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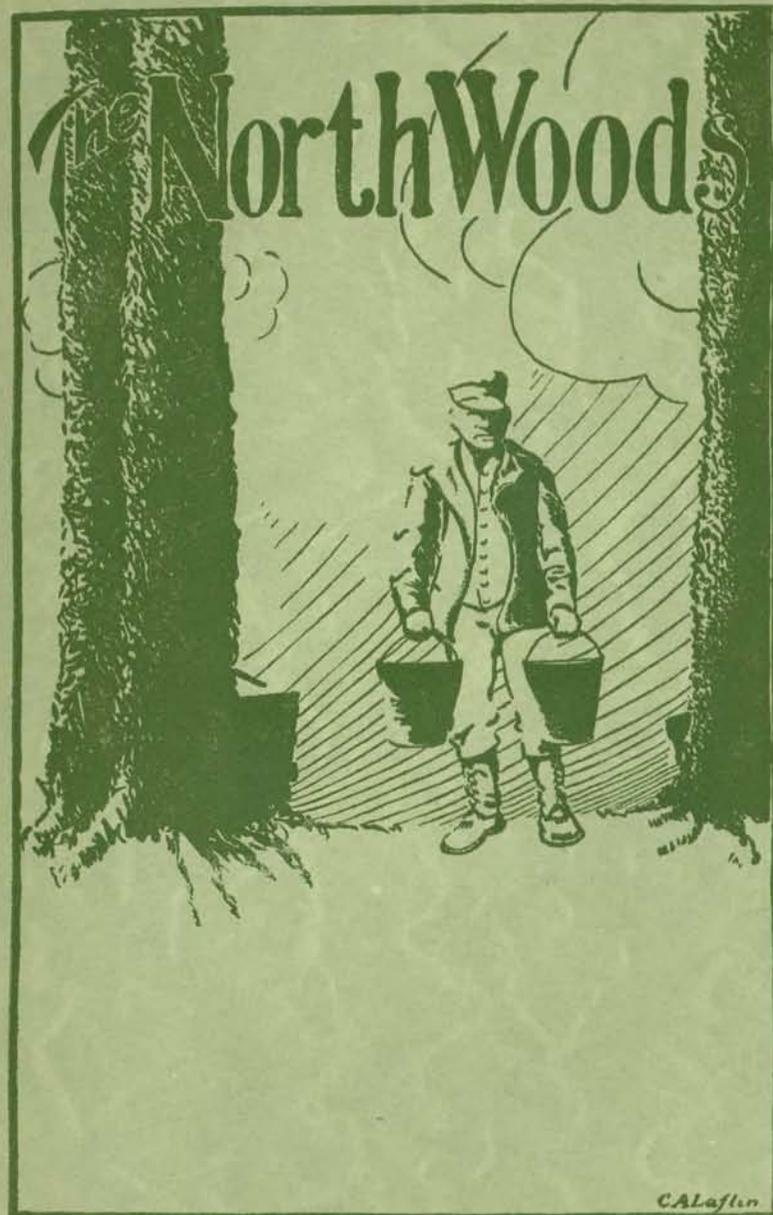
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APRIL, 1913

"Forest Schools the Foundation of Forest Wealth."

THE NORTH WOODS

Volume II.

APRIL, 1913

Number 4

A Recorder and Promoter of the Forestry Movement in Minnesota.

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AND THE STATE FOREST SERVICE.

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Forestry as a Profit Yielding Industry

By Dean A. F. Woods



THERE is a popular notion in the minds of many people that the forest is one of the great natural resources which is profitable only in using and that forestry consists in protecting from fire and cutting the trees into lumber. Up to the present this has been about the only kind of forestry practiced in the United States. It is, however, no more forestry than mowing and using the wild prairie grass is agriculture. Forestry is the propagation of tree crops for wood, either through natural reproduction or by planting. It takes from thirty to one hundred years to grow saw timber from seed. An increase in diameter of one inch in five to ten years, according to the species and conditions, is the average growth increment.

Use Three Times Our Production.

Under natural forest conditions this means on the average for all kinds of wood in the United States about twelve cubic feet per acre per annum. We are now cutting forty-two cubic feet per acre. We use therefore more than three times our production. Our present per capita use of wood is about 260 cubic feet. The per capita use is increasing all over the world. The price of lumber is increasing rapidly and in the better woods it has now reached a point where it is profitable to practice scientific forestry somewhat as they do in European countries. While we produce on an average twelve cubic feet per acre per annum, Germany averages thirty-eight, Saxony ninety-three, Switzerland fifty, and France forty. In many of the oldest and richest sections of South Germany it has become more profitable to grow forest crops than the ordinary agricultural crops on land in every way well suited to agriculture.

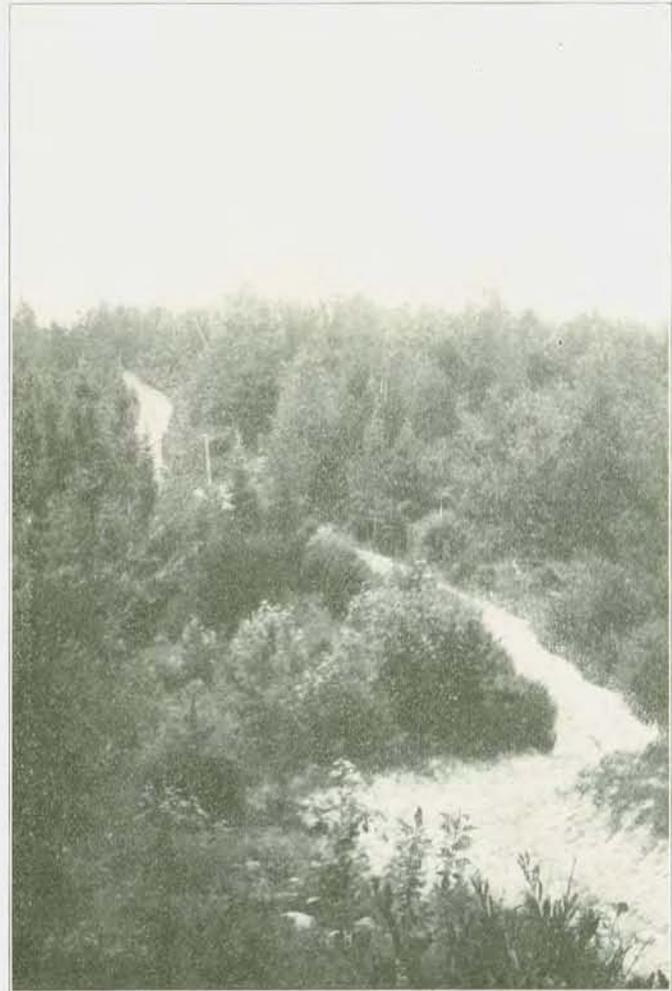


A Road Makes the Best Kind of Fire Line Through the Forest.
Photo Taken in Park Rapids District.

Forestry More Profitable Than Agriculture.

The great North German plain, in the region of Kreuzt, a few hours east of Berlin, is now being rapidly reforested. Forestry has been found more profitable than agriculture in the sandy soils of that region. The same is true of much of the sandy land of Northern Michigan. It is also true of the more sandy lands of North Central Minnesota and Wisconsin. Much cut-over land in all three of these states, now being sold for agriculture, should never be used for that purpose. It should be kept in forest or if destroyed should be reforested. It will yield a good profit in trees and at most a bare living in other crops.

A soil classification survey is necessary before these acres can be positively determined. The possession of such infor-



What the Sand Lands of Northern Minnesota will do. Area Logged Fifteen Years ago, now Producing White and Norway Pine. Height of Trees, Five to Twenty Feet.

mation would enable the state to undertake development of its public and private lands on a permanent basis. Of the 24,000,000 acres of forest land in Northern Minnesota, it is probable that at least 9,000,000 acres would give a larger return in forest crops than in any other crops. This great forest area contains (now largely in private ownership) the largest and finest white pine forest in the world. Norway pine, spruce, birch, cedar and other species also furnish much good timber.

New York Makes An Investigation.

The New York State College of Forestry has determined from a large number of investigations, that a white pine plantation on land worth \$4.00 per acre, with cost of planting \$7.00 per acre and money at 4 per cent will yield a net return of \$6.14 per annum if cut at the age of fifty years. The following table shows the variation in net return at different ages:

Age of plantation in years.	Gross returns	Expenses	Net returns	Net return per acre
25. \$6 per M.....	\$ 40.50	\$ 27.50	\$ 13.00	\$0.52
30. Stumpage value....	75.00	37.60	38.40	1.28
35.	195.00	52.54	142.66	4.07
40. \$8 per M.....	262.40	72.20	190.20	4.75
45. Stumpage value....	324.80	108.66	216.20	4.80
50. \$10 per M.....	465.00	157.85	307.15	6.14
55. Stumpage value....	505.50	228.05	277.45	5.04
60. \$12 per M.....	532.00	315.68	216.32	3.60
65. Stumpage value....	566.00	433.28	132.72	2.04

It Is A Long Time Investment.

With the development of an effective state forest service and the increasing value of forest products, scientific forestry in Minnesota is destined to be as attractive an investment as any other branch of agriculture. It is however a long time investment and must be handled at first by those who can wait fifty years to reap their returns.



The Value of a Wood Lot

By P. C. Records



PLANTING time is at hand. In the country farmers are sowing their fields; the folks in town are planting their gardens. Along with these should go another kind of planting,—the planting of trees.

Many of the earliest settlers of Minnesota came from the wooded districts of the Eastern states. They knew the comfort and something of the value of a grove on the farm. Hence the coveted quarter sections were those which had at least small tracts of woods. These were particularly plentiful in the southeastern part and were rapidly taken up. Then the settlers went up and down along the borders of the timber belt, and gradually into the prairies of the West and Southwest.

In one respect the people who settled on the fertile prairie soils of Minnesota were befriended by Nature. There was no part of the state to which she had not given a climate which permitted and aided the growth of at least a few species of trees. Those early settlers who were wise did not endure long the rigors of the unbroken prairie winters. They planted quick-growing trees for protection, preferable cottonwood, willows, boxelders, soft maples. So that by the early sixties more or less planting had been done around farm houses in the South and West.

First Object Was Protection.

The first object of this planting was protection from the cold winds of winter. Hence the settlers planted the rapidly growing varieties named. In some few instances these were varied with other hardwoods, and but rarely with conifers, by the early settlers. These exceptions have since been increased in number, both in rehabilitating old groves and starting new ones. Hence, while cottonwood, boxelder, soft maple



A Promising Grove of Green Ash

and willow are still the chief species represented, practically every variety of hardwood and conifer native to Minnesota, together with a number of introduced species, may be found in the planted groves of the state.

In 1878 the national government passed a law designed to hasten settlement on the prairies, and at the same time to impel the settlers to plant more trees. The act, called the "Timber Culture Act," provided that any head of a family or person twenty-one years of age, who had declared intention to become a citizen, could obtain 160 acres of prairie land or fraction thereof by fulfilling certain requirements.

Many Tree Claims Were Taken Up.

Between the passage of this law in 1878 and its repeal in 1891, a number of so-called "tree claims" were taken in Minnesota. The trees planted were usually one of the four varieties named above, being set out in pure stands or mixture. They were easy to plant, and grew rapidly.

In 1877, the state Legislature passed a law designed to further instigate the planting of trees on prairie soil. It carried an annual appropriation of \$20,000 to be devoted to payment of bounties to those who fulfilled certain requirements. The law which has since been amended, is still in effect. Its provisions are now approximately as follows:

"That anyone who shall plant on prairie soil at least one and not more than ten acres of forest trees other than locusts, and maintain the same in growing condition with the trees at no point more than 12 feet apart, shall receive a payment of \$2.50 per acre for six years for the original plantation or addition thereto. Provided, that no plantation or part which has received the full bounty for six years shall again be entered for that benefit."

The underlying idea of the law is good. Strange as it may seem, there are men who believe a good grove will not repay them for the land it grows on. It is in an instance like this that the law and its bounty serves its real purpose. But, the majority of men realize at least the "comfort" advantage of a grove. Hence, they are willing to devote a small plot of

ground to a few rows of trees. So the original plantations were usually made without knowledge of the bounty. Accordingly, in all the counties where bounty claims are recorded, the records show that a greater or less percentage of the plantations were set out either entirely or in part a number of years before claims upon them for bounty were made.

Many Localities Still in Ignorance.

Although the tree bounty law has been in effect for thirty-six years, there are many localities where the people are practically in ignorance of it.

Since the early settlement of Minnesota, there has been, in the aggregate, a great deal of tree planting done on the prairies. As a result, particularly in the southeastern portion, the numerous groves have begun to furnish lumber and fuel. The terrific blizzards of the early days are becoming milder and where the groves are numerous and well grown, hot winds of recent years have not been so effectual in destroying crops. The tree planting which the people have already done has been a wonderful benefit to Minnesota.

In view of the foregoing, many believe that little remains to be done with planting trees in this state. The farmer with a row or two of trees feels that he can ill afford to devote more land to that purpose. He does not realize the extent of actual benefit a grove of the right size, rightly cared for and rightly placed can mean to him. As a matter of fact, what has been accomplished is but a beginning.

"Human Comfort," Farmer's First Thought.

Much the greater part of the tree planting in Minnesota has been done in the desire for human comfort. Wind-break planting about orchards has been carried out on a comparatively small scale. The other benefits of a grove have been only more or less vaguely realized.

The true value of a wood lot, or wood lots, to a farm can only be appreciated when these are considered in connection

with additional points of advantage. A list of the more important follows:

1. Personal comfort—protection from storms.
2. Winter protection of stock in barn yards.
3. Shade for stock in summer.
4. Orchard windbreaks.
5. Purifications of water supply.
6. Protection of field crops from drying winds.
7. Wood products value.
8. Aesthetic value.
9. Attraction of insect eating birds.
10. Protection from noxious weeds.
11. Profitable utilization of spots of poor soil.
12. Sale value of the farm.

There are hundreds of school houses on the prairies which stand bleak and unprotected from the sweeping winds. This condition demands a remedy. A portion of the money which is being devoted to other phases of rural education could well be directed to the immediate building up of groves about exposed school houses.

Many Wood Lots in Sad Condition.

In the formerly timbered portions of the state there remain, after clearing, hundreds of thousands of acres of upland wood lots, kept for their value to the farm. A great many of these are in a sad condition. People have allowed them to become so largely through ignorance. In many cases, if the farmer knew what great eventual damage would be caused by the careless handling or misuse of his wood lot, he would be only too anxious to adopt a better system. By the receipt of greater attention, and in many cases by re-planting, the generally deplorable condition of the state's natural wood lots could be much improved and their value much increased.

Even at this late date there are thousands of farm buildings in the West and South which are almost or entirely unprotected by wind-breaks. The principal fuel is coal. In times of coal or car shortage the suffering is often intense.

Even when fuel is readily obtainable, it is necessary to burn much more to warm an exposed house than one which is enclosed by a wind-break. Neither, under such conditions can stock thrive. The farmer, if kind-hearted, will allow them to remain in the barn. They get no exercise. His own labors are increased by the necessity of carrying feed and water to them. The contrast between such conditions and those on the farmstead protected by a good-sized, well-managed wood lot is remarkable. There, even on the coldest days, one may see the sleek cattle lying comfortably in the yard while the stable is airing out. The chickens, too, delight to scratch about in the open.

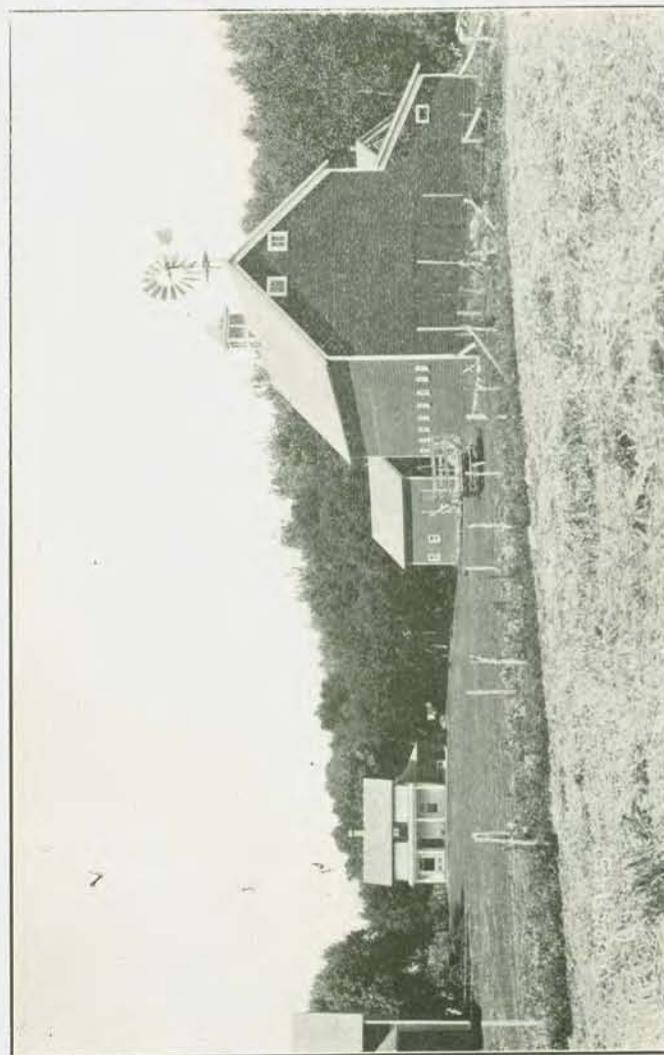
Trees a Guard Against Drouth.

One of the benefits a grove brings to a farm was well exemplified in the drouth years of 1910 and 1911, when fields exposed to the full force of the hot winds were uniformly ruined. Fortunate indeed was the man who had a grove along the south side of a field. In numerous instances, it was only from such a field so shielded that any resemblance of a crop was obtainable.

A profitable phase of tree planting which most people do not realize or consider is in the utilization of small patches of waste land. It is an exceptional quarter section which does not have a sand or gravel hill, stony patch or bluff, which it is useless to sow to grain. Taxes must be paid on it, it yields nothing, it is waste land except possibly for poor pasture. It could be turned into an asset by planting some species of tree to whose needs the soil and other conditions are adapted. A plantation of trees such a spot will pay in sale value of the wood alone the taxes with some over for profit.

Tree Planting Still in Its Infancy.

Taken all in all, tree planting in Minnesota is in the early stages. There is need of a more general understanding of the real value of a woodlot. There is need of a more general knowledge of what trees to plant, how to plant them, and how to manage the plantations so that the greatest possible ben-



House and Barn Well Protected by Grove

efits may be derived therefrom. In this regard, there should be a careful study made to determine more definitely what trees will yield the greatest returns in various localities under the varying existing conditions.

There is a widespread demand among the farmers for information along these lines. The opportunities of profit through further tree planting and through better management of woodlots are vast. These opportunities will be grasped only when some means is devised to meet the demand for knowledge.

The sixth annual banquet of the Forestry club at the state university will be held on the evening of Friday, April 18, at the West Hotel, in Minneapolis. Dillon P. Tierney will be toastmaster. The following program has been arranged: G. H. Wiggin, "Sawing Wood"; G. P. Lindberg, "Prospects"; Carl Hamilton, "Work After College"; T. S. Hanson, "Getting It"; E. O. Buehler, "The Club"; O. S. Johnson, "Purpose"; E. G. Cheney, "Tomorrow, Years Ago."

The first and second fires in the North Woods of the present season have been reported by Ranger Saunders. No. 1, it is believed, was set by a Northern Pacific Railway engine. The fire burned over an area of 370 acres. The second fire burned over 230 acres and was set according to the report, by N. P. Engine No. 2412, Conductor Vegleiter in charge, who failed to report the fire at Brainerd. No particular damage was done by either fire.



Forestry Club of the State University

By Robert Howarth



OUT at the State University there is a more or less unique organization known as the Forestry Club. But the position it occupies among the other university organizations is still more unique. In the first place it is composed of earnest young men who, in all probability, upon leaving the university, will pursue as a vocation the things they are studying about now. Few are the college organizations which bear such relation to their members. In the second place, although four years less than a decade old, the club already owns one of the finest building lots in St. Anthony Park, and is planning to erect at a near future date a splendid log cabin club house. It is in addition one of the very few if not the only club that is incorporated, and besides having the backing of the entire student body and faculty.

Social Idea Comes Second.

Most college clubs are formed primarily for social purposes, but with the Forestry Club the social idea came second. The original object of the founders of the organization was "to gain a deeper insight into the science of forestry." Later, when it was found this could also be done in connection with social meetings, the "good fellowship" idea was added, and now some of the most interesting and instructive meetings are those social gatherings at which some member of the faculty addresses the club on one of various subjects connected with forestry and join the boys afterwards in a cup of coffee and a sandwich.

Club Organized in 1907.

In 1907, when the club was first organized, the forestry spirit was not as manifest as it is today. The charter members were handicapped in securing additions to the organiza-

tion. Students were indifferent or entirely disinterested. Of those who were interested many questioned whether the benefits derived would be worth the effort of joining and attending meetings. Gradually, however, men in the college of forestry began to see the good in the new organization, and recognize the mutual benefits to be derived from a membership, and before the college adjourned in the spring, the charter members, who were aided by Prof. E. G. Cheyney, had the satisfaction of knowing that the organization was at last on a firm basis.

The First Officers of the Club.

Before school adjournment in May of 1907 a constitution was adopted and officers were elected. To G. A. Orr was accorded the honor of the first presidency, while James Gillis was elected vice president. Eric Peterson was made secretary and treasurer.

One of the first problems the club had to deal with was the question of a meeting place. This was solved temporarily by using the horticultural building at the University Farm. This, however, was not thoroughly satisfactory, and finally the club leased a house in St. Anthony Park, the members living there and paying room rent and thereby carrying the expense of the lease.

This club house plan was so successful that the Forestry Club determined to become the owner of its own club house, and so set about making plans for the acquirement of one. By means of lectures, entertainments, dances, contributions, etc., the organization finally gathered together enough cash to purchase a lot. The members expect to be able to erect there a club house within the next two years or so. When the lot was purchased the club had to be incorporated and a board of directors elected. On this board are serving several members of the faculty.

Club Has Forty Members Today.

At present the Forestry Club has forty members with a number of prominent men on the roster of honorary members. This roll includes President G. E. Vincent of the state university and other members of the faculty. Any male white

student of the College of Forestry is eligible to membership in the club. There are two big features during the year in the life of the club. One is the annual initiation and the other the annual banquet. The initiation is held shortly after the opening of the college year, when those freshmen who care to join have been lined up. The evening always ends with a big camp fire in the woods just north of the college campus at which members of the faculty are among the speakers.

The annual banquet is held in the spring just before the junior class leaves for the annual outing in Itasca Park. Good speakers are invited and the policy of the ensuing year is discussed and outlined in part. Various other social functions are given during the year in both St. Paul and Minneapolis by the club, but these two far outshine anything else in which the club is interested.

Regular Meetings Always Practical.

Seldom does a regular meeting of the club—held on the first and third Thursday of each month—pass without some speaker being present and giving the students pointers on some phase of forestry.

The club is now making an effort for the first time to reclaim the interest of its alumni and to keep in touch with them, posting them regarding the doings of the club, and seeking information regarding their own work in the field. The "North Woods" is to be used in the future as a sort of medium between the alumni of the Forestry Club and its alumni.

Object of the Organization.

The object then of this organization, unique in comparison with other college men's societies, is to gain a deeper insight into forestry matters and promote good fellowship. What of its ultimate intention? or has it an aim beyond the diploma? Indeed it has. And that aim dominates everything else in connection with the club life and the college life. It is to send out into the field of endeavor men who will be well equipped for their chosen work, men capable of handling situations, not matter how difficult, and above all men who will, in their work and results, reflect credit upon the college and club.



The Legislature and the North Woods



Out of the large number of bills introduced in the Legislature regarding various phases of the North Woods six have passed at this writing, though most of the other more important ones are on the calendar and will be passed ultimately, if the present sentiment of the legislators is any indicator.

House File No. 389, an act changing the term "forest reserve" to "state forest," wherever it appears in the statutes, was the first to pass through the legislative mill. It is pointed out that this makes the statutes conform to the national laws in which the federal timber lands are referred to as "national forests."

The second measure to receive legislative sanction is an act dealing with the cutting and sale of timber on state lands. Technically it revises Section 41, Chapter 204 of the General Laws of the State of 1905.

Under the new act any person cutting timber on State lands must post notice to the effect that timber will be cut at certain locations beginning on a certain date. This notice must be posted in a conspicuous place in the company's camp and notice must be sent to the state forester at the time operations begin, so that the state rangers may visit the camp and see that slashings are disposed of in a proper manner.

The bill, popularly known as the Itasca park bill, has been reported favorably by the committee, and according to the present outlook, undoubtedly will be passed by the Legislature.

State Auditor Iverson has gone on record as favoring a legislative committee to sit between sessions to prepare a comprehensive plan for a department of public domain to be acted on by the Legislature of 1915. He also favors the submission of a constitutional amendment, creating a separate office of state land commission to take over all state land business from the auditor and head the new department. The state

auditor has embodied his ideas in an amendment to the Kneeland public domain bill.

The state constitution at present places the swamp lands and the internal improvement lands in the hands of the state auditor while the school lands are not committed to him by the constitution but by statute.

"To take away the school lands from the auditor and let him handle the other lands," Mr. Iverson says, "would be bad business. A state land department should be created first and then the correlated state bureau be added to it, instead of first uniting these bureaus and then take over the state land department when constitutional authority is secured.

Uniform laws governing fishing in the boundary water of Minnesota and Wisconsin are likely to be passed by the legislatures of the two states according to Senator Manley Fosseen of Minneapolis, chairman of the Minnesota legislative committee which is investigating the question in connection with a similar committee from Wisconsin.

Already the two commissions have agreed to impose a graduated license fee, based on the size of the net, the fees to be the same in both states. Fishermen with lines and hooks are not to be taxed.

In addition to the fishing agreement the Wisconsin committee has practically agreed to change the date of the opening of the bird-hunting season in that state from September 1 to September 7, to conform with the Minnesota law.

Among a number of amendments the Legislature has passed to the forestry laws of 1911 is one tightening the rules governing the running of railway locomotives through the state and the protection of the right of way of the railways. Both these measures will tend to reduce the possibilities of fire as a result of sparks from railway engines.

Another amendment fixes the responsibility for the disposal of slash and debris in road construction work on the contractor and makes the officer letting the contract for the work liable to a fine if the contract is not drawn according to law.

A third provides more stringent rules for the disposal of slash in logging operations. Fines may be collected in case of violation by the town patrolmen and must be turned into the town fire fund in the town where they are collected. The fines are graduated, the highest being \$100.

The Legislature has also passed a bill providing for the acquisition of cities of municipal forests.

A constitutional amendment, upon vote of the Legislature, providing for the setting aside of certain state lands for state forests, will be submitted to the people at the next general state election.

An appropriation of \$2,500 a year has been made by the Legislature for exclusive use in the Burntside State Forest. This money, according to the state forestry board, will be used at first in the opening up of trails and portages in the forest.

The Warner bill, providing for the construction of bathing and clothes washing facilities in the lumber camps of the state has passed the House. Representative Warner argued that the lack of these things caused disease and vermin to spread in the camps, and that when the camps were broken for the summer the lumberjacks carried them to the cities. The bill has not been acted on in the Senate.

Everybody get in the game. One hundred and seven persons have sent in paid up applications for membership in the State Forestry Association since the last issue of the North Woods. That means 107 new subscribers to the North Woods. That makes a total of 208, a jump of more than 100 per cent in thirty days. And there is still a majority of the rangers to be heard from.

Help us increase the membership of the Forestry Association. If you know of anyone interested in forestry send us his name. We will do the rest.



Woodland Flowers of the Midland North

By D. Lange



ANY one who visits the evergreen forests of Minnesota, Wisconsin and Michigan is struck by the strange flowers, which carpet every sunny spot and frequently grow also in the shade of birch and balsam as well as on the spongy moss-beds of spruce and tamarack swamps.

The strangest of all woodland flowers is the pitcher plant, so-called from its pitcher-shaped leaves. These leaves grow in the form of a rosette in the peat-moss and each leaf forms a wide-mouthed pitcher and can hold from one-half to one and a half ounces of water.

The leaves are catch-basins for live insects, which are drowned in the liquid and partly digested; so we have here a plant which reverses the general plan of nature; it is not eaten by animals, but does itself prey on animals.

How the Insects Are Entrapped.

The methods and mechanism for entrapping unwary insects are very remarkable. Near the edge of the hollow leaf is a purple rim, from which a sweet liquid is exuded. This rim, however is very slippery and in addition is covered with short, downward-pointing bristles. The hungry insect finds the footing very insecure and soon slips into the watery trap below. It now makes frantic efforts to escape, but the inner wall of the pitcher is so smooth that a drowning fly might as well try to crawl up the wall of a smooth china pitcher. Soon the unhappy fly or bug ceases its struggles, the soft parts of the body are dissolved in the liquid, and the pitcher plant actually eats him up by absorbing the dissolved flesh.

The flowers of the pitcher plant are as unique as its leaves. The dark brown petals of the nodding flower form a complete rain and dew-proof tent over the numerous stamens and the odd leaf-like pistil. The flowers, however, live on friendly terms with the insect world, furnishing both food and shelter to numerous small creatures that carry their pollen from one blossom to another.

Labradore Tea Leaves Interesting.

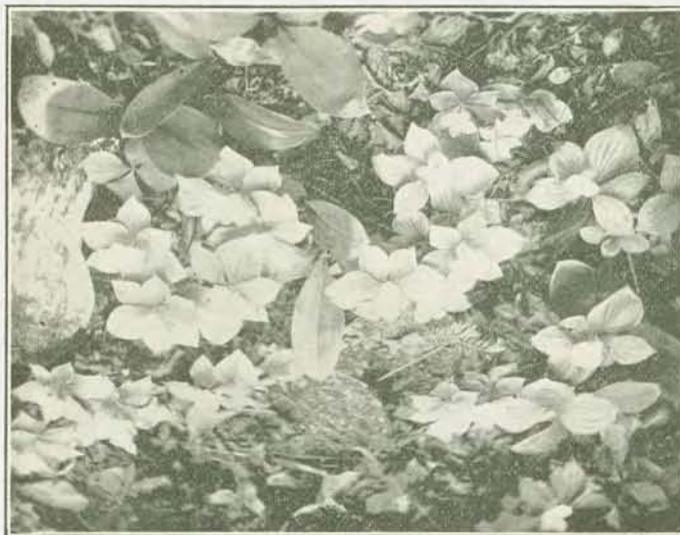
One of the most common flowering shrubs in open, marshy places is the Labradore tea. It is a small bush, with an abundance of loose white flowers. Its leaves exhibit an interesting adaptation to its environment. The upper side is smooth, but the edges are turned down and the lower side is covered with a dense brown fuzz. Leaves are the lungs of plants and it is quite important that they be not clogged with rain or dew. No matter how heavy the dews, how frequent the rain and how long the brush is wet, the lower side of these curled and fuzzy leaves, where the breathing pores are located, will not be wetted. Many other marsh plants are similarly protected against the clogging of the breathing pores by rain and dew.

The most common and conspicuous flower of the North woods is the partridge berry, or dwarf cornel. In the early summer it forms beautiful carpets of white and green along the old trails of Indians and Hudson Bay trappers. Wherever a fallen tree, fire or ax has made a clearing it spreads its cheerful colors until the stronger trees and shrubs rob it of the needed sunlight.

Cornel and Smilax are Abundant,

And later in the season when the blueberries are ripe and invite bird, beast and man to eat and feast, our little green cornel will not be outdone by any mere lavishness of food. It now has changed its white flowers into bright crimson berries, and grouse, spruce hens and other birds accept the invitation to help themselves and in return they scatter the nutlet seeds of the dwarf cornel far and wide, so that the North woods will never lack the white and green rugs wherever the sun can shine on a bit of open ground.

Associated with the pretty carpet cornel is the two-leaved smilax. Sometimes it is scattered among the cornel, but generally it prefers a more shady place, where the boughs of balsam and pine soften the strong light of summer.



Dwarf Cornel and Leaves of Clintonia

Two Flowers Not to be Overlooked.

Two other delicate flowers the nature lover will not pass by—the delicate white starflower and the fragrant Linnaea. The Linnaea is a delicate trailing vine carrying an abundance of small pink bells. The pretty flower is named in honor of the great Swedish botanist Linnaeus, who discovered it on a botanizing trip to Lapland and arctic Norway, and was delighted with its fragrance and exquisite beauty.

Another flower that will even strike the casual observer as peculiar to the North woods is the Clintonia. In contrast to many of the Northern woodland flowers this is a vigorous plant with two smooth leaves and a scape of pale greenish-yellow flowers.

While is by far the most predominating color of the North woods flowers. Cornel, smilax, white star, Labradore tea, mountain ash, shadbush and thimble berry all deck them-

selves in pure white, the color most conspicuous in all kinds of weather and in all kinds of light.

Bees Do Not Inhabit North Woods.

In one respect the naturalist might be disappointed. The insect guests of these delicate white flowers, are not, bees, but flies and faking flies at that. In no other places have I found mimicking flies so numerous and so early in the season. A few forest insects mimic bumble bees but most of them have adopted the wasp pattern, which consists essentially of black and yellow stripes. There are few wild bees in these woods, where the air is often damp and cool, where rains are frequent and copious and the summer season rather short. It is not a good land for bees and in many regions no escaped honey bees are found at all. So the flies have taken the place of bees, but have adopted the color and markings of bees and wasps which undoubtedly saves many a flower fly from the fangs of lurking spiders who are the dread of all small unarmed insects, but who in turn live in mortal terror of a host of formidably armed wasps, and shun any insect that looks like a wasp, and wasps are not rare in the North woods.

Sermons of Beauty in These Flowers.

In midsummer or autumn nearly all these flowers invite the birds to dine on fruit or berries, blue, red or white, and well have the birds repaid their hosts. These delicate flowers that look as if they had no means of spreading even into the next township, completed the journey around the globe many thousand years before the intrepid Magellan started on his historic journey. The delicate starflower, the little smilax, the fragrant Linnaea and a host of North woods flowers and shrubs, not only fringe trails, streams and lakes in the United States and Canada, but they are equally at home in the forests of Northern Europe and Asia.

There are sermons and beautiful stories and mysteries in the flowers that bloom along the northern trails and the most beautiful thing about them is that the stories will never be all told and the mysteries will never be all solved.



There will be unexcelled fishing in Minnesota's northland lakes and rivers this year according to the reports received at the office of the state forester at the capitol from the rangers. The lakes and streams will be well supplied with water and at present it appears that a better than the average stage will be maintained during the fishing season. There is an average of three and one-half feet of snow in the North woods—more than at any time last season—the snows of the late winter having been of especial benefit, doing away with the possibility of a drought, at least until late in the season even if there should be a scarcity of rain during the summer.

The presence of abundant moisture will also serve as a blessing to the settlers and for several months will eliminate the danger of forest fires.

Notice has been received from Washington that the \$10,000 appropriation for the protection of forests at the headwaters of navigable streams will be available this year. This aid is given the states under the Weeks law, which was passed two years ago. The money is to pay the salaries of the 48 patrolmen in the danger zone.

Minnesota is in no danger of spring floods along the Mississippi and tributary streams this year. This is due primarily to the extended system of dams and reservoirs at the headwaters of the Mississippi established during the past ten years by the federal government. These reservoirs impound the flood waters during the spring and under ordinary circumstances a sufficient quantity is held to keep the river two feet above normal throughout the balance of the season, making the river navigable from St. Paul to Central Iowa.

The Great Northern Railway Company has under consideration a project calling for the construction of a line from Akeley on the Great Northern to Warroad on the Canadian Northern, and running through Itasca State Park. A large part of the proposed line has already been graded by logging roads, and it is said local capital is ready to aid in the construction of the line. If the Great Northern will not build the road the Canadian Northern has promised to look into the project.

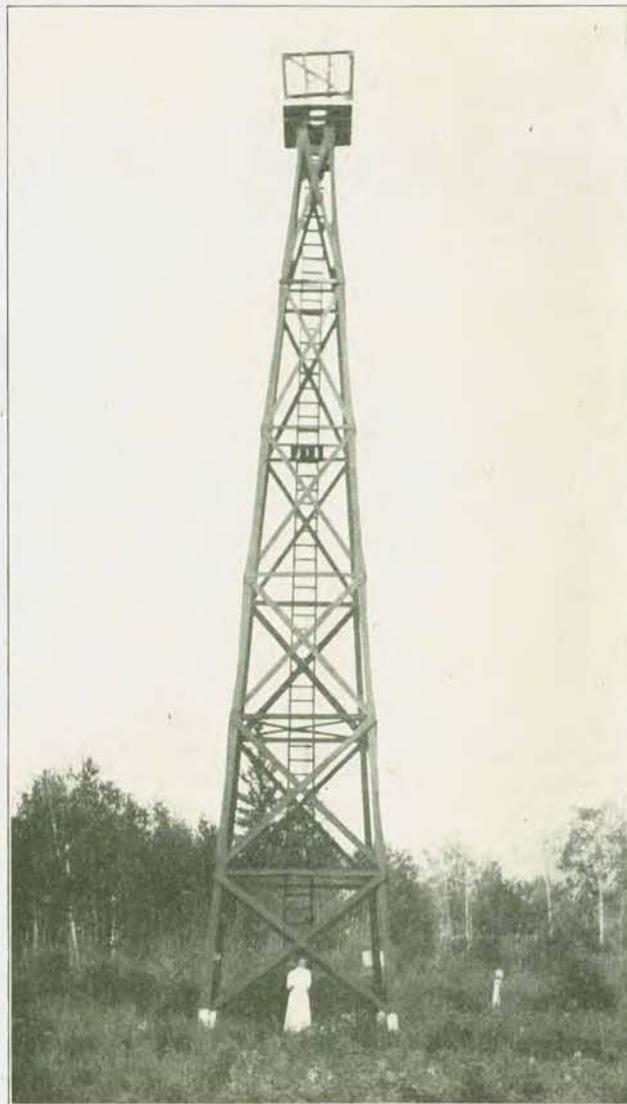
There is 300,000,000 feet of fine white pine timber around Red Lake which will be tributary to the proposed line, which will also traverse one of the richest agricultural tracts in the state.

The Red River Lumber Company has a logging road running from Akeley to within two miles of Douglas lodge in Itasca State Park. It also built a road from Shelvin south to within seven miles of the state park. The rails on this line have been taken up but the grade is still there. Thus it would take only nine miles of grading to connect the two lines and touch the north and west ends of Lake Itasca.

Lumbermen of Spokane are seriously considering the adoption of the wireless telegraph as an effective aid in fighting forest fires in the Pacific Northwest. On the success of a test to be made this spring by the Marconi company in one of the forests near Spokane hangs the future of the wireless as a means of fire fighting.

Special apparatus will be placed on the trails used by the forest rangers who will carry emergency signals to be strung between two high trees at any point in the woods. By this means it is proposed to have reported to the central station any incipient blazes, so that fire fighting squads may be rushed to the scene in time to prevent the fire from gaining any headway.

Turpentine from Western yellow pine, says the Department of Agriculture, can be put to the same uses as that from the long-leaf pine of the Southeast, which furnishes the bulk of the turpentine of commerce. Western yellow pine forms enormous forests in the Rocky Mountain and Pacific coast states.



A 65-Foot Wooden Tower at Torfin, Roseau County, Minn. Cost, \$45.00.

while the supply of long-leaf is fast melting away. A product very similar to turpentine can be obtained also from pinon pine, another tree common in the Southwest.

Careful tests made by the department have shown that the yield of turpentine and rosin per season from Western yellow pine in Arizona is only two-thirds that from the Southeastern pine, the difference being due to fact that the season of flow in the West is about 25 weeks, and in the South about 33 weeks. During the Civil War, when turpentine operations in the South had virtually ceased, some operations were carried on in California to meet local needs. But with the return of the Southern product to the California market, the Western operations were abandoned.

The results of a chemical examination of the oils of Western yellow, pinon, digger, sugar, and loge-pole pines which have just been published by the forest service in an official bulletin show the possibilities of the rosin and turpentine from Western yellow and pinon pines as a supplement to the present supplies. Economic problems of markets, transportation, and labor remain to be solved. Information as to how the forest service secured the yields upon which the analyses were based is given in another bulletin on the possibilities of Western pines as a source of naval stores.

Western hemlock, says the Department of Agriculture, deserves a better opinion and more general use than it now obtains. Intrinsically it is among the most important of Western woods.

The wood of Western hemlock has generally been considered an inferior one chiefly because of the prejudice created by the name, which has caused it to be identified with Eastern hemlock. Tests by the forest service, however, show it to have 88 per cent the strength of Douglas fir, one of the country's chief construction timbers. In fact it is often mixed with Douglas fir and used for the same purposes.

The wood is practically free from pitch, has a handsome grain, takes paint and stain well, and works smoothly. It is suitable for sash and door stock, furniture, interior finish, framing, flooring, boxes, barrels and pulp. In bridges and tres-

ties it can be used for all but the heaviest construction. When properly treated with preservatives, it is a valuable cross-tie and pole wood.

According to Forest Service Bulletin 115, the best stands of Western hemlock are found in the coast region and through the Cascade Mountains. The bulletin further gives the results of tests by which the mechanical properties of Western hemlock have been determined, and tells of the different uses to which the wood is adapted.

Because of the extent to which private agencies are now collecting lumber price data, the secretary of agriculture has decided to discontinue publication by the forest service of its quarterly issue of mill and wholesale lumber prices.

When the government began to publish these compilations detailed statistics upon production, consumption, and prices were available for all of the great industries which produce and handle raw materials, lumbering only excepted. Many of these statistics were being gathered by the federal government, particularly the monthly crop reports and cotton reports. Prior to 1905 the lumber industry, then fourth and now third largest of the country, lacked even annual statistics of production. In that year a compilation of the lumber cut was started by the forest service, with the co-operation of the bureau of the census. Authentic records of prices of standard grades in the centers of distribution did not become available until 1908, when the forest service began its record of wholesale prices. This record, by leading markets, was published monthly until November, 1910. Since then it has been compiled and published on a quarterly basis.

After a year's publication of market prices there was a general demand for the compilation of prices at the mills, since the market quotations included freight and other costs subsequent to manufacture, and did not show the prices received by manufacturers. In July, 1909, the forest service began a quarterly publication of mill prices of lumber, which except for minor changes in species and grades has been continued without change until the present time.

Within the past two years lumber associations and other agencies have taken up actively the work of compiling and publishing lumber prices in most of the lumber-producing regions. Under these circumstances it is considered unnecessary for the government to continue this work, except to the extent necessary for its own information.

The Shelvin lumber interests have purchased the holdings of the Weyerhaeuser company in the vicinity of Bemidji and Crookston. This means the passing of the Weyerhaeusers from that section of the state. The deal involved about \$5,000,000. The Shelvin company will immediately start the erection of a new \$100,000 mill. Logging operations will be pushed with renewed vigor. It is expected that the timber remaining to be cut and sawed will be disposed of in the next twelve years.

William H. Weller, a patrolman in District No. 9 died on April 1 and was buried two days later at Menagha.

The lumberjack has been metamorphorized into a "river pig." Spring has come, the ice on the rivers in the northern part of the state is beginning to go out, and will it comes the exodus of the lumberjack. Lumber companies, who are unable to get their timbers out by rail, are accustomed to pile it up on the frozen river. When the ice breaks up the lumber begins to move. Then does the cutting cease, the lumberjack is no more and the "river pig" takes its place. Equipped with spike shod boots, Mackinaws and peavy poles some 25,000 are now on their way down the various streams in the northern part of the state, conveying vast flotillas of logs, preventing jams, forcing the stray and tary logs back into the center of the stream and otherwise earning their springtime name.



Over the River and Through the Woods



OVER the River and through the Woods,
To a Forest Fire we go,
With shovel and ax and rake and packs
To put out the fire, you know.

Over the River and through the Woods,
Oh, how the wind does blow,
But we fight the fire as the flames go higher,
With a lot of vim, you know.

Over the River and through the Woods,
Oh, how the fire does go,
But it came to the break
Made by Shovel and Rake,
And out it went, you know.

Over the River and through the Woods,
A Ranger with his horse must go,
As the Telephone rings and the Mailman sings,
There is a fire in the woods, you know.

Over the River and through the Woods,
A Patrolman in a hurry must go,
He goes over the ground like a hunting hound,
For there's smoke in the air, you know.

Over the River and through the Woods,
As straight to a fire we go,
The notice was sent as away we went,
By the Town Patrolman, you know.

Over the River and through the Woods,
When we get the word to go,
There is Cox and Tierney and Hanson, the Clerk,
We all have to get in the harness and work,
To help put out the fires, you know.

—A. C. DePuy, Park Rapids.

May 2, according to a proclamation issued by Governor Eberhart, has been set aside for Arbor Day this year. Arbor Day is the one day of the year given over, in all parts of the state, to the planting of trees. The date this year is two weeks later than usual, and it is hoped that, especially in the northern part of the state, where the opening of the season is later than in the southern part, a more general observation will be secured by the shifting of the date.

Trees insure a companionship which is deep, lasting and visible, and every citizen of the state is urged to aid, in some manner, in seeing to Minnesota, her trees, which have played such a great part in her history.

