
Made in Jehovah's image
Who calleth thyself man!

With a song thou liftest thy brawny arms
And the axe sinks into my heart.
Know thou, O vain and boastful one
Who laugheth as I fall beneath thy stroke
When thy body shall have crumbled into dust,
I will form the threshold of a home
Where tender woman croons a lullaby
To sleeping babes encradled in my arms.
When the waving grass above thy head
Sighs in forgotten desolation,
My sturdy planks will stand between
Thy sons and the horrors of the deep.
When thy very name is banished from men's lips
From altars hewn from me, will incense rise
To the everlasting God.

—Idah McGlone Gibson.



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