vegetables for cooking, in fact they do everything that a girl should do to help her mother and they do it willingly, being placed off in sections, some of them excelling even in this work and if you want to know why we do it and want to know what good it will do them, as a lady asked me, I said it was good for them and the only reason I could give was that if the fellow ever married, he would learn to sympathize with his wife.

The President: Before we adjourn, I would say that this is a very worthy enterprise. A good citizen is worth a great deal of money and if we can help to make good citizens, we are helping the state to become richer, and the nation. I am sure that any assistance that we can give this institution will be gratefully received.

FORESTRY CONDITIONS IN WISCONSIN.

E. M. Griffith, State Forester.

Mr. Griffith: My subject was assigned me "Forestry Conditions in Wisconsin," but, as you all know, forestry work in Wisconsin is rather new, and so in the few minutes that I will speak before I commence with the slides, I am going to explain something about the whole forestry movement in this country, with your permission, as in that way you will get an idea of what has been leading up to it in this state.

In the first place, I want to emphasize what forestry is. A great many people have the idea that it is associated with landscape gardening. It is not at all. Forestry is the conservative management of forests so as to secure successive crops of timber, the idea being to cut conservatively and so always have something to cut, in other words, treating the forest as if it is a crop, as it is, instead of cutting it all at one time and thereby destroying it.

You probably know that forestry is a very old profession abroad; it has been practiced there for hundreds of years. If you travel in Germany, France, Russia, England, if you go to India, if you go to Japan, you will find the forests carefully managed both by the government and by individual owners. All those countries have realized that there is a certain part of their country which is suitable for agriculture and another part of it which is only suitable for the growth of trees, and they know very well that if the forests are destroyed that the watersheds of the country very soon cease to be protected. You will
find that condition in India, you find it in China, as I will point out to you later, you can see for yourselves as the slides are shown on the screen.

Forestry in this country has only been practiced for about ten years. It was first started by the national government under the administration of President Cleveland and he commenced by setting aside, that is, withdrawing government lands in the west, notably in the Rocky Mountains and the Sierras and setting those aside as forest reserves. There was a storm of protest in the west from the lumbermen, cattlemen and miners, because they did not understand what the movement was, because they thought forest reserves simply meant parks where people could amuse themselves, where eastern men could go to hunt. The opposition was so strong that congress at one time abolished the reserves, but they were again created by Cleveland, who established more; McKinley kept up the work and Roosevelt has pushed it very strenuously, as he does all things. It is interesting to foresters to see how public opinion has swung around; instead of there being opposition, it is amusing to see how the miners and cattle owners of the west are petitioning the government from time to time to add more land to the forest reservations, particularly the ranchers, because they find the protection of those forest means that they will have water in the low land that can be used for irrigation.

I want to touch upon a tremendous work that the government is doing in the west, that is, in irrigation, which should certainly interest this Society, because it means, as the Geological Survey promises, that the land between the Mississippi and the Rocky Mountains will support double the population that is living there at the present time. As the geologists look over the land that can be irrigated, thousands of acres of land which now is only supporting sage brush and cactus, they find that much of it can be irrigated from the great rivers, and you, gentlemen, would be astounded to see the productiveness of that land as soon as irrigation is applied. The orchards on those lands are the most magnificent I have ever seen, but what the Geographical Survey of course particularly appreciates is that the first thing they must be assured of is a permanent supply of water, so they have worked hand in hand with the forest service and they have asked the President to set aside such lands as will further these projects of irrigation. It is a tremendous work that is being done there in the west. I just received an announcement from Washington today giving the areas of the forest reserves as they are being increased every month. I see that last month they were increased by over a million acres.
Today there are 128,000,000 acres of forest reserves in the United States. The work is on a tremendous scale. Ten years ago I do not suppose there were to exceed twenty foresters in this country, now the Forest Service has over 3,000 trained men on the forest reserves and the forester is clamoring for more men all the time; to properly man those reserves they would need 20,000 men and the receipts are simply astonishing. They have said to congress, “If you allow us to manage those reserves as they should be managed to get them in proper shape, we will promise in four years we will not ask for any appropriation.” And the promise is going to be fulfilled. It was upon the invitation of the people of the west that the open ranges were all put under the Forest Service, so that the Forest Service can rent, lease and take charge of the open range for the government. The use of the timber, the protection of the stream and also the agricultural land within the forest reserves, all go together.

To pass rapidly from what the government has done to what the states have done,—New York state has been most active in forest work. We all know that there is a tremendous demand in New York that something be done to stop the cutting of timber around the head waters of the Hudson river; it came from the captains of boats on the Hudson river who found they could not navigate the river because the water was getting so low and they asked the state to forbid the cutting of timber within ten rods of the banks of the river. The legislature looked into the matter, and they said that that would not cure the evil, that they must go to work and purchase land and create a large reserve. New York was not so fortunate as Wisconsin in that all state lands had been sold and lands which they had sold at about twenty-five cents an acre they were glad to buy back and were very fortunate to get at three dollars, so that today New York has a forest reserve of one and a half million acres and the people are clamoring to have the whole Adirondack region purchased. Pennsylvania comes next with a reservation of 700,000 acres and Wisconsin now ranks third in area, we have in our forest reserves 274,000 acres. The state of Michigan has 40,000 acres and Minnesota about the same amount, including her large parks, which are really forest reserves. As President Roosevelt has said to congress, it is the biggest problem before this nation today, there is no use in dodging the issue, there is going to be a timber famine in this country, we cannot help it because we are cutting far and away in excess of the amount that is grown. They figure today that there are two hundred billion feet of timber standing in the
Cattle feeding on young sprouts in a wood lot. Illustrating "Forestry," by E. M. Griffith. This and following photographs are reproduced by permission of the Forest Service, Washington, D. C.
country and our rate of consumption is such that within fifty years practically the supply will be gone. The amount of cutting is not so bad as the amount that is destroyed annually by forest fires. That is the tremendous thing. I want to read just a word that President Roosevelt said in one of his latest messages to congress on this subject:

“You all know, and especially those of you from the west, the individual whose idea of developing the country is to cut every stick of timber off of it and then leave a barren desert for the homemaker who comes in after him. That man is a curse and not a blessing to the country. The prop of the country must be the business man who intends so to run his business that it will be profitable for his children after him. That is the type of business that it is worth while to develop. The time of indifference and misunderstanding has gone by. If the present rate of forest destruction is allowed to go on with nothing to offset it, a timber famine in the near future is inevitable. Fire, wasteful and destructive forms of lumbering and the legitimate use taken together are destroying our forest resources far more rapidly than they are being replaced. It is difficult to imagine what such a timber famine would mean to our resources and the period of recovery from the injuries which a timber famine would entail would be measured by the slow growth of the trees themselves. You have got to act in time or else the Nation would have to submit to prolonged suffering after it had become too late for forethought to avail.”

The two points I want to call your attention to in this,—because President Roosevelt, as you know, is so remarkable for hitting the nail on the head in nearly every subject he takes up, and he does know forestry because he knows the west and he appreciates the need for it—there are two points he has emphasized very well. One is that after the timber famine has come you have to wait for the slow growth of the trees themselves before you can rectify the mistake. When you come to think, it is about the only great resource we have that is in our own hands to manage, or mismanage, as we please. When we take out the coal, that is expendable, we cannot make any more coal; when we take out the oil, we cannot make any more oil, and the same with iron and gold and silver, but we can manage our forests so that we can always have a supply of timber. And the second point is, that terrible destruction that is left by lumbering which means a barren desert for the homemaker that comes after, that is a thing that you from the northern part of the state will, I am sure, appreciate.

In Wisconsin the forestry movement commenced in 1903.
The legislature passed a bill providing that all the state lands should be set aside as a forest reserve and afterwards in committee they tried to better it with a bill providing for the sale of the lands and it got badly mixed, so that it provided both that the lands should be in the forest reserve and sold at the same time, so that the attorney general and others said that the best thing to do was to pass another bill at the next session of the legislature, and at the last session in 1905 we introduced a bill and the legislature passed it and it has been pronounced the best forestry bill in the United States, and it ought to be, because we had the experience of other states to guide us. The legislature was extremely generous to us, they gave us all the land which the state owns north of town 33 and provided that it should be in the forest reserve; that amounts to 254,000 acres and at the last session of congress the federal government granted us 20,000 acres to be added to the forest reserve. The provisions in our state forestry bill are broad. In the first place, one of the underlying principles of forestry is that you must not take any lands for forest that are suitable for agriculture. The reason for that is that in any country and state there is land that is only suitable for forest and not for agriculture. A good many land agents will tell you that it is not so, that a whole state and county is a perfect garden of Eden and that the whole state is fit for agriculture. I only wish that was so, but we have not found that so in our experience. The forestry bill provides that we may sell agricultural or scattered lands and that the proceeds shall go into the forestry fund and the money expended for more lands. We have now in Oneida county a fairly solid patch of 100,000 acres and we hope to add to it until we can get to the point where we will protect the flow of the Wisconsin river and also largely the Chippewa on account of the two branches of the Flambeau river that head up into that forest reserve, because that is the main reason for forestry work in this state. You all know what a wonderful lumbering state Wisconsin was. You know what a magnificent stretch of forest we had through the northern part of the state and you know the wealth that came to the lumbermen and the reason they became so wealthy, more than in many other states was because they had this magnificent net work of rivers on which to float their logs; it was child’s play compared with the work in some of the eastern states. Now, that network of rivers means that Wisconsin has magnificent water powers and as the lumber disappears, the state will go to manufacturing. Last year the geological survey found over 100,000 available horse power between the dam at Kilbourn and Grandfather
Two freshly turned furrows completely checked progress of the surface fire.
Rapids. That is on one river, but this river, our great river of the Wisconsin, will not be very valuable for manufacturing plants unless we can assure the men that come in and build mills that the flow will be uniform and that is what the forests do, they act as a great sponge in holding the moisture and giving it off gradually.

You have often heard the claim made that forests affect climate, that they bring on rainfall. That is one of the very rare things forests will do under extreme conditions. I have seen myself, in arid plains, under extreme heat, where it was too dry and hot for a drop to fall, but when the clouds got over the cooling forests, they would drop their moisture. In Wisconsin, surrounded as we are by great lakes, I think that the influence of the forest in that regard is so small that it may be left out of consideration. But here is the important point. In the spring you will find the snow banks hanging on in the woods after they have long since disappeared in the open field and the water, is soaked into the humus, and works down gradually through the surface and is carried off in underground streams, so that you will find the streams in forests are uniform throughout the year but streams which arise in cut-over countries are subject to terrible, violent floods after heavy rains or snows and sink to a mere trickle in the summer months, and of course it is important to manufacturers that the flow be uniform. That is the main object of forest reserves in Wisconsin. It is to protect the headwaters of our important streams, and, second, to insure a supply of raw material to those people who are going to use those water powers. People have said, "Why don't you take the money and buy hardwood lands? and I say, "Hardwood land is on areas where there is good soil and that ought to be used for agriculture and the hardwood areas are not on the watersheds of important rivers and as we want to preserve the uniform flow of rivers we take the land that is cut over and unsuitable for agriculture." We have as I said, three forest reserves, one on the headwaters of the Wisconsin and Chippewa, another along the St. Croix river in Burnett and Douglas counties and a third, which will also be a public park, on the Brule river in Douglas county. I do not know if any of you know the Brule river, but it is considered one of the most beautiful streams in the state and there we expect to have a fine forest reserve and park. I can show you the different features of forestry as we go along with the slides.
SLIDES.

This photograph was taken in Germany, in the Black Forest; you will notice how closely the trees stand. This forest has been brought into that fine condition by careful cutting and as you all know if trees are obliged to grow densely, they must shoot up without forming side branches, consequently, if you keep the timber crowded, you get long, clear, straight logs. You see that exemplified here, because the trees that are getting side light are branched out. If the light strikes dormant buds on the trees, they will develop.

I put in here a few slides showing you the typical forests as they formerly existed in Northern Wisconsin. This is an example of a virgin white pine forest such as formerly covered the northern counties of our state, but has now become so scarce that a number of gentlemen have requested us to keep a small area of forest like that so that people in fifteen years to come could see what a good big white pine looked like. The rise in stumpage values in Wisconsin has been perfectly enormous and that has led to much more careful cutting in the present than it used to be. An enormous amount was left in those days which would be taken today and the slash which was left caused such severe forest fires that everything was destroyed.

This is the Norway pine of Wisconsin and it is very seldom today that we see long, clear, beautiful trees like this. Those were grown under the crowded conditions and that accounts for their shape.

Here we have the hemlock forest, which is playing so important a part in the state. The white pine is only valuable for its lumber, but the hemlock is not only valuable for its lumber, it is extremely valuable for its paper pulp and also its bark is important in tanning. The supply of hemlock in Wisconsin is very limited and therefore there is all the more necessity that the supply shall be carefully handled, because, in the future, if our paper mills do not have hemlock, it is very difficult to know what they are going to turn to.

The hardwood forests have been operated in only very heavily during the last few years. We have sections in the state in Oconto county, in Forest county and in Polke county, where we have magnificent stretches of the hardwood forest just the same as you see here. Those forests are fairly well protected from forest fires as compared to the coniferous forests which have already been destroyed.

This shows the last class of timber in Wisconsin to be oper-
ated upon very heavily—the much despised jack pine of a few years ago. It is now being cut by some mills and put in with white pine, but I think its value in the future is going to lie very largely for fence posts and particularly for ties. The railroads in the country are finding that the tie supply is one of the most important things which they have to face and in order to help out their supply they are beginning to treat their ties with creosote and with zinc chloride or sulphate treatment. They find that these very porous sappy pines make the best ties of all on account of their pores, because the treatment goes right through them and consequently they will last much longer than a very valuable white pine. You may have read in the papers that a good many railroads are now planting their tie timber; the Pennsylvania road is planting thousands of acres; Dean Henry told me just lately he had been on a trip to the East and as he went along the Pennsylvania road and saw those large tracts planted, he thought they were large orchards, but they are not, they are trees which the Pennsylvania are planting, looking to the future for their supply of ties.

Any of you who have been up in the lumbering region know what a slash is, that is the tops of trees which are left after lumbering operations, lying on the ground in the sun, they become thoroughly dried out and when a fire starts it destroys practically everything that is on the ground.

Here in the foreground is a large amount of slash and the lumber company operating on this tract had stopped right at this point, meaning to save this forest and cut it more conservately, but they did not dispose of their slash and you will see the result on the following slide.

This shows the ground taken at a close distance after the fire had run through. It killed everything and the standing dead trees were finally blown over and will furnish fuel for another fire.

This is what the President means by what the lumberman leaves for the homemaker. You see here land that has been repeatedly logged over and then burned. You can see the dead trees which eventually will be blown down and furnish fuel for future fires and those fires have been so severe that they have destroyed all the humus on the soil, and the humus is the most important thing, because it is the thing that the farmer could depend on as being the rich top soil and a fertilizer, and it has been burned, as you can see in the picture, right down to the white sand. There are millions of acres in this state and in Michigan and Minnesota which have been left in just that condition and it is an extremely serious question, not only for

12—Hort.
the counties in which they lie, but for the whole state as to what shall be done with it. The tendency of course for a land company that has cut-over lands which have been left in that condition is to try to settle them, but it is extremely important for the state that they should guide settlement upon lands where the settlers can have some hopes of being fairly successful, and it is not fair to take a man and put him on a tract where it is almost impossible for him to succeed. Now, there is good sand and poor sand, but where those sandy lands have been burned over repeatedly, time after time, there is very little if any fertility left in the soil. Such lands should be permanently held under forest and replanted and the sooner replanted the better it will be for everybody concerned.

This picture shows you how a tract has been left after it has been lumbered under forestry regulations. The definition of forestry is conservative lumbering, it is lumbering the tract so that you will have successive crops of timber and the forester comes in and takes out the mature timber, he harvests the crop that is ready to be harvested and leaves the young tree growth. You see the young growth has been left in good condition and here is the slash pile cut and ready to be burned. That was done by a company under the direction of the government.

In many cases, due to contracts or for other reasons, we can not oblige such a large amount of timber to be left, and as you know, if they were allowed to do so, most men in cutting would take everything. This is a picture taken on one of the Indian reservations in Wisconsin. The State Board of Forestry is cooperating with the Forestry Department in Washington to see that there will be some forests left in the future, in other words, to stop the slaughter of timber and the terrible fires. Those contracts were signed years ago, we can not oblige them to leave much timber, but we can oblige them to leave seed trees, so we go in and mark the trees which shall be left and in the foreground you can see the slash pile to be burned, making it impossible for those terrible fires to go through.

Wisconsin would have passed such a law many times if the lumbermen had not defeated such laws in the legislature—I am not blaming the lumbermen for everything, possibly business conditions demanded it to a large extent, but they often blame the state for not having enforced the rules, but the lumbermen came to Madison and to St. Paul and they defeated those bills in the legislature, but if they had been compelled to burn their slash, the fires which swept over the forests would have been impossible and the trees which were left would have seeded the ground.
"The desert which is left for the homemaker." Lumbered and burned over.
Here is a case of natural reproduction, thousands and thousands of young pine coming up. You have heard the statement that pine will not follow pine, that is absurd, pine will always follow pine if we do not let a fire in and destroy everything.

This picture was taken in the Black Hills, South Dakota, and you see the hills covered with young pine; the mature timber had all been destroyed by the mining companies, but back on the hills there were a few large pines left, and they carried seed until as you see, miles and miles of the young pine coming up. The pine cone opens during the heat of the day and may be open one day when the wind is in one direction and may be open again when the wind is in another direction, so that the seed is carried in all directions.

There are large areas which have been so cut and burned over that there is no hope of any natural growth coming up that amounts to anything and consequently we must go in and plant. That is being done very extensively all over the country. This is a view of a large government nursery in Kansas where, as far as man knows, they have never had a forest. They keep the pine in nursery beds until they are two years old and then they are transplanted. This shows you the trees as they are set out, they set them out as a rule twelve hundred to the acre. The cost, everything included, will not exceed $3.50 to $5.00 an acre, according to the region and species used, but I am talking of white pine and Norway pine, it appeals strongly to the government, because they are looking far into the future.

This is a plantation of white pine owned by an individual in Massachusetts. The white pine in Massachusetts is very valuable and the pine they are cutting is about this size and it is all going into box boards, they find it extremely profitable.

A feature of forest reserves that I have not spoken of at all is the great outdoor place that it will be for the people, not only of this state, but of the whole Mississippi valley. I told you that in the Adirondack region of New York they have a million and a half acres and as it is extremely popular the people of New York City go there for the summer, camping, fishing and hunting. They have hotels and boarding houses in the Adirondack region, 29,000 I think the figure is, and in 1905 193,000 people went there for pleasure and recreation. The receipts in New Hampshire one year from the summer tourist business were over $10,000,000. In Northern Wisconsin we have a lake region which is second, I do not think, to any in this country. We have in three or four counties in the northern part of the state over 1,200 lakes, magnificent lakes, and one great feature
of the forest movement will be to protect those beautiful lakes so that people can go to that region for rest and recreation.

This shows you what Minnesota is doing. You all know how desolate a lake is around which the timber has been felled, where the tops are lying and dead timber all around the edge, and so Minnesota is trying to keep at least a fringe of timber all around the lakes and we shall try to do the same thing in Northern Wisconsin. Where we have not money to buy land around the lakes, we can at least negotiate with the lumber companies to leave a fringe of timber.

These last two slides that I showed you I wish to say something on as to the matter of forestry applied to farm wood lots. The farmers of the country have only lately begun to realize how important a part of the farm the wood lot is, how much it means to them to handle their wood lot carefully, especially in the last few years when the rise in stumpage prices has been so rapid and extraordinary. Many men do not seem to stop to realize that a good tree takes up no more room in a wood lot than a poor one and the first thing they usually do, instead of going in and cutting out the dead and dying trees and then the crooked trees, they take out some of the live trees. The wood lot should be left in the very best growing condition, to make it produce as much as possible, just as you do any other crop. Here, for instance, is a wood lot that we managed in the northern part of New York state and the farmer that owned it wanted to reproduce to chestnut, so we left the large chestnut to reproduce and brought the whole wood lot into what we call an even aged condition, we cut down so that we get trees about the same size, or as near the same as we can, then they will all close up, and you will get a stand of trees similar to what we see in Germany. The question of wood lots in Northern Wisconsin to a farmer is important, because, as you appreciate, the farmers of Northern Wisconsin are in many cases quite as much lumbermen as they are farmers. I referred to the matter of forest fires a little while ago, my assistant has just been out attending the Farmers' Institutes, and he tells me one of the things that the farmers were most interested in was just that question of forest fires and he said it led to very heated discussions in many cases.

In the State Board of Forestry we have the appointment of fire wardens all over the state. In any town where we think it important we appoint fire wardens who serve only in their own towns, get no salary, are only paid for the time during which they post notices and fight fire and are paid by the town in which they are appointed. They send in reports after each
Grown in the open and so limby and of little value.
fire and also an annual report, giving the number of fires and
telling what the causes were. In the last three years we have
compiled all those figures and we find that from 68 to 76 per
cent. of all the fires in this state were caused by settlers burning
brush and clearing land, report after report would come in, re-
porting so many acres, sometimes a thousand acres burned over,
no damage done, young growth, that was all. Largely through
the increased value of timber the last few years, the farmers
have begun to realize that there is some damage to them from
the loss of that young growth, that it is extremely important,
and consequently in those Farmers' Institutes any farmers that
were known to be careless about fires were held up and given
a good rating, because that of course is a thing which should be
punished very severely, that is, where a man is needlessly care-
less about burning brush and burning slash and letting the fire
get away from him.

That slide shows you what that wood lot looked like a few
years after the big timber had been cut out. You see it is be-
ginning to close up, in other words, we are getting it into an
even aged condition. You see that more strikingly shown in
this picture; all the trees are of a more or less uniform size and
consequently you will get clearer timber, the timber makes a
greater yield and greater returns on the capital.

You will often hear people say that the cut over and burned
land is of no value, that it is simply a stand of poplar and aspen.
You will find in many cases that pine is springing up within
them. In this picture it shows a number of young pine trees
showing up between poplar. This represents the character of
many wood lots. In the first place, the timber is grown in the
open, consequently nothing but limbs, limbs mean knots, and
inferior lumber. The grass is growing all through that wood
lot and therefore the farmer is strongly tempted to graze his
cattle, and, gentlemen, you cannot have a good wood lot and
graze cattle at the same time. At least you must exclude your
cattle until the trees are above the height of cattle but if you
want to get the greatest returns from your wood lot you must ab-
solutely exclude all cattle.

Here is a case of another wood lot. You can see a large
amount of young growth, but through the forest are big,
mature trees. A tree which has reached this size is mature
anyway, the growth has come to be so slow that it is not yielding
a return on the capital such as it ought to. You can figure that
out with any growth of timber, you can find out when the rate
of growth has culminated and the time you ought to cut. When
you leave a tree of that size it is suppressing and keeping back the growth of ten to twelve others.

This shows a point which the farmers are beginning to appreciate, the enormous damage that is done by surface fires. This shows the effect of a surface fire that has burned through the wood lot and destroyed all the humus, taken away the fertility which it has taken one hundred years to put there and it has just burned enough to kill all those trees and the consequence is that the whole wood lot must be cut or else it will blow down and simply lie on the ground, an enormous mass of timber waiting for successive fires.

This is the sort of thing that makes a forester heartsick. That is where on a wood lot there is a fine young growth that has started up and then a surface fire from some adjoining land where a slash is left burns all that young growth which perhaps it has taken ten to fifteen years to establish, and when you burn timber of that sort you have nothing left to produce seed and when that is gone there is nothing left except to go in and plant artificially.

Here you see what the Agricultural Department tells me has occurred over a million acres in this state along the Mississippi river, that is where land has been so washed and gullied that it has been rendered unfit for cultivation. I heard a gentleman make a statement yesterday that struck me as very true, he said the counties along the Mississippi were paying greater taxes to the Mississippi than they were to the state, and county, and I believe that is true, in the large amount of soil that is washed in annually.

The result of such cutting of the steep slopes and erosion is sure to be seen on the lower reaches of the river. Here you see a river which has begun to overflow its banks and cover agricultural land with silt.

And here we have where that river after a year or two more of cuttings is leaving its banks more and more and is covering acres and acres and rendering land unfit for cultivation.

Here you see agricultural land entirely buried under sand. After a big snow on the headwaters, heavy rains coming on, the snow has been melting very rapidly in the early spring, it comes down with a rush, all the sand is washed into the river, the river leaves its banks and creates this tremendous damage all over the country.

Those pictures I showed you were taken in North Carolina, where cutting has been going on very heavily and where you may have noticed congress is now asked to purchase a large
Sand deposited on agricultural land by spring floods.
forest reserve in the Appalachian mountains. On account of the erosion the farmers are driven to cultivate on terraces so as to avoid erosion.

The following views I will show you are from China and you will see erosion carried to the extreme extent. Here you see the native pine similar to our pinus ponderosa which formerly grew all over China; now the forests of Northern China have been absolutely destroyed and you will see the results in the slides. This picture I put in to show the extremes to which Chinamen are driven on account of scarcity of timber. As you know, in China it is considered absolutely important that one's relatives, especially one's parents, be given as fine a burial as the funds of the family will permit, and they believe that they must always bury them in a good, substantial coffin. These men have gone a three-days' march way up into the mountains to find trees large enough from which they could whipsaw boards large enough to make coffins and they are now carrying them on their backs.

Here is a view which shows you more clearly what I have been talking about. This is a bed of a river rising in the mountains which has been stripped of all its timber. This view is taken in the summer months and you can see the bed of the river is absolutely dry, but you notice the high banks and you see the large rocks deposited, which will give you an idea of the terrible freshets which come down in the early months.

This shows you a scene in the foothills stripped of their forests; here is the valley of the river, just now a dry bed and the Chinese towns have a wall thirty to forty feet high to keep out the spring floods.

The Chinamen make the best of a very bad situation. This view is also taken in the bed of the river. He knows that the terrible freshet coming down in the spring is bringing all the best soil from the up-country and a great deal of that will settle there and consequently he takes rocks and builds little compounds which will hold that mud and when it settles down he has a little soil to cultivate during the coming summer.

The Chinamen are driven to what the Southern farmers are doing; they are building terraces on some of the land to cultivate on. They will go down into the valleys where they have a deep well sunken and they will carry up the water in two pails on a yoke and they will put it on with a dipper. That is common all over China and India, and I was tremendously impressed with the fact that the terrible famines of China and India are properly attributed to the destruction of the forest, because, as you know they are both agricultural countries with
an enormous territory dependent to a great extent upon irrigation and when the forests have been destroyed there is no water in the streams in the summer months when they need it more directly.

Mr. Griffith then spoke in behalf of the movement of setting aside the region around Devil's Lake for a state park and forest reserve.

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A PROSE POEM OF THE FOREST.

Alleetta F. Dean, Ph. M.

A twilight hour—

A cloudless sky of opal tints, pink and green and blue; against it the lofty pines slowly and majestically swaying in the gentle western wind. Here below, the sun is set, and yet up there a hundred feet and more, its light surrounds the tree-tops with a dim and tender halo. In its rays the Norway pines show faintly yellow; the white pines richer, deeper red. Near by, a spruce, not aspiring so high, makes delicate faint tracery against the tender brightness; the cedars, lower yet, dark and solid in the twilight, fill in the backgrounds.

These lovely pines! These great, grand, glorious pines! With ever-changing expression each more beautiful than the last. Their shafts rise clear, clean, tapering, to the lowest branches, which are forty, fifty, even sixty feet from the ground; those branches clothed with soft feathery needles. The Norways are somewhat stiff and angular in branch and leaf, but the beauty of the mast-like trunk in its red-brown covering compensates for the angular top. Norway or white pine, the fitting crowns are the clusters of cones that, so far up, look like great amber beads.

You should see these trees at midnight when the full moon silvers them with its white radiance. You should see them at early morn after a night of "frost shower," when the feathery snow has fallen so gently upon them from the cloudless sky, that not a flake has lost its bal-