The taxation of forest lands in Wisconsin. 1911

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WISCONSIN STATE BOARD OF FORESTRY
E. M. GRIFFITH, STATE FORESTER

IN COOPERATION WITH THE
FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE
HENRY S. GRAVES, FORESTER

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BY
ALFRED K. CHITTENDEN, Forest Examiner
AND
HARRY IRION, Forest Service

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Introduction.

On the initiative of the Wisconsin State Board of Forestry, the Forest Service of the United States Department of Agriculture in April, 1910, entered into a co-operative agreement by the terms of which it was to undertake a study of forest conditions in the State of Wisconsin.

The main purpose of the study was to determine the extent of the burden now carried by timberlands as a result of the present methods of taxation, and what influence, if any, such methods of taxation have or will have on the practice of forestry by private owners. Especial thanks are due the State Forester and also the State Tax Commission for the valuable assistance given throughout the course of the study.

That the perpetuation of this country's forests, and their management along conservative lines, is an object of grave concern to the nation and to individual states, and a proper subject of legislation, all admit. Nor will it be denied by those having a proper regard for the future, that the time has arrived when affirmative action must be taken if this end is to be attained. Every day of delay lessens the chance of success.

Forest conservation by private owners depends primarily upon one point: Does it pay? If forestry can not be made to pay without granting it special favors it has no place in the business world of today. The two great obstacles to the practice of forestry by private owners are forest fires and an unjust and unequal system of taxation. Without proper control of the forest fires that yearly run over the cut-over lands, no private owner can hold his cut-over lands for a

second cut. Without a fair system of taxation no private owner can hold his cut-over lands and give them adequate fire protection in order to get a second cut of timber. With a fair system of taxation owners of timberland will be better able to protect their cut-over lands from fire, and could, perhaps, afford to hold these cut-over lands for future timber protection.

A study of forest taxation has already been made in New Hampshire, and the report has been published by the Forestry Commission of that state in its biennial report for the years 1907–1908, but up to the present time no such study has been made in the Lake states. While the general conclusions reached in New Hampshire may in a way be applicable to other states and regions, they can not be applied *in toto*. Local conditions and present methods of taxation, the relative area of forest land, the rate of growth of the forest, as well as other considerations, must be taken into account.*

Wisconsin stands fifth in the list of timber-producing states of the Union. In 1907 it was fourth. In 1908 it ranked second in the production of white pine. It is being rapidly drained of timber by lumbering, but timber removed in this way is converted into money and brings about the development of the country. Very large areas in Wisconsin, however, are being stripped of timber in another way—by fire. In 1908 an area of 1,209,432 acres was burned over by 1,435 forest fires. No small portion of this acreage was young-growth pine, hemlock, spruce, and hardwoods, some of it nearing merchantable size, while the proportion of mature timber burned was also large. It is estimated that 499,495,791 board feet of merchantable timber were destroyed, worth, at a conservative estimate, $2,996,975. The value of the young growth destroyed by these forest fires in 1908 is estimated at $6,047,060.

Wisconsin is typical of the great region around the Lakes. The northern part of the state is largely white pine land; south of this is found a wide extent of hardwood land; and the southern portion of the state ranks with the best agricultural land in the United States. A study of forest taxation in Wisconsin, then, will be applicable to a wide territory, and the conclusions herein reached may be applied to a territory larger than the state alone.

The study was confined largely to the northern part of the state. The southern part is principally farming land, and the value of the soil for farming is greater than it could possibly be for timber pro-

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* See Appendix, p. 70.

duction. Practically all of the timber has been removed from the southern counties, and there remain now only scattering bodies of timber included in the woodlots of the various farms. The northern part of the state, however, contains much true forest soil—soil that is too poor, rocky, or sandy to ever be successfully used for agriculture. In many of the intermediate counties, however, the soil is suitable for agriculture and will undoubtedly be so utilized within the next few decades. But the country is comparatively unsettled as yet, and while awaiting the coming of farmers and the conversion of the land into farms, it can and should be used for the production of timber. This applies to counties such as Price and Rusk, where practically the entire county contains excellent farming soil, but where settlement is naturally slow, owing to the difficulty of clearing the land for agriculture. In these counties the standing timber will soon be exhausted, and the timberland owners are now offering much of their land for sale to settlers. There are extensive areas in these counties, however, where the soil is too rocky and poor for farming, and such areas should be kept in timber growth. In the extreme northern counties where the soil is sandy it has no value except for forest growth.

The general conclusions which may be drawn from this investigation are:

1. The actual tax burdens imposed on forest lands of the same value are not uniform or proportionate, as the constitution and laws of the state require, either as between the different counties and towns or between the different taxpayers in the same town.

2. The burden of taxation upon cut-over land is relatively much higher than upon timbered land, although the latter is better able to bear the heavier burden of taxation.

3. The burden of taxation upon farm land is also relatively less than that upon cut-over land in the same towns, although its actual value is far greater. The ratio of the assessed to the true value of farm lands is practically the same as for timbered lands.

4. In general, the laws regarding taxation have not been strictly enforced. That no strong objections have been raised to the taxes on forest land by timberland owners is due to the fact that timberlands have in the past been greatly underassessed, and while the tax rates have been extremely high in many cases, the burden of taxation upon the timberland is just beginning to be felt.

5. In the search for revenue to meet the financial necessities of the

towns a strong tendency has recently developed to enforce the law more rigidly, and valuations have in many cases been greatly increased. This increase in valuations is more noticeable upon timbered land than upon cut-over or farming land. The cut-over land is already being assessed at practically its actual value, or even higher.

6. The present law, granting total exemption for thirty years to farmers who have planted their land to timber, is not being taken advantage of to any extent, and there are no records of any advantage having been taken of the old law, now repealed, allowing bounties to farmers who planted shelterbelts.

7. Owing to the great danger from forest fires in the state of Wisconsin, to the length of the time required to secure returns from cut-over lands by waiting for a second cut, and to the cost of protection in the meanwhile, forest management is not a particularly tempting investment for timberland owners, especially in view of the fact that cut-over land can be sold to settlers at a good price. For this reason it is believed that the state's forest policy should be greatly extended and strengthened.

8. The fire-patrol system at present in force in Wisconsin, while excellent as far as it goes, is not sufficient to successfully contend with forest fires during any particularly bad fire season. The fire-patrol system should, therefore, be greatly strengthened, and non-residents employed as firewardens if possible.

The work upon which this report is based was confined principally to the northern portion of the state, since it was manifestly impossible to go thoroughly over the entire area. Moreover, the results of an investigation in every county would not have yielded any more complete or reliable data on the tax question than could be obtained by a selection of typical counties. As has been already stated the southern part of the state is a well-developed farming country, and the question of forest taxation has little bearing there except in its application to farm woodlots. For this purpose one southern county, considered to be typical of many—Jefferson county, was selected, and an examination of that county was made to determine the effect, if any, of the present tax laws on woodlot conditions. For the rest the work was confined to the northern part of the state. Certain counties, however, such as Marathon, are well settled, and there are large areas of prosperous farms throughout. While it is probably true that a large proportion of this northern region contains soil suitable for agriculture or that dairy farms will be established, yet there are large areas

of soil too poor for farming. On such soil timber growth will always be the best crop.

For the purpose of this study ten counties considered typical of the northern part of the state were selected for detailed study. These were Bayfield, Douglas, Florence, Forest, Iron, Marinette, Price, Rusk, Sawyer, and Vilas counties. While all the information possible was collected in the other counties of the state, the principal work was confined to these ten counties.

GENERAL DESCRIPTION.

A large portion of the land in every one of these counties is agricultural in character, and in time will doubtless be placed under cultivation. The fact that this report calls attention to the existence of non-agricultural lands in a county should not be considered as a reflection upon the agricultural possibilities of such county as a whole. The only reason for doing so is to make plain the importance and necessity of using these lands for the purpose for which they are best suited.

It is a first principle that all land should be put to its best and most profitable use. Eliminating from consideration all land that is non-agricultural there will remain an abundance of land in this region not yet improved which is susceptible of cultivation. To illustrate, the total area of these ten northern counties is 6,548,195 acres. In 1908 there were only 73,732 acres or a fraction more than 1.1 per cent of the total area under cultivation. Assuming that fully 25 per cent of the total area is non-agricultural in character, there would still be left for agricultural development more than 73 per cent, or approximately 4,800,000 acres.

Character of Land and Timber.

Bayfield, the northernmost county, has large areas of poor sandy soil not suitable for farming. A belt of red clay, 6 to 10 miles wide, skirts Lake Superior. This belt contained originally good white pine, with a light mixture of scrubby hardwoods and some hemlock. The southeastern part of the county is mostly gravelly clay loam, and the forest consists of mixed pine, hardwoods and hemlock. The central and western part has a sandy soil covered with a forest growth of jack and Norway pine, with considerable white pine in places, especially the town of Drummond. The county is very nearly cut over.

Only about 5 per cent of the original stand is left. The remaining timber is situated principally in the towns of Mason and Drummond. The first will probably be cut out in four or five years, while in the latter, operations will doubtless continue for a long time.

The good farming soil is very scattered, and there are no large tracts of it. The bulk of the land in this county is best suited for forest growth. Practically every acre of cut-over land has been more or less severely burned by forest fires, and the young growth does not amount to much, because it is seldom able to reach sufficient size to withstand the fires before it is burned over.

The northern third of Douglas county has a fairly fertile red clay soil, and the southern part is very sandy; the central part is intermediate between these two. Hardwood timber is now very scarce; the best stands have been cut out, and at present there are only a few portable mills cutting hardwood in the county. Most of the pine also has been cut, and practically all that is left is situated in three townships in the town of Summit. In all there is probably not more than 100,000,000 feet, and this is being rapidly removed and sawed outside of the county. Very large areas of both Norway and white pine are coming back, usually under a stand of popple and birch. Extensive areas, however, are barren waste, with nothing but scrub and inferior species occupying the ground. The present supply can last only about three or four years more at the present rate of cutting.

Probably one-half of the county is more valuable for growing timber than for any other purpose. The heavy red clay of the north is considered very fertile, and should make fairly good farming land. Many people insist that even the most sandy areas in the southern part are well adapted to hay and cattle raising, but there seems little doubt that the use of such lands for timber production is far more advisable.

Much of the eastern part of Florence county is somewhat sandy, while the central and western part has a loam typical of hardwood land. Along the northern edge it is rocky and hilly, and in the northwestern part there is considerable swamp land. Outside of the two localities last mentioned the land is rolling and in places fairly level. Practically all of the pine has been cut off. At present about 40 per cent of the county is timbered with hardwood and hemlock, most of which is found in the two western tiers of townships. The best information obtainable would indicate that there remain approximately 490,000,000 feet of hardwoods and hemlock. The hardwoods consist principally of maple, birch and basswood, with very

little elm. Just how long the present stand will last is hard to determine. At present no great amount of cutting is going on, and unless the annual cut is greatly increased, it will be at least twenty-five years before the county is entirely cut over. There is a considerable amount of land in this county, especially in the eastern part, which is non-agricultural in character and which can be best adapted to timber growth.

Most of the cut-over land in Forest county is good clay loam, well suited to agriculture, and farming will doubtless become of increasing importance. There are many areas, however, on which farming is out of the question. Probably about 10 per cent of the total area is swamp, and perhaps fully as much is suited only for timber growth because of its rocky and hilly or sandy nature. The northwestern quarter of the county is made up largely of sandy pine lands, and much of the southwest is hilly and rocky. This is one of the best wooded counties in the state, although most of the pine has long since been removed. The forests in the southern part have always been largely hardwoods and hemlock with scattering pine. There are some very good quality hardwoods, and lumbering is extensive. A rough approximation would show about 15 per cent of the area to be swamps and lakes, 20 per cent cut-over, principally pine removed, and about 65 per cent timbered. The remaining timbered area will probably average 100,000 board feet per "forty." This would give a total stand for the county of nearly one and three-quarters billion feet. If the present rate of cutting is continued it will not take much over fifteen years to remove all of the merchantable timber.

The southern part of Iron county is rather level with a sandy soil, and numerous swamps. The central part is clayey and inclined to be rolling and rocky, while the northern part is fairly level with a clay loam soil, gravelly in places. Practically all the pine has been cut and approximately 46 per cent of the hardwood and hemlock. The remaining hardwood and hemlock is estimated at about one billion board feet, and will run from 3,000 to 5,000 board feet to the acre. The predominant species are hemlock, birch, maple and tamarack, with scattering basswood and elm. This timber is found in two bodies, the largest of which comprises the south half of T. 46, R. 1 W., T. 45, Rs. 1 W., 1, 2, and 3 E.; T. 44, R. 1. W., and Rs. 1, 2, 3, and 4 E.; and T. 43, R. 1 E. The other body comprises the southern tier of townships.

Lumbering operations are not being carried on very extensively.

With the possible exception of Florence county less timber is being cut than in any of the other ten counties. The probable length of time the present stand will last can not, therefore, be determined with any degree of accuracy. With a normal amount cut it should certainly last twenty or twenty-five years. But if the present rate of cutting is continued it should last much longer. With the exception of the northern part, the land is essentially forest land and probably can never be adapted to any use other than that of growing timber.

Originally, Marinette county was largely covered with pine, but the greater part of the pine has been cut and a mixed stand of hemlock and hardwoods is left, with considerable pine in some places. Wherever the timber has been cut or even lightly culled, forest fires have run through, and as the result the greater part of the county has been burned over. Extensive tracts of jack pine grow in the central and southwestern part of the county, and large burned-over areas are everywhere. There are extensive areas of agricultural land in this county.

Price county is a typical hardwood county. The greater part of the area is unquestionably well adapted for agricultural uses, being a light sandy loam, varying to a heavier clay, or to a sandy soil in different sections. As in most of the northern hardwood counties, there are many irregular areas of poorly drained land that form typical tamarack, spruce and cedar swamps, many of which will, in time, be drained and successfully farmed. Probably 5 per cent of the total area is of this type, and about the same proportion is so sandy and rock-strewn that a great many years will elapse before complete utilization of such lands will be undertaken. There are rather large areas in the southern part of the county, where the topography is so rough and irregular and at the same time so interspersed with swamps that it is doubtful whether such land can ever be profitably farmed. Probably 10 to 20 per cent of the county would be of greater productive value if continued under timber than it would be if farmed or pastured.

The timber in Price county is typical hardwood or hemlock-hardwood growth, though there are occasional small stands of valuable white pine, and not infrequently some pine is found in mixture with hemlock and hardwoods, but the more extensive white pine formerly abundant in many parts of the county, particularly in the central part, has been pretty well cleaned out for the past ten to twenty years. Most of the hardwood and hemlock has also been removed within 10

to 15 miles of the railroads. Besides the hemlock or hardwoods there is considerable timber occurring as a swamp type, consisting chiefly of tamarack, spruce, cedar and balsam. Of these species only the tamarack is much used for lumber. The principal hardwood species are yellow birch, sugar maple, basswood, white elm, and ash, named in the order of their importance. Hemlock, however, outnumbers all other species.

Young growth on cut-over land is usually of slow-growing or inferior species. Fire almost invariably runs through the lands, and after the fire popple and bird cherry seed in abundantly. Cut-over land almost invariably reverts to such popple growth. In the swamps and undrained land there is frequently very promising reproduction of tamarack which would be of value if protected from fire. Under present circumstances, however, there are probably as many stands of young fire-killed tamarack poles as thrifty growing trees. Cedar also reproduces well in many of the swamps and seems to grow in the wetter situations where fire is not such a damaging factor. Pine reproduction is not at all common in Price county where yellow birch and basswood seed in well. On the whole, however, cut-over lands are either left bare and fire-stripped to come back to popple, or are culled and left in possession of the defective trees, principally maple, good only for cordwood. Probably no hardwood county shows worse effects from forest fires than Price, and millions of feet are killed or injured from this cause annually.

Rusk county has excellent agricultural soil throughout and will undoubtedly make one of the leading farming districts in the northern part of the state. This county was originally heavily timbered, but practically all of the white pine was cut out years ago. The present standing timber consists of hemlock and hardwood in mixture, the bulk of which is situated in the towns of Atlanta, True, Lawrence, Hawkins and Marshall. The average stand is about 5,000 board feet to the acre, with an average value of about $5 per M. A conservative estimate would place the amount of standing timber at 300,000,000 board feet. The cut this year, 1910, will be about 35,000,000 feet, and if this rate of cutting is continued, the remaining timber in the county should last about nine years longer.

Sawyer county, like Price, which borders it on the east, is a typical hardwood county with a light loamy soil that becomes heavier in the southern tier of towns. In the northwestern corner there is a very sandy area characterized by jack pine, Norway pine and scrub oak.

Swamp land is common throughout the county, and makes up from 3 to 4 per cent of its total area. There are numerous lakes in the western half. The timber is chiefly hardwoods and hemlock with scattering pine. There is a considerable area north of the Lac Courte Oreille Indian reservation that is almost barren of valuable timber growth, the soil being a coarse sand covered with a scrubby growth of oak, cherry and paper birch. It is claimed that no valuable timber has ever been cut from this area. In one town in the northeastern part of the county considerable second-growth pine is being cut. Taking into consideration all the timbered land in the county, it is doubtful if the stand per acre will average 3,500 board feet, or 140,000 board feet per forty. Large areas and certain whole townships may average much higher, probably 5,000 board feet per acre.

Vilas county has three grades of soil: sandy, sandy loam, and clay loam. The sandy land, aggregating several thousand acres, is situated principally along the streams. The clay loam is found north of the line between Tps. 42 and 43 and in a part of T. 42, Rs. 11 and 12, T. 41, Rs. 11 and 12, T. 40, R. 12, and in a fraction of T. 40, R. 11, and T. 39, R. 12. Excepting the sandy soil the remainder of the county is for the most part a sandy loam. There are several hundred lakes varying in size, and numerous swamps and a considerable area of pine marsh. Boulders and rocks in large quantities characterize the hardwood region, and in many places, principally around the larger lakes, the country is rough and hilly. Only about 20 per cent of the county remains timbered. The total stand is estimated to be approximately 480,000,000 board feet.

Cut-over Land.

About 60 per cent of Bayfield county, 95 per cent of Douglas county, 50 per cent of Florence county, 20 per cent of Forest county, 45 per cent of Iron county, 75 per cent of Marinette county, 67 per cent of Price county, 78 per cent of Rusk county, 65 per cent of Sawyer county, and 78 per cent of Vilas county has been cut over. Or, to express it in another way, out of the total area of 6,518,560 acres for these counties, the timber has been cut from approximately 4,254,000 acres. A large part of the remainder, however, has also been more or less heavily culled over for pine. Much of this cut-over land is owned by land companies who are trying to dispose of it to settlers at from $10 to $18 per acre. In some of the counties, however, some of the larger lumber companies are not selling their cut-over

land, although they are not holding it for a second crop. Presumably they are retaining title to it in order to continue in control of the town government, thereby making it possible to keep the taxes on their timbered land at a minimum. Not until they have completed operations will these cut-over lands be placed upon the market. While it is not probable that any great amount of it can be sold to settlers, the lumber companies will have little trouble in disposing of it at from $2 to $4 per acre to land companies.

The bringing into use of this great quantity of cut-over land, the bulk of which is now in a state of idleness and likely to continue so under present conditions, is a problem of first importance. Eventually much of it which is fit for agriculture will doubtless be placed under cultivation. Its rapid appropriation for farming, however, is not probable. Through unfortunate lack of information many of the settlers purchase land which is so poor in soil that, even after valiant efforts, they fail to develop it, and finally are compelled to let it go. Not infrequently the land is sold to the poor but well-intentioned non-resident without his having had an opportunity to view it. Often, in such cases, the land that he has purchased is not fit for farming purposes, and the result is abandonment. These cases are cited merely to show some of the elements which are tending to defer the early development of that part of the cut-over area which is susceptible of cultivation.

The most serious phase of the problem, however, is to bring about a utilization of the non-agricultural land. It is not worthless land by any means, for it can be successfully used for growing timber. It is essentially a forest soil and should unquestionably be kept under forest growth. At present the greater part of it is nothing more than waste, and what is worse, the owners can not profitably make it a timber-producing property even if they were so inclined. This class of land, as will be shown, is bearing the heaviest tax burden, and more than any other is entitled to consideration in any plan for an equitable adjustment of taxation. It is this land which should furnish a good part of the future local timber supply, and in order that this may be made possible through private initiative, one of the first steps that should be taken is to provide a rational forest tax law.

Settlement and Agricultural Development.

According to the latest census for which figures are available the ten northern counties had a population of 141,763. About 93,500, or

66 per cent, of this population is reported as living in the various cities and villages, leaving a little more than 48,000 for the rural districts. While many farmers doubtless live in these villages, especially the smaller ones, it is pretty safe to say that, in the aggregate, the greater part of the city and village population is not engaged in agricultural pursuits. Probably most of the male population is employed in sawmills and other wood-working industries. Nor would it be fair to say that the entire rural population is engaged in agriculture. Many of the rural residents work in the woods for the lumber companies. It is probable, however, that that part of the rural population not engaged in agricultural pursuits is about equal to the number of village residents who are so engaged, and this gives an agricultural population of approximately 50,000 for the ten counties. On the basis of five persons to a family, this would give an average of about one family to each section of land. Assuming that these figures are approximately correct it is evident that thus far there has been no great amount of agricultural settlement, nor has agricultural development gone far, since only 77,262 acres, or a fraction over one per cent of the total area, is improved farm land; this would give an average of less than eight acres of improved land to each family.

In Bayfield county, where the total area of all the towns is 900,857 acres, only 4,796 acres is improved farm land. Most of this improved land is used in the production of hay, oats and potatoes. It is probable that this county will never be a foremost agricultural county. There are parts of it that may be adapted to dairying, and still smaller areas where profitable farms will be developed, but a good share of it is a forest soil and should be kept under forest growth. It is the opinion of some that this county should make a good strawberry district. Situated as it is on Lake Superior, the waters of the lake keep the surrounding country very cool until early summer, make a late spring, and, therefore, make possible the raising of strawberries after they are gone in other districts. This industry, however, can never occupy a very large part of the county, and at present but 15 acres are so utilized. Many of the settlers are dissatisfied and would be glad to sell out. This, however, is equally true of many of the other counties.

Although Douglas county is more completely cut over than any of the other northern counties, yet it has only 6,904 acres of improved farm land. With the total area of the several towns aggregating 782,395 acres it is apparent that agriculture is not much developed. The predominant crops are the same as those in Bayfield county. In

Florence county, out of a total area of 307,732 acres, there are 6,450 acres of improved farm land. With one exception, Forest county has the smallest area of improved farm land of any of the counties covered, the total amount being 2,382 acres. It should be remembered, however, that only about 20 per cent of this county has been cut over, and there is a very small amount of such area which is sufficiently accessible to make settlement attractive at this time. Until more of the timber has been removed, there is not much likelihood that settlement will be encouraged by the owners of the land, for the reason that an increasing number of settlers would doubtless make it impossible for the large lumber companies to continue in control of the local government. In all, there are only about 200 settlers. Most of the settlement in Iron county is in the northern part where the best soil occurs and where the timber has been removed. The total area of improved farm land is 2,386 acres. The total area of the county is 453,432 acres. At present settlement is very backward and there is not much prospect that it will improve.

Marinette county is more extensively developed along agricultural lines than any of the others, there being something over 30,000 acres of improved farm land out of a total area of 884,719 acres. In the order of their importance the crops raised are hay, oats, corn, potatoes, rye, barley, wheat and sugar beets. Out of a total area of 777,761 acres for the several towns in Price county there are 10,236 acres reported as improved farm land. The crops raised here are about the same as they are in the other northern counties, with the exception that a larger percentage of the land is in hay, the acreage devoted to that crop being 7,666 acres. At present good land, free of stumps and stones, can be purchased at an average price of from $30 to $35 per acre, but not separate from unimproved land. Some of the best improved land in the center of the county can be bought for $40 per acre, including buildings and other improvements. Rusk county is reported to have 8,638 acres of improved farm land out of a total area of 579,203 acres. The crops are about the same as in the other counties, with the exception that there are a few acres in tobacco and strawberries. The area of improved farm land in Sawyer county is 3,988 acres. The total area of the county is 651,285 acres. It is, therefore, apparent that a very small proportion of the county has been developed along agricultural lines. Here, too, the principal crops are hay, oats and potatoes. Although 78 per cent of Vilas county has been cut over, it has the smallest amount of improved farm land of any,—only 1,458 acres. Se

tlement is very backward at present, and prospects for improvement are not very encouraging. While there is a considerable amount of land in the county, which could be adapted to agricultural use, it is at present so inaccessible that settlers can not come in and clear and farm it with profit.

Probably the greatest deterrent to the settlement and development of these counties is the cost of clearing the land of stumps which ranges from $15 to $100 per acre. This expense, added to the purchase price of the land makes it a pretty expensive proposition, especially for those with limited funds. In many instances the settler is compelled to abandon his land, for the reason that he has not sufficient money to supply him with the ordinary necessities of life until enough clearing has been done to make the land productive.

Annual Cut and Importance of Lumber Industry.

From year to year as the amount of standing timber is reduced, the annual cut is being lessened. This reduction is slowly but surely wiping out the most important industry in these northern counties. The material welfare of many communities in this region has already suffered from the loss of wood-working industries, and as the forest is further depleted, others must likewise suffer. The present importance of this industry in the ten counties is shown by the 750,000,000 board feet of lumber cut during the year 1908. In addition to this, a large amount of timber was cut in these counties for transportation to mills outside. For instance the mills in Marathon county, where more than 143,000,000 feet were sawn in 1908, depend in a large measure on the more northern counties for their timber supply.

If this important industry is to be even partially perpetuated it will be necessary in some way to encourage the growing of new forests, and a reform in the method of taxing forest land should play an important part in making it profitable for private owners to take up the work of reforesting their cut-over lands.

Jefferson County.

Although the study of the tax question in its relation to forests and forestry in Wisconsin is of chief importance only in the northern half of the state, where practically all of the remaining saw-timber is found, it was nevertheless deemed advisable to make a brief investigation of the conditions in one of the typical southern counties, in order to ascertain if possible whether any beneficial results in the way of timber

production or conservation of woodlots might be secured in the agricultural part of the state by a change in the present method of taxation. For this purpose the county of Jefferson was selected.

Jefferson is a typical farm county, and is fairly representative of the southern third of the state which is a rich and level or slightly rolling agricultural section. In 1908, with a total area of 346,720 acres, 124,208 acres were in improved farms. The timber has been almost entirely removed and is now found only in small and widely scattered woodlots. Many farms have practically no timber or forest trees left standing on them, and those farmers who have maintained small areas in woods, appear to value the woodlots more for the shade they afford their cattle than for their wood-producing capacity.

As a result of this widespread grazing of the woodlots but little young growth is coming in. Consequently, with the gradual dying out of the old trees, the stands have each year become more and more open until now, in most cases, the forest floor is covered with grass, and the so-called woodlot is really only an open grove of scattered trees, bearing little resemblance to true forest and destined to disappear with the death of the present mature trees.

When dealing with land of such great agricultural value as is found in this county, the question naturally arises whether the farmers can really afford to practice forestry or conservatively manage their existing woodlots. Any discussion as to remedial tax legislation that does not give full consideration to this question of the most profitable use to which lands can be put, will necessarily fall short of the mark.

Land values throughout Jefferson county range from $80 to $150 per acre, the only exceptions being very limited areas of rough land in the southeastern part of the county and scattered marsh land constituting scarcely one per cent of the total area. Such marsh land has a very fluctuating value and in some years may be purchased as low as $10 per acre. Existing woodlots, however, are principally limited to typical agricultural soils, and there need be no hesitation in acknowledging that sites of this character could be made far more productive financially if cleared of their timber and converted into farm land. It is doubtful, however, if there is at present over 15 per cent of this farming section that is occupied by such woodlots, and there is, therefore, no great urgency on the part of the landowners to clear off this small remnant. Yet this per cent is certain to decrease during the next fifty years, unless the farmer can be convinced of the unwisdom of further depriving the county of its natural forest cover.

From interviewing many farmers in the county it is apparent that the more progressive of them are really interested in caring for their woods, and are of the opinion that they can often well afford to leave a strip of woodlot on $100 land, because of other considerations than the direct money return from the woods. In many cases the value of a large part of a farm is enhanced by the protection from parching winds afforded by a neighboring woodlot. The regulated and limited use of a woodlot as shade for cattle is also greatly appreciated by most of the farmers. It will undoubtedly be to the advantage, then, of the country in general to maintain at least 5 per cent of even such valuable land as this in timber, and there seems to be no doubt that some adjustment of taxes in favor of small woodlots would prove very beneficial.

It is right here that the question of taxation, as applied to timber, is an important factor. Timber land throughout the county is assessed as high as the cultivated land on a farm. Yet in spite of this there are many farmers who prefer to keep from 10 to 15 acres in timber. If the productive capacities of fields adjacent to a forest are augumented by its protection, the increased earning power of that field should not be charged, for taxation purposes, both to it and to the forest as well. The forest land should be taxed only for what it can be made to produce in wood material. The amount necessary to be raised by taxes will naturally be made up on the agricultural land, but such adjustment would unquestionably encourage the farmer to preserve his woodlands and enable the more enterprising to practice forestry at a fairer profit. Fully 5 per cent of the area of any farm community should be kept forested, as the most progressive residents fully realize, for the sake of both the community and the individual.

It is evident that, under such a plan, the larger the forest area on a farm the lighter the owner's tax would be, yet the greater productive capacity of the land when devoted to farming, would automatically check a farmer from trying to reduce his taxes by maintaining large areas in woods. By reducing the valuations on woodlots to 25 per cent a progressive farmer would simply be encouraged to maintain his 5 to 10 acres of woodlot, or as much as he might need, and the farmer who would take no interest in preserving his trees would, of course, feel the increase in the tax on his farm land. The average farmer, however, would scarcely feel any difference in his tax burden.

EXAMPLES OF ACTUAL TAXATION.

The following are a few typical examples from a large number of cases, comparing the assessed value with the actual value.

On one forty in one of the northernmost counties an estimate of the timber shows 765,000 board feet of white pine and 85,000 board feet of red pine, with a little scattering of hardwoods, mostly birch and maple. The value of the timber is easily $6,715, and the value of the land is placed at a little less than $4 per acre, or $150 for the forty, making a total estimated value of $6,865. The assessed value in 1909 was placed at $3,450, or practically 50 per cent of the true value. The tax rate in this case was .0246.

On another forty the estimated stand of timber is 810,000 board feet of white pine and 90,000 board feet of red pine, with practically no hardwoods in mixture. The stumpage value of the timber is conservatively placed at $7,110 and the value of the land at $150, making an estimated true value for the forty of $7,260. The assessed value in 1909 was $1,200 or 16 per cent of the true value. The tax rate in this case was .0242.

A very large number of forties in this county are assessed at a flat rate of $1,200, which makes a variation of from 16 to 60 per cent of the estimated true value of the forty.

The hardwood land is assessed at about the same ratio to its true value as the pine land. One forty, containing 100,000 board feet of hemlock, 10,000 board feet of basswood, and 160,000 board feet of birch, is estimated to be worth $800 for the timber alone. Adding $150 for the land gives a total value of $950. The assessed value in 1909 was $260 or 27 per cent of the estimated true value. The tax rate in this case was .0338.

One forty in another county has a stand of 540,000 board feet of white pine and 20,000 board feet of red pine. The timber itself is worth $6,680 and the land about $80, making a total value of $6,760. The forty was assessed at $2,418 in 1909 or about 36 per cent of its true value. The tax rate was .044.

Another forty contains 800,000 board feet of white pine which is worth $9,600. The land is worth about $2 per acre, making a total of $9,680. The assessed value is $2,780 or 28.7 per cent, and the tax rate was .044.

A high assessment appears in another forty which has a stand of 110,000 board feet of white pine worth approximately $1,320. The

timber and land together are worth $1,400 and were assessed in 1909 at $1,280, giving a ratio between assessed and true values of over 91 per cent, and the tax rate was .044.

A farm of 160 acres in the western part of the same county has 60 acres of cleared land. It is valued at about $35 per acre for cultivated land and $6 for unimproved land, which makes a total value of $2,700. The assessed value in 1909 was $840, or 31 per cent of the true value, and the tax rate was .044.

Much of the cut-over land in another county is assessed at $80 a forty or $2 an acre. As low assessments as $60 a forty, or $1.50 an acre, are found. Such land as is assessed at this latter figure is usually swampy and of practically no value for forest growth when once cut over, owing to the difficulty of getting the land naturally restocked with trees. It is probable that the average value of cut-over land in this county does not exceed $2.50 an acre, and much of it is worth less. Therefore, an assessment of $80 a forty on cut-over land is practically at the ratio of 100 per cent of its true value. There are large areas of cut-over land also that are assessed as high as $200 a forty, and in some cases individual assessments are found even higher. Such assessments are often in excess of the true value of the land. Timbered forties in the county are more or less uniformly assessed at an even figure of $200, $300, $360, $380, $400, $440, or $500. Five hundred dollars is practically the highest assessment on timbered land in the county. In certain townships a flat figure of $260, $340, or $400 a forty will be used for several sections of land.

In still another county one timber tract, which was taxed at about the average value, consists of 41 acres of good timber, running about 175,000 board feet and worth conservatively $550. The land is of value for farming and ought to bring $7 per acre. If the true value is put at $830 for the tract, the assessed value of $350 is about 42 per cent. The timber consists of 100,000 board feet of hemlock, 35,000 board feet of birch, 20,000 board feet of basswood, and 20,000 board feet of maple. The tax rate in this case in 1909 was .0308.

Another good 40-acre tract of timber is estimated to contain 60,000 board feet of basswood, 75,000 board feet of birch, 25,000 board feet of maple, and 25,000 board feet of hemlock. The timber is easily worth $800 and the land $7 per acre, making a total true value of $1,080 for the forty. The assessed value in 1909 was only $280, giving the low ratio of 25.9 per cent. The tax rate in this case was .0253. In this town, however, all assessing is done by the woods foreman of the principal

lumber company, which undoubtedly accounts for the low ratio of assessed to true values.

Cut-over lands in this county are appraised at uniformly higher figures in proportion to their value, as witness the following cases: A tract of 120 acres, all wild, cut-over land was sold in October, 1909, for $1,300. Its assessed value was $850, showing a ratio of 65 per cent. A similar tract of 80 acres, near a village, was sold in October of the same year for $800 which was only $20 more than its assessed value. The ratio in this case is, therefore, 97 per cent. Another cut-over tract—a pine slashing of 200 acres—was sold in 1907 for $660, at which figure it was assessed, making a ratio of 100 per cent.

Farm land, even where improved, is not assessed much higher than wild land in this county. Eighty acres of good, level farm land brought a price in July, 1907, of $4,000. Buildings included were not worth $200. The land at the time was assessed at $900 or only 23 per cent of its sale value. The ratio naturally increases with the proportion of wild, unimproved land.

In another county cut-over lands in a number of towns are assessed uniformly at $100 per forty or $2.50 an acre. In other towns they are assessed at from $160 to $200 a forty or $4 and $5 an acre, respectively. The true value of the land varies considerably in these towns, and it is not probable that it is uniform over a large area, such as one township, especially where one portion of the township contains good roads, villages, streams and improvements, and the other end of the township contains nothing but wild land; yet the assessments on cut-over lands are the same throughout the entire township. Agricultural land is assessed at a slightly higher rate than cut-over land, but farm improvements and buildings are assessed only at from $25 to $150 per farm. In many cases these improvements are easily worth several thousand dollars.

On one forty in the county there are estimated to be 15,000 board feet of white pine, 20,000 board feet of tamarack, 75,000 board feet of hemlock, 50,000 board feet of basswood, 15,000 board feet of birch, and 5,000 board feet of elm. The actual value of the land and timber is estimated to be $1,027. The assessed value for this forty was placed in 1909 at $600 or 58 per cent of the true value. The tax rate in this case was .0227.

In another county farther south, where there is a very large area of agricultural soil, one tract containing 160 acres sold in March, 1910, for $4,000, of which $3,040 represents the timber value. Hardwoods and

hemlock were estimated to run about 6,500 board feet per acre. The assessor valued this tract in 1909 at $1,080 or only 27 per cent of its sale value. The tax rate in this case was .0334.

Cut-over land is assessed very high One tract of 80 acres, with nothing but cordwood remaining, is held for $300 and assessed for $200 or 66 per cent. Several typical forties of slash land, belonging to a large farm in the west of the county, could be bought for $280 per forty, while the assessed values are $200 per forty or 71 per cent. The tax rate was .0252.

One forty in the south of the county can be purchased from a land agent for $300. This same tract, which is cut over and windfall, was taxed in 1909 at a valuation of $250 or 83 per cent of its true value. The tax rate was .0433.

A 10-acre farm, entirely clear of stones and stumps, is assessed at $128. It was sold in February, 1909, for $580, which gives a ratio of only 22 per cent between assessed and true values. The tax rate was .0252.

Farms with a large proportion of wild land bear a heavier assessment compared to their true value, as is evident from the following case of a 160-acre farm in the southern part of the county. Only 30 acres are cultivated. The whole farm is worth about $2,700 and is assessed at $1,250, a little less than half its true value. The ratio is 46 per cent. The tax rate was .0433.

On one forty in another agricultural county an estimate of the timber shows 1,000 board feet of white pine, 20,000 board feet of hemlock, 25,000 board feet of birch, 5,000 board feet of ash, and 2,000 board feet of maple. The stumpage value of this timber is estimated at $177 and the value of the land at $6 an acre, making a total value for the forty of $417. The assessed value in 1909 was placed at $360 or 86.3 per cent of the true value. The tax rate in this case was .0221.

On another forty the estimated stand of timber is 70,000 board feet of hemlock, 4,000 board feet of basswood, 75,000 board feet of birch, 10,000 board feet of elm, 7,000 board feet of ash, and 10,000 board feet of maple. The estimated value of the timber is $563, and the value of the land at $6 an acre makes a total estimated value for the forty of $803. The assessed value in 1909 was $340 or 42.3 per cent of the true value. The tax rate was .0221.

In certain towns in the county land itself is assessed at $240 a forty or $6 an acre. Granting that the true value of the land is $6 an acre, this is an assessment of 100 per cent of the true value, and it is, there-

fore, a considerably higher ratio than the assessed value of timbered land in the same county. In other towns the assessment on cut-over land is from $280 to $340 a forty or from 116 to 142 per cent of the true estimated value.

The assessed value of farming land throughout the county is the same, or practically the same, as the assessed value of cut-over land, and the improvements, such as buildings, are assessed as a rule at from $25 to $50. Practically the lowest assessments on cut-over land in the county are $110 a forty. Such forties are usually a long way from villages, railroads, or roads. This is an assessment of $2.75 an acre, and is probably as much as the land is worth in such localities.

In still another county the estimated stand of timber on a tract of 80 acres in the southeastern part of the county is 350,000 board feet of hemlock, 10,000 board feet of tamarack, 15,000 board feet of basswood, 70,000 board feet of birch, and 20,000 board feet of elm. The land is worth about $6.25 per acre, and the timber should easily bring $1,350. The total estimated true value of the tract is, therefore, $1,850. The total assessed value in 1909 was $500 or about 28 per cent of the true value. The tax rate in this case was .026.

One of the highest assessments was noted on a forty on which timber was light; about 15,000 board feet of hemlock, 5,000 board feet of tamarack, 5,000 board feet of birch, and 2,000 board feet of basswood. The total value of the timber was about $85 and of the land $240, making a total of $325 as against an assessment of $265. This gives a ratio of assessed to true value of 81 per cent. The tax rate was .0344.

Cut-over land in this county is commonly assessed high. Forty acres of rolling or rather stony, wild land in the southeastern part was assessed as high as $250, whereas it certainly could not bear a higher valuation than $6 per acre. The ratio here in 1909 was, therefore, more than 100 per cent of the actual value, and the tax rate was .026.

Another 40 acres in the same town, but nearer the railroad, was assessed after being cut over at $250. The company believed it was worth $12 per acre, but if the true value is placed at $400 for the forty, the result is conservative and gives a ratio of assessed to true value of 62.5 per cent. The tax rate in this case was also .026.

A great deal of the best farm land in the county is assessed at only 20 per cent of its true value. A 200-acre farm in one town is assessed at $10 per acre, and yet the owner would not sell for less than $50 per acre, showing a ratio of 20 per cent. The tax rate in this case was .0252.

The rate of assessments in another northern county varies greatly, according to the towns and the control which the lumber companies have over the town boards. In one town the ratio of assessed to true value is 71 per cent, and in individual cases even greater. On one lot of 29 acres in this county the stand of timber is estimated as follows: White pine 8,500 board feet, tamarack 14,000 board feet, hemlock 68,000 board feet, birch 54,000 board feet, elm 5,000 board feet, ash 2,000 board feet, maple 8,000 board feet, and cedar 4,000 board feet. The value of the timber is estimated at $646, and the value of the land at $2 an acre, or $58 for the lot, making a total of $704. In 1909 this lot was assessed at $600, or 85 per cent of the estimated true value, and the tax rate was .039.

On one forty the stand of timber is as follows: White pine 82,000 board feet, spruce 15,000 board feet, tamarack 33,000 board feet, hemlock 18,000 board feet, basswood 7,000 board feet, birch 25,000 board feet, ash 2,000 board feet, maple 5,000 board feet, and cedar 5,000 board feet. The value of the timber in this case is estimated at $1,229 and the value of the land at $2 an acre, giving a total value or $1,309. The assessed value in 1909 was $990, or 75.6 per cent of the true value, and the tax rate was .039.

In another town in the same county the assessments are a great deal lower. On one forty there is estimated to be 100,000 board feet of white pine. The value of the timber is placed at $1,000 and the value of the land at $2 an acre, or $80 for the forty, making a total value for the forty of $1,080. The assessed value in 1909 was $110, or 10.2 per cent of the true value, and the tax rate was .0514.

The average ratio of assessed to true value of timbered forties in one town in the county is less than 20 per cent of the true value. In another town it is 71 per cent of the true value, in another town 13 per cent.

The small number of improved tracts in this county makes it difficult to get at the average ratio of the assessed to the true value in the case of farm lands. In one instance of a quarter section, having more than 80 acres partly cleared and on all of which crops are raised, the land, exclusive of improvements, is assessed at $910 or an average of $5.70 per acre. Taking into consideration the location and productivity of these lands and the improvements thereon, it would unquestionably be conservative to value the land at $2,800 or an average of $17.50 per acre. The true value of the improvements on this tract is not less than $2,300, yet they are assessed at $800. On a basis of the above estimate the true value of the lands and improvements is $5,500. The total as-

sessed value is $1,710, making the ratio of assessed to the true value a fraction over 32 per cent.

It is believed that for this entire county the average ratio of assessed to true value, in the case of farm lands, will not exceed 30 per cent. The 72 transfers of real estate, made during the year of 1909, show the ratio of assessed to market value (purchase price) to be 25.6 per cent or more than 4 per cent lower than the figure given above.

SUMMARY OF ASSESSED VALUES COMPARED WITH ACTUAL VALUES.

Assessments of Timberland.

On pages 21 to 27 attention has been called to only a few specific cases, illustrating the inequality and arbitrariness in assessing timberland under the present method of taxation. In the course of the study the assessed and estimated true values were obtained for many other timbered descriptions, but it is not believed any useful end will be served by a separate discussion of each tract. However, they have been grouped by counties and are given in the following tables.

These tables clearly show the pronounced and unwarranted variance in the ratio of the assessed to the true value which now obtains. As will be observed, this variation in the ratio ranges from 16 to 62 per cent in County A, 12 to 60 per cent in County B, 22 to 83 per cent in County C, 42.1 to 88 per cent in County D, 12 to 81 per cent in County E, and 1.7 to 183.7 per cent in County F. It would seem that the assessor did not even attempt to base his assessed values upon a given percentage or fraction of the true values. Although there are a few instances of overvaluation, as well as a few instances where the assessed is not far short of the true value, yet in the general run of cases there has been gross undervaluation. An examination of these tables will also show that almost uniformly the ratio of the assessed to true value is highest on the tracts of least value, and that as the value of the tracts increases the ratio decreases. The figures given are for the year 1909.

County A.

Case No.	Acres.	Tax rate 1909.	Assessed value.	Estimated True Value.			Ratio of assessed to true value.	Remarks.
				Timber.	Land.	Total.		
							Per cent.	
1	40	$0.0338	$ 210	$ 400	$150	$ 550	38	Hardwoods.
2	"	"	225	620	150	770	29	"
3	"	"	260	800	150	950	27	"
4	"	"	270	655	150	805	33	"
5	"	"	200	690	150	840	24	"
6	"	.0214	220	550	150	700	31	"
7	"	"	300	1,115	150	1,265	24	Hemlock and pine.
8	"	"	330	1,230	150	1,380	24	"
9	"	"	230	280	150	430	54	Hardwoods.
10	"	"	230	720	150	870	26	"
11	"	"	330	1,080	150	1,230	27	"
12	"	"	130	75	150	225	57	"
13	"	.0246	3,450	6,715	150	6,865	50	White pine.
14	"	"	1,860	3,555	150	3,705	50	"
15	"	"	2,000	4,147	150	4,297	46	"
16	"	"	2,400	8,580	150	8,730	27	"
17	"	.0440	300	395	150	545	55	Hardwoods.
18	"	"	300	790	150	940	32	"
19	"	"	300	400	150	550	54	"
20	"	"	160	120	150	270	59	"
21	"	.0242	1,300	3,160	150	3,310	39	White pine.
22	"	"	180	120	150	270	66	Cutover.
23	"	"	900	1,610	150	1,760	51	White pine.
24	"	"	500	1,040	150	1,190	42	"
25	"	"	750	1,240	150	1,390	54	"
26	"	"	200	160	150	310	64	Cutover.
27	"	"	1,300	5,210	150	5,360	24	White pine.
28	"	"	1,200	5,530	150	5,680	21	"
29	"	"	1,300	4,740	150	4,890	27	"
30	"	"	1,200	2,054	150	2,204	54	"
31	"	"	1,200	5,425	150	5,575	21	"
32	"	"	1,200	3,875	150	4,025	29	"
33	"	"	1,300	4,340	150	4,490	29	"
34	"	"	1,200	5,270	150	5,420	22	"
35	"	"	1,000	4,414	150	4,564	22	"
36	"	"	1,200	5,425	150	5,575	21	"
37	"	"	1,200	4,950	150	5,100	23	"
38	"	"	1,200	6,510	150	6,660	18	"
39	"	"	1,200	3,160	150	3,310	36	"
40	"	"	1,200	4,266	150	4,416	27	"
41	"	"	1,200	6,715	150	6,865	17	"
42	"	"	1,200	7,110	150	7,260	16	"
43	"	"	1,200	5,100	150	5,250	23	"
44	"	"	750	1,725	150	1,875	40	"
45	"	"	1,000	2,900	150	3,050	32	"
46	"	"	1,200	3,190	150	3,340	36	"
47	"	"	1,113	1,645	150	1,795	62	"
48	"	"	1,200	4,205	150	4,355	27	"
49	"	"	1,200	6,620	150	6,770	17	"
50	"	"	1,200	7,400	150	7,550	16	"
51	"	"	1,200	5,800	150	5,950	22	"
52	"	"	1,200	4,544	150	4,694	25	"
53	"	"	1,200	5,800	150	5,950	22	"
54	"	"	1,200	6,150	150	6,300	19	"
55	"	"	1,200	7,250	150	7,400	16	"
56	"	"	1,200	4,930	150	5,080	23	"
57	"	"	1,200	5,702	150	5,852	20	"

County B.

Case No.	Acres.	Tax Rate 1909.	Assessed value.	Estimated True Val.			Ratio of assessed to true value.	Remarks.
				Timb'r	Land.	Total.		
							Per cent.	
1	40	$0.0461	$ 350	$ 460	$ 240	$ 700	50	Hemlock-hardwood.
2	41	.0308	350	550	280	830	42	Hemlock-hardwood.
3	280	.0246	1,470	2,800	1,400	4,200	35	Hemlock-hardwood.
4	160	.0308	560	4,800	800	4,800	12	Lumber company controls politics.
5	40	.0354	360	760	240	1,000	36	Cedar, hemlock tamarack, and balsam.
6	40	.0354	360	1,060	240	1,300	28	Hemlock, cedar, tamarack, balsam.
7	40	.0354	360	1,010	240	1,250	29	Hemlock, cedar, and tamarac.
8	40	.0224	450	1,760	240	2,000	22	Hemlock and balsam.
9	40	.0224	360	1,200	200	1,400	26	Cedar, hemlock and balsam.
10	40	.0224	400	2,340	160	2,400	16	Lumber company controls politics.
11	140	.0300	2,090	5,020	980	6,000	33	Hemlock-hardwood.
12	40	.0300	680	730	400	1,130	60	Hemlock-hardwood.
13	40	.0300	660	1,100	400	1,500	44	Hemlock-hardwood.
14	40	.0300	240	210	190	400	60	Swampy tract.
15	40	.0300	120	400	200	600	20	Swampy tract.
16	50.9	.0253	170	500	250	750	22	Hemlock-hardwood, little pine, and spruce.
17	40	.0253	280	800	320	1,120	25	Assessor is woods foreman of company.
18	40	.0253	180	275	200	475	40	Tamarack and hemlock.
19	40	.0253	200	220	280	500	40	Hemlock-hardwood.

County C.

Case No.	Acres.	Tax rate 1909.	Assessed value.	Estimated True Value.			Ratio of assessed to true value.	Remarks.
				Timb'r	Land.	Total.		
							Per cent.	
1	160	$0.0334	$1,080	$3,000	$1,000	$4,000	27	Sold for $4,000 3-'10.
2	40	"	160	320	120	440	.....	Swamp land.
3	160	"	1,140	4,460	640	5,100	22	Sold Sept. 1907. Considerable cut but still assessed $1,140.
4	.....	"	260	.....	400	400	65	Held at present for $400.
5	40	.03905	300	690	160	850	35	Sold for $500 1908.
6	40	"	200	300	280	580	38	These three cases are based
7	40	"	210	500	280	780	27	on actual sales of timber
8	40	"	210	235	280	515	40	during 1909.
9	80	"	1,100	1,570	560	2,130 ?	54	Hemlock-hardwoods.
10	80	"	200	.....	280	280	70	Cut-over and burned, light.
11	80	.0433	600	400	640	1,040	58	Partly cut and burned.
12	80	"	550	255	720	975	56	Partly cut and burned.
13	40	"	250	.....	300	300	83	Cut-over and windfall.
14	40	"	350	500	300	800	44	
15	160	"	950	1,500	1,280	2,780	34	Exceptionally low.
16	40	.0412	400	500	240	740	54	
17	40	.0433	400	380	120	500	80	Non-resident holder. Cedar swamp.
18	40	.0412	400	500	240	740	54	Partial stand. Hardwoods.
19	40	"	400	510	240	750	53	Partial stand. Hardwoods.
20	40	.0213	250	200	200	400	62	Only pulp and cordwood.
21	40	"	250	200	200	400	62	Only pulp and cordwood.
22	40	"	375	280	320	600	62	Held for $600 by land Co.
23	40	"	600	920	280	1,200	50	
24	40	"	150	200	300	500	30	
25	40	"	150	50	300	350	43	Only 10 M hemlock and pulpwood.
26	40	"	350	330	120	450	78	Mostly swamp. Some timber, posts, cord wood, etc.
27	40	"	160	190	160	350	45	Swampy. Posts, etc. Some pine, tamarack, etc.
28	40	.0334	160	440	120	560	30	Swampy. Posts, etc. Some pine, tamarack, etc.
29	40	"	275	410	320	730	31	
30	40	.0213	400	940	160	1,200	83	
31	40	.0343	175	400	160	560	31	
32	240	.0412	2,300	5,430	1,220	6,650	34	Brought $6,650 in 1906 and was profitable purchase.

County D.

Case No.	Acres.	Tax rate 1909.	Assessed value.	Estimated True Value.			Ratio of assessed to true value.	Remarks.
				Timb'r	Land.	Total.		
							Per cent.	
1	40	$0.0221	$ 360	$ 177	$ 240	$ 417	86.2	Hardwoods.
2	40	"	330	170	240	410	80.5	Hardwoods.
3	40	"	400	411	240	651	61.4	Hemlock and Hardwoods.
4	40	"	390	514	240	754	51.7	" " "
5	40	"	340	544	240	784	43.4	" " "
6	40	"	380	377	240	617	61.6	" " "
7	40	"	370	205	240	445	83.1	" " "
8	40	"	370	570	240	810	45.7	" " "
9	40	"	340	563	240	803	42.3	" " "
10	40	"	370	502	240	742	49.9	" " "
11	40	"	380	550	240	790	48.1	" " "
12	40	.0332	370	611	240	851	43.5	" " "
13	40	"	340	567	240	807	42.1	" " "
14	40	"	330	272	240	512	64.5	" " "
15	40	"	340	524	240	764	44.5	" " "
16	480	.0221	6,340	10,082	2,880	12,962	48.9	Hardwoods.
17	640	"	6,080	4,705	3,840	8,545	71.2	Pine and Hardwoods.
18	640	.0275	6,740	10,875	3,840	14,719	45.8	" " "
19	640	"	6,280	5,474	3,840	9,314	67.4	" " "
20	640	.0221	5,910	5,006	3,840	8,846	66.8	" " "
21	480	"	4,650	4,800	2,880	7,680	60.5	Hardwoods.
22	640	"	5,850	2,804	3,840	6,644	88.0	"
23	40	.0376	240	.....	240	240	100.0	Cut over.

County E.

Case No.	Acres.	Tax rate 1909.	Assessed value.	Estimated True Value.			Ratio of assessed to true value.	Remarks.
				Timber.	Land.	Total.		
							Per cent.	
1	80	$0.0300	$410	$1,280	$720	$2,000	20	Hemlock and hardwoods.
2	40	"	190	300	200	500	38	Pine and basswood.
3	80	"	240	.....	400	400	60	Badly burned.
4	40	"	320	580	200	780	41	Hemlock, hardwood and some pine.
5	80	"	480	1,250	200	1,450	33	Sandy tract of pine.
6	40	.0250	120	60	280	340	35	Little hemlock and birch.
7	80	"	500	1,350	250	1,600	31	Hemlock and hardwood.
8	40	.0440	160	1,000	200	1,200	14	Assessor probably never saw.
9	40	"	160	1,100	200	1,300	12	Assessor probably never saw.
10	40	"	160	100	220	320	50	Burned.
11	40	"	450	1,120	280	1,400	32	Hemlock and hardwood.
12	80	.0500	360	1,200	400	1,600	23	Hemlock and hardwood.
13	40	.0344	555	1,520	280	1,800	31	Hardwood, a little pine and hemlock.
14	40	"	265	85	240	325	81	Little hemlock and hardwood.
15	492	.0234	5,239	7 500	7,500	15,000	35	White pine.

County F.

Case No.	Acres.	Tax rate 1909.	Assessed value.	Estimated true value	Ratio of assessed to true value	Amount of all taxes.	Remarks.
					Per cent.		
1	40	$0.0514	$110	$1,080	10.2	$5.65	Norway pine.
2	40	"	100	2,580	3.9	5.14	" "
3	42.80	"	150	1,045	14.4	7.71	" "
4	31	"	120	1,062	11.3	6.17	" "
5	45.41	"	150	1,091	13.7	7.71	" "
6	40	"	180	2,080	8.7	9.25	White and Norway pine.
7	45.92	"	200	4,091	4.9	10.28	" " "
8	40	"	200	4,080	4.9	10.28	" " "
9	40	"	150	4,080	3.7	7.71	" " "
10	40	"	300	2,080	14.4	15 42	White pine.
11	39.90	"	150	3,080	4.9	7.71	White and Norway pine.
12	34.50	"	450	5,069	8.9	23.17	" " "
13	40	"	125	2,080	6.0	6.43	Norway pine.
14	40	"	225	2,080	10.8	11.57	" "
15	40	"	75	580	12.9	3.86	" "
16	40	"	100	1,080	9.3	5.14	" "
17	40	"	300	1,580	19.0	15.42	" "
18	40	"	150	1,580	9.5	7.71	" "
19	31.80	"	100	1,563	6.4	5.14	" "
20	40	"	200	2,080	9.6	10.28	White and Norway pine.
21	40	"	200	4,080	4.9	10.28	" " "
22	31.80	"	110	2,063	5.3	5.65	" " "
23	46.80	"	210	1,593	13.2	10.79	Norway pine.
24	40	"	400	4,080	9.8	20.56	White "
25	40	"	700	5,080	13.8	35.98	White and Norway pine.
26	40	"	778	3,080	25.3	39.98	" " "
27	40	"	1,100	4,080	27.0	56.54	" " "
28	40	"	700	4,080	17.2	35.98	" " "
29	40	"	700	2,080	33.7	35.98	" " "
30	40	"	200	1,580	12.7	10.28	" " "
31	40	"	550	4,080	13.5	28.27	" " "
32	40	"	1,000	5,080	19.7	51.40	" " "
33	40	"	500	3,080	16.2	25.70	White pine.
34	40	"	400	2,580	15.5	20.56	" "
35	40	"	1,000	3,080	32.5	51.40	" "
36	40	"	800	3,080	26.0	41.12	" "
37	40	"	1,000	5,080	19.7	51.40	White and Norway pine.
38	40	"	700	5,080	13.8	35.98	White pine.
39	40	"	700	3,080	22.7	35.98	" "
40	40	"	500	2,580	19.4	25.70	" "
41	40	"	500	3,080	16.2	25.70	White and Norway pine.
42	40	"	700	3,080	22.7	35.95	" " " "
43	40	"	250	3,080	8.1	12.85	" " " "
44	40	"	125	1,580	7.9	6.43	Norway pine.
45	40	"	225	6,180	3.6	11.57	White and Norway pine.
46	40	"	125	430	29.1	6.43	White and Norway pine and tamarack.
47	40	"	1,100	7,080	15.5	56.54	White and Norway pine.
48	40	"	150	2,080	7.2	7.71	" " " "
49	40	"	250	3,080	8.1	12.85	" " " "
50	40	"	1,000	5,080	19.7	51.40	" " " "
51	40	"	1,050	8,080	13.0	53.97	" " " "
52	40	"	900	5,080	17.7	46.26	" " " "
53	40	"	425	3,080	13.8	21.85	Norway pine.
54	40	"	400	2,080	19.2	20.56	" "
55	40	"	825	5,080	16.2	42.41	White and Norway pine.
56	40	"	180	5,080	3.5	9.25	Norway pine.
57	55	"	750	6,110	12.3	38.55	" "
58	52.10	"	850	5,104	16.7	43.69	" "
59	40	"	800	5,080	15.7	41.12	" "
60	40	"	250	2,030	12.3	12.85	Norway pine and tamarack
61	40	"	800	4,080	19.6	41.12	Norway pine.
62	40	"	1,000	6,080	16.4	51.40	White and Norway pine.
63	40	"	1,000	5,080	19.7	51.40	" " " "
64	40	"	600	3,080	19.5	30.84	Norway pine.
65	53.10	"	1,000	7,106	14.1	51.40	Norway pine and spruce.
66	54.10	"	500	5,108	9.8	25.70	Norway pine.
67	24.40	"	300	2,049	14.6	15.42	" "
68	45	"	40	1,590	2.5	2.06	" "

County F—Continued.

Case No.	Acres.	Tax rate 1909.	Assessed value.	Estimated true value.	Ratio of assessed to true value.	Amount of all taxes.	Remarks.
					Per cent.		
69	40	$0.0514	$40	$1,080	3.7	$2.06	Norway pine.
70	23.50	"	150	1,547	9.7	7.71	White pine.
71	40	"	600	6,080	9.9	30.84	" "
72	40	"	50	2,080	2.4	2.57	Norway pine.
73	40	"	70	4,080	1.7	3.60	" "
74	40	"	50	1,580	3.2	2.57	" "
75	32.80	"	150	4,065	3.7	7.71	White and Norway pine.
76	50.60	"	120	1,601	7.5	6.17	" " " "
77	40	"	60	1,580	3.8	3.08	Norway pine.
78	40	"	550	6,080	9.1	28.27	" "
79	40	.0390	150	960	15.6	5.85	Hemlock and hardwood.
80	40	"	445	1,117	39.8	17.36	Hemlock and hardwood, also some pine.
81	40	"	978	1,080	90.6	38.16	White pine, partly cut.
82	40	"	715	830	86.1	27.89	" " " "
83	40	"	1,100	2,080	52.9	42.90	" " " "
84	40	"	1,320	2,080	63.5	51.48	White pine.
85	40	"	1,375	2,080	66.1	53.63	White and Norway pine.
86	40	"	990	2,080	47.6	38.61	" " " "
87	30	"	3,600	1,960	183.7	140.40	White pine and hemlock.
88	39	"	3,600	2,878	125.1	140.40	" " " "
89	40	"	125	1,118	11.2	4.85	Basswood, hemlock and maple.
90	40	"	490	580	84.5	19.11	White pine.
91	40	"	575	610	94.2	22.43	Hardwood.
92	40	"	620	480	129.2	24.18	Tamarack and hardwood.
93	29.44	"	600	705	85.1	23.40	Hemlock and hardwood.
94	18.40	"	440	563	78.2	17.16	" " "
95	10.18	"	220	202	108.9	8.58	" " "
96	37.92	"	770	1,042	73.9	30.03	" " "
97	26.80	"	525	633	83.1	20.48	White pine, hemlock and hardwood
98	15.95	"	330	311	106.1	12.87	Hemlock and hardwood.
99	44.56	"	1,320	1,747	75.6	51.48	White pine, hemlock and hardwood.
100	32.70	"	715	1,406	50.9	27.89	White pine, hemlock and hardwood.
101	11.40	"	610	576	105.9	23.79	White pine, hemlock and hardwood.
102	33.60	"	560	560	104.1	21.84	Hemlock and hardwood.
103	42.16	"	825	985	83.8	32.18	Hemlock and hardwood.
104	60.20	"	905	1,271	71.2	35.30	Hemlock, hardwood and white pine.
105	43.10	"	550	580	94.8	21.45	Hemlock and hardwood.
106	49.10	"	1,265	1,682	75.2	49.37	Hemlock and hardwood.
107	3.09	"	25	46	54.3	.98	Tamarack.
108	40	"	550	996	55.2	21.45	Hemlock, hardwood and whit pine.
109	40	"	880	1,087	81.0	34.32	Hemlock, hardwood and white pine.
110	40	"	990	1,309	75.6	38.61	Hemlock, hardwood and white pine.
111	40	"	880	790	111.4	34.32	Hemlock, hardwood and white pine.
112	40	"	550	530	103.8	21.45	Hemlock and hardwood.
113	23.80	"	605	848	71.3	23.60	Hemlock and hardwood.
114	52.94	"	770	1,038	74.2	32.03	Hemlock and hardwood.
115	40	"	1,100	1,592	69.1	42.90	Hemlock, hardwood and white pine.
116	40	"	200	1,850	10.8	7.20	Hemlock, hardwood and white pine.
117	40	"	200	1,526	13.1	7.20	Hemlock, hardwood and white pine.
118	40	"	200	1,639	12.2	7.20	Hemlock, hardwood and white pine.
119	40	"	200	1,503	13.3	7.20	Hemlock, hardwood and white pine.
120	40	"	935	1,437	65.1	36.47	Hemlock, hardwood and white pine.

County F—Continued.

Case No.	Acres.	Tax rate 1909.	Assessed value.	Estimated true value.	Ratio of assessed to true value.	Amount of all taxes.	Remarks.
					Per cent.		
121	40	$0.0390	$1,045	$1,113	93.9	$40.76	Hemlock, hardwood and white pine.
122	40	"	965	1,055	91.6	37.64	Hemlock, hardwood and white pine.
123	36	"	200	318	62.9	7.20	Hemlock, hardwood and white pine.
124	38.70	"	225	950	23.7	8.10	Hemlock, hardwood and white pine.
125	40	"	600	892	67.3	23.40	Hemlock, hardwood and white pine.
126	40	"	1,265	1,574	80.4	49.44	Hemlock, hardwood and white pine.
127	40	"	650	782	83.1	25.35	Hemlock, hardwood and white pine.
128	40	"	470	835	56.3	18.33	Hemlock, hardwood and white pine.
129	40	"	700	1,003	69.8	27.30	Hemlock, hardwood and white pine.
130	36.30	"	620	844	73.5	24.18	Hemlock, hardwood and white pine.
131	24.50	"	600	624	96.2	23.40	Hemlock, hardwood and white pine.
132	49 65	"	2,940	3,642	80.7	114.66	White pine.
133	40	.0360	210	1,490	14.1	7.56	Hemlock and hardwood.
134	40	"	300	1,450	20.7	10.80	" " "
135	14.15	"	75	508	14.8	2.70	" " "
136	58.60	"	250	1,027	24 3	9.00	" " "
137	19.50	"	70	268	26.1	2.52	" " "
138	40	"	200	587	34.1	7.20	" " "
139	41.35	"	530	1,443	36.7	19.08	" " "
140	42.04	"	545	584	93.3	19.62	" " "
141	42.73	"	550	485	113.4	19.80	" " "
142	43.42	"	565	1,175	48.1	20.34	" " "
143	40	"	565	417	135.5	20.34	" " "
144	40	"	525	1,005	52.2	18.90	" " "
145	40	"	525	837	62.7	18.90	" " "

In the tables for counties G, C, and H, which follow, will be found the assessed value for the years 1907, 1908 and 1909, and the estimated true value in 1909 of certain timbered descriptions in addition to those given in the preceding tables. The assessed values for three years are included in these tables, for the purpose of showing that it is not an uncommon occurrence for an assessor to copy from the assessment roll for the previous year, and that even where an increase in assessment is found, it has been made in the most arbitrary manner imaginable. In County H it will be noted that not a single increase has been made during the three years in the assessed value of the tracts given, notwithstanding the fact that the ratio of assessed to true value varies from 4.2 to 116.1 per cent.

County G.

Assessed value and total taxes for 1907, 1908, 1909, per forty of representative tracts of timberland, and the estimated true value and ratio of assessed to true value in 1909.

1907.		1908.		1909.		Estimated True Value.			Ratio assessed to true value in 1909.
Assessed value.	Total tax.	Assessed value.	Total tax.	Assessed value.	Total tax.	Timber.	Land.	Total.	
$75	$3.07	$300	$4.71	$300	$5.19	$1,184	$58	$1,242	24.1
75	3.07	300	4.71	300	5.19	1,016	75	1,091	27.5
75	3.07	300	4.71	300	5.19	202	40	242	123.7
75	3.07	300	4.71	300	5.19	232	40	272	110.1
100	4.10	300	4.71	300	5.19	1,087	67	1,154	26.0
100	4.10	300	4.71	300	5.19	642	40	682	44.0
100	4.10	300	4.71	300	5.19	447	76	4,553	6.6
75	3.07	300	4.71	300	5.19	254	40	294	102.0
100	4.10	300	4.71	300	5.19	274	43	313	95.8
100	4.10	300	4.71	300	5.19	455	40	495	60.6
100	4.10	300	4.71	300	5.19	351	40	391	76.6
100	4.10	300	4.71	300	5.19	750	100	850	35.3
75	3.07	300	4.71	300	5.19	993	112	1,105	27.1
100	4.10	150	2.35	150	2.60	564	40	604	49.7
125	5.13	300	4.71	300	5.19	227	40	267	56.2
125	5.13	300	4.71	300	5.19	502	40	542	55.4
100	4.10	300	4.71	300	5.19	370	42	412	72.8
75	3.07	350	5.49	350	6.06	275	40	310	96.8
100	4.10	300	4.71	300	5.19	285	65	350	100.0
100	4.10	300	4.71	300	5.19	821	90	910	33.0
150	6.15	250	3.92	250	4.35	671	40	710	42.3
125	5.13	300	4.71	300	5.19	188	35	223	111.9
75	3.07	200	3.14	300	5.19	819	114	933	32.2
75	3.07	200	3.14	200	3.46	1,230	225	1,455	20.6
100	4.10	100	1.57	250	4.35	170	60	230	86.7
100	4.10	100	1.57	250	4.35	692	44	736	33.9
100	4.10	100	1.57	250	4.35	389	66	455	54.9
100	4.10	100	1.57	250	4.35	677	40	717	34.9
100	4.10	100	1.57	250	4.35	764	40	804	31.1
75	3.07	300	4.71	150	2.60	109	40	149	100.3
75	3.07	300	4.71	300	5.19	397	80	477	62.9
75	3.07	300	4.71	300	5.19	247	18	265	113.2
100	4.10	200	3.14	300	5.19	440	56	496	60.4
75	3.07	300	4.71	200	3.46	793	80	873	22.9
75	3.07	300	4.71	400	13.84	1,217	180	1,397	28.6
75	3.07	200	3.14	300	5.19	338	55	393	76.2
75	3.07	200	3.14	250	4.35	728	147	875	28.6
75	3.07	200	3.14	250	4.35	973	72	1,045	23.9
75	3.07	200	3.14	300	5.19	546	90	636	47.2
100	4.10	100	1.57	250	4.35	715	84	799	31.3
100	4.10	100	1.57	300	5.19	828	106	934	32.1
100	4.10	300	4.71	300	5.19	572	40	610	49.1
100	4.10	300	4.71	300	5.19	159	80	239	125.5
40	1.64	300	4.71	300	5.19	584	40	624	48.1
100	4.10	300	4.71	300	5.19	1,110	40	1,150	26.1
75	3.07	100	1.57	100	1.73	803	72	875	34.3
75	3.07	150	2.35	150	2.60	533	96	629	15.9
75	3.07	300	4.71	250	5.19	609	96	715	21.0
75	3.07	400	6.28	300	6.92	1,242	120	1,362	18.4
100	4.10	75	1.18	75	1.30	1,286	60	1,346	22.3
						395	15	410	18.3

County C.

Assessed value and total taxes for 1907, 1908, 1909, per forty of representative tracts of timberland, and the estimated true value and ratio of assessed to true value in 1909.

1907.		1908.		1909.		Estimated True Value.			Ratio assessed to true value in 1909.
Assessed value.	Total tax.	Assessed value.	Total tax.	Assessed value.	Total tax.	Timber.	Land.	Total.	
$200	$ 4.16	$250	$5.50	$350	$ 7.32	$220	$54	$274	127.7
250	5.20	3 0	6.60	325	6.79	682	84	766	42.4
200	4.16	250	5.50	350	6.27	775	40	815	36.8
225	4.68	250	5'50	300	6.27	837	74	911	32.9
225	4.68	275	6.05	300	6.27	516	40	556	54.0
225	4.68	275	6.05	300	6.27	1,004	40	1,044	28.7
225	4.68	275	6.05	300	6.27	1,111	40	1,151	26 1
225	4.68	275	6.05	300	6.27	553	40	593	50.6
225	4.68	275	6.05	300	6.27	1,024	40	1,064	28.2
225	4.68	275	6.05	300	6.27	568	40	608	49.3
225	4.68	275	6.05	300	6.27	411	40	451	66.5
130	2.70	130	2.86	150	3.14	246	37	283	53.0
130	2.70	130	2.86	150	3.14	90	37	127	118.1
130	2.70	130	2.86	150	3.14	132	120	252	59.5
130	2.70	130	2.86	150	3.14	68	40	108	138.9
130	2.70	130	2.86	200	4.18	40	160	200	99.9
200	4.16	250	5.50	300	6.27	124	160	284	105.6
275	5.72	300	6.60	175	3.66	471	40	511	34.2
150	3.12	150	3.30	175	3.66	597	40	637	27.5
150	3.12	150	3.30	150	3.14	793	116	909	16.5
150	3.12	150	3.30	150	3.14	616	116	732	20.5
150	3.12	150	3.30	150	3.14	603	133	736	20.4
150	3.12	150	3.30	175	3.66	80	50	113	154.9
225	4.68	275	6.05	300	6.27	173	120	293	102.4
275	5.72	325	7.15	350	7.32	578	99	677	51.7
250	5.20	300	6.60	325	6.79	301	200	501	64.9
200	4.16	250	5.50	275	5.75	155	56	211	130.3
225	4.68	275	6.05	325	6.79	720	56	776	41.9
225	4.68	250	5.50	325	6.79	1,269	64	1,269	25.6
175	3.64	200	4.40	225	4.70	693	40	733	30.7
75	1.56	75	1.65	150	3.14	407	66	473	31.7
130	2.70	130	2.86	150	3.14	274	40	314	47.8
130	2.70	130	2.86	150	3.14	697	40	737	20.4
130	2.70	130	2.86	150	3.14	340	40	380	39.4
130	2.70	130	2.86	150	3.14	5	30	35	428.6
130	2.70	130	2.86	150	3.14	256	40	296	50.7
225	4.68	130	2.86	325	6.79	261	40	301	107.9
130	2.70	130	2.86	150	3.14	89	40	129	116.3
225	4.68	225	4.95	275	5.75	288	117	405	67.9
130	2.70	130	2.86	150	3.14	394	102	496	30.2

County H.

Assessed value and total taxes for 1907, 1908, 1909, per forty of representative tracts of timberland, and the estimated true value and ratio of assessed to true value in 1909.

1907.		1908.		1909.		Estimated True Value.			Ratio assessed to true value in 1909.
Assessed value.	Total tax.	Assessed value.	Total tax.	Assessed value.	Total tax.	Timber.	Land.	Total.	
$60	$3.01	$60	$3.15	$60	$3.17	$1,301	$120	$1,421	4.2
56	2.81	56	2.94	56	2.96	123	70	193	29.0
56	2.81	56	2.94	56	2.96	1,093	40	1,133	4.9
63	3.16	63	3.31	63	3.33	1,255	90	1,340	4.7
37	1.85	37	1.95	37	1.95	30	25	55	67.3
47	2.35	47	2.47	47	2.48	45	27	72	65.3
41	2.05	41	2.15	41	2.16	46	40	86	47.7
78	3.91	78	4.09	78	4.12	543	100	643	12.1
61	3.06	61	3.20	61	3.22	10	60	70	87.1
40	2.00	40	2.10	40	2.11	10	40	50	80.0
47	2.35	47	2.47	47	2.48	8	38	46	102.2
25	1.25	25	1.31	25	1.32	24	23	47	53.2
50	2.51	50	2.63	50	2.64	392	40	432	11.6
72	3.61	72	3.79	72	3.80	10	52	62	116.1
50	2.51	50	2.63	50	2.64	480	40	520	9.6
50	2.51	50	2.63	50	2.64	500	80	580	8.6
50	2.51	50	2.63	50	2.64	180	40	220	22.7
50	2.51	50	2.63	50	2.64	181	40	221	22.6
50	2.51	50	2.63	50	2.64	110	40	150	33.3
80	4.01	80	4.20	80	4.22	70	40	110	72.7
50	2.51	50	2.63	50	2.64	74	40	114	43.7
50	2.51	50	2.63	50	2.64	60	40	100	50.0
50	2.51	50	2.63	50	2.64	109	40	149	33.6
50	2.51	50	2.63	50	2.64	140	40	180	27.8
215	10.77	215	11.29	215	11.33	541	40	581	37.0
145	7.26	145	7.61	145	7.64	689	40	729	19.9
50	2.51	50	2.63	50	2.64	182	34	216	23.1
50	2.51	50	2.63	50	2.64	23	40	63	79.4
50	2.51	50	2.63	50	2.64	156	40	196	25.5
50	2.51	50	2.63	50	2.64	52	40	92	54.1
50	2.51	50	2.63	50	2.64	33	40	73	68.5
45	2.25	45	2.36	45	2.37	13	35	48	93.8

Assessments of Cut-over Land.

Unlike timbered land, numerous examples of excessive valuations on cut-over land are found. Many of them are grossly excessive, as will be seen by a casual examination of the following tables in which are given the assessed and true values of certain cut-over tracts in counties H, G, and C. Notwithstanding the fact that most of these tracts are on poor soil, it is quite apparent that the assessor considered them equal in value to the better grades of soil in his district and valued them accordingly. It is not an infrequent case for an assessor to adopt and follow a uniform value per acre for all cut-over land, without regard to its location or the quality of the soil. These tables plainly show the injustice of such a practice. In many instances it amounts almost to confiscation. For example, in County C, the taxes paid on a forty amounted in 1907 to 11.7 per cent of the true value of the land, in 1908 to 15 per cent, and in 1909 to 15.8 per cent. In three

years the owner had paid in taxes on this forty an amount equal to 42.5 per cent of the estimated true value. In seven years, at this rate, he will pay in taxes all the land is worth. On another forty the taxes amounted in three years to 39.8 per cent of the estimated true value of the land. Owners can hardly be expected to hold their cut-over land for a second crop, when at the very start the land is so excessively taxed.

County H.

Assessed value and total taxes per forty of representative tracts of cut-over land for 1907, 08 and 1909, and the estimated true value and ratio of assessed to true value for 1909.

1907.		1908.		1909.		Estimated true value.	Ratio of assessed to true value in 1909.
Assessed value.	Total tax.	Assessed value.	Total tax.	Assessed value.	Total tax.		
50	2.51	50	2.63	50	2.64	20	250.0
50	2.51	50	2.63	50	2.64	40	125.0
50	2.51	50	2.63	50	2.64	40	125.0
50	2.51	50	2.63	50	2.64	40	125.0
50	2.51	50	2.63	50	2.64	40	125.0
43	2.15	43	2.26	43	2.27	35	122.9
50	2.51	50	2.63	50	2.64	120	41.7
50	2.51	50	2.63	50	2.64	40	125.0
50	2.51	50	2.63	50	2.64	120	41.7
50	2.51	50	2.63	50	2.64	120	41.7
50	2.51	50	2.63	50	2.64	120	41.7
43	2.15	3	.16	3	.16	105	2.9
			County G.				
75	3.07	250	3.92	250	4.35	80	312.5
100	4.10	200	3.14	200	3.46	43	465.1
100	4.10	200	3.14	200	3.46	40	500.0
100	4.10	200	3.14	200	3.46	43	465.1
50	2.05	100	1.57	100	1.73	54	185.2
100	4.10	50	.79	50	.86	31	161.3
100	4.10	150	2.35	300	5.19	40	750.0
100	4.10	100	1.57	100	1.73	40	250.0

County C.

1907.		1908.		1909.		Estimated true value.	Ratio of assessed to true value in 1909.
Assessed value.	Total tax.	Assessed value.	Total tax.	Assessed value.	Total tax.		
200	4.16	250	5.50	250	5.23	52	480.8
200	4.16	250	5.50	250	5.23	80	312.5
200	4.16	250	5.50	300	6.27	60	500
250	5.20	300	6.60	325	6.79	50	650
200	4.16	250	5.50	300	6.27	40	750
130	2.70	130	2.86	150	3.14	40	375
130	2.70	130	2.86	150	3.14	35	428.6
130	2.70	130	2.86	150	3.14	18	833.3
130	2.70	130	2.86	150	3.14	40	275
130	2.70	130	2.86	150	3.14	40	375
130	2.70	130	2.86	200	4.18	36	555.6
130	2.70	130	2.70	200	4.18	40	500
200	4.16	260	5.50	300	6.27	60	500
130	2.70	130	2.86	150	3.14	80	187.5
130	2.70	130	2.86	150	3.14	80	187.5
130	2.70	130	2.86	150	3.14	40	375
130	2.70	130	2.86	150	3.14	40	375
130	2.70	130	2.86	150	3.14	66	227.3
130	2.70	130	2.86	150	3.14	68	220.6
130	2.70	130	2.86	150	3.14	70	214.3
130	2.70	130	2.86	150	3.14	70	214.3
130	2.70	130	2.86	150	2.14	120	125
130	2.70	130	2.86	150	3.14	40	375
130	2.70	130	2.86	150	3.14	80	187.5
175	3.64	200	4.40	225	4.70	40	562.5
175	3.64	200	4.40	225	4.70	40	562.5
225	4.68	275	6.05	300	6.27	120	250

Assessments of Farm Land.

In the following tables are given the assessed and estimated true values of a few representative farms in counties B, C, and E. It will be observed that the ratio of assessed to true value for this class of land is about the same as it is for timberland. About the only difference noticeable is that the ratio does not vary so greatly as it does in the case of timberland. The figures are for the year 1909.

County B.

Case No.	Acres.	Tax rate.	Assessed value.	Estimated true value.	Ratio of assessed to true value.
					Per cent.
1	42	.0308	$600	$1,700	37
2	80	.0354	1,000	5,000	20
3	400	.0354	4,900	14,000	35
4	100	.0354	900	3,800	23

County C.

1	60	.0334	$245	$600	41
2	40	.0334	180	600	36
3	40	.0334	240	1,100	22
4	80	.0334	750	2,500	30
5	10	.0252	128	580	22
6	78	.0252	1,253	4,140	30
7	160	.0433	1,250	2,700	46
8	1,340	.0334	6,275	24,000	26
9	80	.0213	925	1,800	51
10	200	.0379	200	1,600	12½
11	160	.0379	300	1,600	19

County E.

1	120	.0315	$320	$2,000	16
2	200	.0252	2,000	10,000	20
3	80	.0252	160	800	20
4	46	.0440	400	1,400	30
5	87	.0440	300	2,500	12
6	80	.0440	240	1,000	24
7	240	.0252	2,400	12,000	20

The following table illustrates how the taxes on timberland have increased during the past few years. The figures are taken for a number of forties in one of the northern counties. It is seen that a large percentage of increase in tax occurred each year during this period, 1904–1909, with the exception of the last, when a decrease of 77 per cent of the tax of 1908 took place. The increase during each preceding year is due to several causes. Probably the increase in the actual value of the holdings through the rise in stumpage is of considerable importance, for assessors are usually quick to raise assessments wherever it is justified. Another factor that often accounts for increased taxes, is the growth and improvements within the towns which means greater expenditures and larger taxes to meet them.

These factors operate on all classes of property alike. In the case of timber tracts, however, there has been a growing alarm that, with their depletion, the towns would be deprived of their largest source of revenue. There is everywhere, therefore, a growing tendency to obtain as much revenue as possible from the timber before it is entirely removed. As a result of this policy the timber holder is being forced to stand a constantly heavier share of the community's tax burden and to furnish improvements for the future's needs. Present taxes are thus being used frequently to provide for permanent improvements, the use of which will come mainly in the years to come. The local governments are usually convinced that timber is not taxed as high as it deserves, and, therefore to provide against a future

when there will be no timber to tax, they do not hesitate to raise gradually the tax on timberland.,

It certainly cannot be denied that there are extensive timber holdings that are or long have been underassessed, and this is especially liable to be the case where the politics of a town have been controlled by the lumber companies operating within it and where, therefore, the assessments are made by the companies themselves. Rapid rises in taxes are very often attributable of the change from such a situation to one where the town gains control of its own politics. This is the case in many towns in Wisconsin which have freed themselves from the control of lumber interests.

Some of the largest drops in taxes noted in the last column are probably due to the removal of the timber on the forty before the end of the 1908 tax year.

Actual value 1909.	AMOUNT OF TAXES PAID PER FORTY ACRES FOR YEARS					
	1904.	1905.	1906.	1907.	1908.	1909.
$705	$3.71	$4.80	$11.25	$32.90	$33.06	$23.40
563	3.18	3.90	6.75	14.85	24.04	17.16
262	2.12	2.70	3.60	7.92	12.02	8.58
1,042	6.36	7.20	20.10	31.35	42.07	30.03
632	5.04	6.60	10 50	23.10	28.55	20.48
310	4.24	5.40	8.70	14.85	18.03	12.87
1,746	6.36	7.80	17.25	66.00	72.12	51.48
1,406	5.04	6.60	16.80	25.58	39.07	27.89
576	3.70	4.80	4.20	26.90	33.66	23.79
538	5.04	6.60	13.05	27.06	30.65	21.84
985	6.36	7.80	16.50	28.71	45.08	32.18
1,271	7.42	9.30	23.55	42.25	49.58	35.30
580	6.36	7.80	16.95	47.69	30.05	21.45
1,681	6.89	8.70	25.65	45.71	69.12	49.37
46	.80	.90	.75	.85	1.50	.98
995	6.36	7.80	21.00	36.47	30.05	21.45
1,086	6.36	7.80	21.00	30.86	48.08	34.32
1,308	6.36	7.80	21.00	52.97	54.09	38.61
790	6.36	7.80	21.00	49.67	48.08	34.32
530	6.36	7.80	21.00	37.80	30.05	21.45
848	7.69	9.60	9.45	21.45	33.06	23.60
1,038	6.36	8.10	21.00	49.50	42.07	32.03
1,592	6.36	7.80	15.75	39.60	60.10	42.90
1,850	6.36	7.80	21.00	94.88	84.14	7.20
1,526	6.36	7.80	21.00	47.36	69.12	7.20
1,639	6.36	7.80	21.00	47.03	69.12	7.20
1,502	6.36	7.80	21.00	43.73	61.60	7.20
1,437	6.36	7.80	21.00	39.77	51.09	36.47
1,113	6.36	7.80	21.00	46.70	57.10	40.76
1,054	6.36	7.80	21.00	43.07	52.59	37.64
317	6.36	7.80	13.95	31.35	30.05	7.20
950	4.24	5.40	15.15	27.72	42.07	8.10
891	6.36	7.80	15.75	21.29	32.45	23.40
1,573	6.36	7.80	15.75	45.54	69.12	49.44
781	6.36	7.80	15.75	27.89	35.46	25.35
834	6.36	7.80	15.75	16.34	25.54	18.33
1,003	6.36	7.80	15.75	25.58	37.86	27.30
843	4.51	5.70	14.10	23.10	33.96	24.18
624	4.24	5.40	9.25	24.59	32.75	23.40
80	1.06	1.50	2.25	7.43	1.50	.98
3.642	4.24	5.40	52.50	88.28	160.77	114.66
Totals $42,129	$225.80	$280.20	$661.95	$1,455.69	$1,820.47	$1,091.49
Average $1,028	5.51	$6.83	$16.14	$35.50	$44.40	$24.18

METHODS OF ASSESSING TIMBERLANDS.

Although the law very clearly states that "real property shall be valued by the assessor * * * at the full value which could ordinarily be obtained therefor at private sale," the assessment of timberlands in practically all of the northern counties is made in a most arbitrary manner and with apparent disregard of the requirement in the law just quoted. In only a few of the towns is there anything approaching true valuation in the assessment of this class of property. Timberland as a rule is not only greatly undervalued, but, moreover, the variableness of the ratios of assessed to true values in many towns presents striking examples of inequality in assessment. While in a few towns there has been an apparent attempt to follow a given percentage or fraction of the true value, a close inspection shows a pronounced variation from such percentage or fraction.

The fixing of low values is not considered a violation of the law. Each assessor is likely to take the general figures of his predecessor. He knows also that other assessors adopt a uniform value per acre for all farm and cut-over land and apply it throughout the assessment district, regardless of the land's advantage or disadvantage of location. The assessor is elected to office by the people whose property he is to assess. Then again he may be in the employ of one of the largest property owners in the town, and in passing it should be said that the administration of many of the towns is virtually in the control of the principal property owner therein, and that the assessor is in the employ of such owner while not engaged in the performance of his official duties. All of these conditions tend to encourage undervaluation, and it is believed they are in no small measure responsible for it.

The law also requires that in determining the value of real estate the assessor shall consider, as to each piece, the quantity of standing timber. For an assessor to get a fair approximation of the true value of such standing timber, he must be able to estimate with some degree of accuracy and be familiar with timber values. Many of the assessors do not have these qualifications, and those who do are often prevented from exercising them, except in a limited way, for the reason that the time allowed for making up the assessment roll is not suffcient to enable an assessor to cover as he should more than a part of his assessment district. It should be said, however, that in a few towns they do attempt to see each timber descrip-

tion in at least one or two townships each year. The assessor is accompanied by a lineman to assist in locating the description, and the assessed value is determined at that time. In a strict sense no cruised estimate is made. Such assessments are made each year on lands not previously viewed by the assessor until the entire town has been covered. In other towns there is very little evidence of such systematic work being carried on, although occasionally it will be found that an effort is being made in that direction.

Cut-over land is usually valued at a fixed rate throughout a town, varying only with a very rough classification of the soil as swamp, hardwood, or pine land. As a rule no attention is given to such important factors governing value as proximity to railroads, highways and water. Cut-over pine lands are seldom assessed for more than $2 per acre, while cut-over hardwood lands will rarely exceed $6 per acre. In the extreme northern counties both cut-over pine and hardwood lands may be assessed as low as $1 per acre. Cultivated land in some towns is assessed at the same values as cut-over land. Even in the more developed farming communities the assessed values of cultivated lands seldom exceed $10 per acre, although the sale value in many cases is five times as great.

Instead of an actual examination of timbered land there is more often merely an interview with the owner. In most of the hardwood regions the land is not considered separately. However, when any estimate is made, the land and trees are treated separately. For example, in the one county, where practically all the timber is estimated, a value of $2 per acre is always added to the assessed value of the timber. The county just referred to is the only one where it is known that cruises for estimating the timber for tax purposes have been made throughout the county. In some towns the cruised values of a considerable portion of the timbered area are, of course, known to the assessor, who is either an officer or employe of one of the companies having extensive holdings in the town, but such cruised values are evidently not used in making up the assessment roll. In such cases the assessor uniformly keeps the assessed value as low as possible, not only on the company's holdings but also on all others. In adjoining towns, where the assessor is not so connected with a large owner, it will generally be found that assessed values are higher.

Assessments are lowered when the owner reports that the timber has been removed, and it is, therefore, classed as cut-over land and assessed at the prevailing rate for such land in the town where

located. Generally, if not always, the assessor will accept such report as correct and make no investigation to determine whether or not the description has been entirely or only partly cut, with the result that, if only partly cut, it is undervalued year after year. No doubt in many instances descriptions are assessed without taking into account the standing timber thereon. At least a comparison of the assessed and estimated true value of many of the examples given herein would indicate that this is the case. So far as could be learned none of the assessors give any consideration to young growth in fixing values.

While the practice of undervaluation prevails throughout most of that part of the state now being considered, it should not be understood that this condition is universal. In many localities a conscientious and fairly systematic effort is being made by assessing officers to conform to the law. In a large measure the importunities of the county supervisor of assessment have influenced the assessor in raising the valuation of this class of property; and in many cases, independent of such solicitations from supervisors of assessment, the assessor has endeavored to faithfully comply with the tax laws regarding valuation.

VIEWS OF LUMBERMEN ON TAXATION.

In carrying on the investigation of timber taxation in northern Wisconsin it was manifestly of primary importance to obtain, as completely as possible, the views of lumbermen on this subject. A large part of the work, therefore was devoted to interviews with large operators, and in many instances where personal conferences were impossible, a great deal was brought out by correspondence with them.

The views expressed by these representative timber holders were by no means uniform. There was, however, very little difference of opinion on the question whether the present system of taxing forest lands is or is not satisfactory; and the one pointed criticism directed against this system that stands out clearly above all others, was that taxes at present absolutely forestall any attempt in northern Wisconsin to hold cut-over land for growing a second timber crop. While it may be true that occasionally a company plans, even under existing conditions, to cut over their holdings a second time, there were only two instances of this sort discovered. In neither case, moreover, was there any effort being made to provide for reproduction or to

obtain an actual second growth; but the second cut would include, as a rule, only such trees as were left as culls after the original operation, and which it was expected would in the next ten or fifteen years acquire a marketable value. In both instances it is intended that these areas, after being cut over the second time, shall be disposed of for farm land; and it, therefore, appears that the second-cut idea is largely a matter of covering the costs of holding such lands over a period during which land values are expected to rise. The view was emphatically expressed by most lumbermen that, under the present tax methods, no second cuts of timber could ever be relied upon, and would only be obtained here and there where fires were scarce and taxes low. In one instance where the present mature timber has been held for the past twenty years, the owner maintains that the taxes already paid in have exceeded the present value of the timber. This is exceptional but goes to show the hopeless outlook for owners of young timber in such towns who may desire to hold it until it reaches merchantable size.

Lumbermen, however, naturally show less real concern over so remote a difficulty as their inability to grow second crops of timber than over the more immediate injuries chargeable to the operation of the general property tax. It certainly can not be denied that the average large timber holder has sufficient grounds for complaint over injustices attributable to the unsatisfactory administration of the present tax law and often to the law itself. Assessors will, almost without exception, persistently hold to the illogical conclusion that a large owner of stumpage is not overtaxed so long as his assessments do not exceed the real value of his property. Most lumbermen will acknowledge that, as a rule, timber holdings are assessed at not more than from 40 to 60 per cent of their full values. Yet it is perfectly obvious that great injustice results to a lumberman, if other classes of property are at the same time assessed at only from 20 to 40 per cent of their marketable value. He is then materially overtaxed even though admittedly underassessed. This is exactly the case in northern Wisconsin between the lumbermen and the farmers. Cultivated land, the lumbermen assert, is seldom assessed at more than from 20 to 30 per cent of its true value, while from 40 to 60 per cent more nearly represents the proportion of true value charged against cut-over timberlands.

Very few timberland owners, however, lay particular stress on this phase of the injustice suffered by them. Cultivated land is so

limited in amount compared with timbered areas, that should it be completely exempted from taxation, the actual tax burden on the forests would not be materially increased. Then, too, the lumberman, who desires to dispose of his cut-over land for farms, is not slow to appreciate the influence of low farm assessments as an inducement to settlement. With scarcely an exception, however, the representative lumbermen emphatically assert that the fundamental difficulty against which they, as the heaviest taxpayers, have to contend is the extravagance of town and county governments, which they say is the cause of the abnormally high tax rates characteristic of much of northern Wisconsin. The lumbermen say that this tendency toward needlessly large financial outlays does not necessarily take the form of dishonest appropriation of funds, although in some instances evidence points strongly in that direction. In fact several timbermen did not hesitate to specify certain towns, where they were convinced public funds were being used for personal benefit. Their chief contention, however, with regard to extravagance was that a great many towns are straining every nerve to put in all possible improvements—roads, schoolhouses and bridges—before the timber is gone. In this manner the timber pays in taxes for improvements that are made far in advance of the real needs of the community. Incompetency of local officials is another charge made by large taxpayers, and without doubt it is accountable for a great deal of needless expenditure, such as is too often glaringly evident in the inefficient construction and repair work of public highways. While the other extreme—the strict economy and lack of needed improvements, too often the results where the town is controlled by a large lumber company—is assuredly of questionable expediency, it is certainly preferable to a corrupt local government

In their efforts to end this irresponsibility and undue extravagance on the part of local officials in the expenditure of public funds, the larger taxpayers, comprising chiefly the lumber and land companies, have organized in several of the northern timber counties of the State taxpayers' associations. These organizations aim to secure in these northern counties more equal tax assessments and to aid in the betterment of highways by looking after the money raised by taxes for road improvements. They believe a reasonable publicity in these matters will largely correct the present abuses and result in the adoption of a lower tax rate. At present the tax rate throughout the region studied is exceedingly variable with the different towns, but

is everywhere abnormally high, seldom below 2½ per cent and in one case as high as 7½ per cent. Almost every company complains of these high rates, especially when combined with the comparatively high assessments already discussed.

On the question of the proposed deferred tax on young timber as a solution of the tax problem in northern Wisconsin, there were widely divergent views expressed by the different lumbermen. Almost everyone of them, however, believed that such a tax on yield was theoretically correct and might wisely be given a trial. A representative of one of the companies, however, took exception to this general view and expressed himself as reluctant to see the plan attempted, for fear that the people of the towns would misunderstand its workings and would conclude that the timber owners were in some way escaping their taxes.

On the other hand, the opinion was frequently given that no other plan than the deferred tax on yield would meet the needs of the situation. Nearly every lumberman agreed that a modification to provide for an annual tax on the land appraised as waste or cut-over land would probably have to be conceded. One large operator, however, took radical exception to such a concession which he believed would create speculative values in timberland. He believed that if any change were contemplated it should make provision for deferring all taxes for a definite period of years. His idea, however, was more nearly one of exemption during that period, at least as far as applied to the land. After that a tax on both timber and land could be levied.

One of the largest hardwood operators who had already given the subject much thought believed that the local governments would require a more regular income from taxes than would be possible under a deferred tax system without further modification. His view was that an annual tax should be charged to the land and timber together, at half the present valuation, and that the difference could be deferred until the final cut. There is serious question, however, whether such a variable system would not be subject to as grave abuses by assessors and be as open to objection as the present system. The chief merits of any plan of deferred taxation arise from the relief it would afford the grower of timber from the great risks and uncertainties in his investment, due to variable and unjust assessments which he is unable to forecast. If taxes are to be based on what he knows will be actually produced in lumber and on a definite fixed

land value he can then calculate ahead, and a large factor in the total risk is accordingly canceled. If, however, the assessed values in any proposed tax reform are to be based on present methods of valuation, abuses will continue. He proposed to collect at the end of the rotation a deferred tax based on yield, or rather only so much of it as has not already been paid into the towns by the annual tax on half the present assessed value. Yet it is not at all improbable that this annual tax will by the end of the rotation have amounted to more than the final deferred tax in which case tre balance would be on the side of the lumber company. Such complications with their possible resultant litigation would serve to make a timber-growing investment in northern Wisconsin as hazardous as it is today.

If a system can be worked out satisfactorily based on the deferred tax on yield with the added feature of an annual tax on the land considered as waste land, there can be no doubt that the revenue from a given timber tract during a rotation would not aggregate as much as the sum of the annual taxes that would be levied under the present unsatisfactory system. It might at first appear, therefore, that under a deferred tax system the local governments would be deprived of a part of their source of income. In reality, however, the change should logically result in creating a larger amount of taxable property within the towns. No concessions should be granted to the few companies who desire to have their mature timber put under the provisions of this tax law, because there would unquestionably be considerable loss of revenue to the towns. It is distinctly out of the question to apply this reform to any but young and growing timber, and then only where certain regulations providing for the best management and protection of the tracts are fully complied with by the owners. This proposal should result in the successful establishment and continued protection of young stands of valuable timber on thousands of acres of non-agricultural land, and this should afford an important source of future tax revenue to the local governments.

Under existing conditions such cut-over areas are disposed of for farms even when of very questionable adaptability for agriculture with no thought of the probable hardships of the farmers who try to make an existence from them. Where not thus disposed of such tracts are naturally restocked with valuable young trees which through lack of adequate protection from fire are almost surely doomed to destruction before reaching any valuable dimensions. There are

extensive areas of such wild cut-over and burned-over lands in northern Wisconsin which will continue unproductive of taxes or anything else until young stands of valuable species are established on them. Therefore, to materially reduce the taxes on growing timber and to thus encourage a wise utilization and protection of such areas can not be construed as a hardship to a town.

In northern Wisconsin there is by no means a scarcity of fertile hardwood land which affords abundant and varied possibilities to the enterprising farmer. Yet lumbermen frequently emphasize the fact that under existing conditions considerable land has to be put on the market as agricultural land at $3 per acre which is unfit for agricultural purposes at any price. Almost every large timberland owner who expressed his views on the situation acknowledged that parts of his own holdings were of typical forest soil, and that it would be of material benefit to the communities in which such tracts were located if they could be permanently maintained for the production of timber. Possibly half of the large operators stated that under a favorable law they themselves would be influenced to maintain whatever lands of this nature they possessed for growing a second crop of timber.

On the other hand there were not a few companies that advanced reasons why they could scarcely hope to hold any of their lands for future forest growth. For example, certain companies operating in the southern part of the region—as in Rusk county, where most of the land is tillable—naturally argued that their wisest course would be to dispose of all of their holdings for agricultural purposes, including even the scattered non-agricultural areas which in most cases are not large enough to constitute lumbering units. Another company was utilizing even the smallest trees on its holdings for the manufacture of wood alcohol and acetate of lime; therefore, since nothing was left to form the basis of a second crop they did not intend to hold any land for this purpose. Several others possessed holdings of insufficient area to furnish a basis for continuous operations. Many companies were opposed to long-time investments exceeding in duration the average length of life and believed that all such undertakings to provide timber for future needs should be made by the state or local government.

THE ATTITUDE TOWARD FIRE.

One of the most serious obstacles to the practice of forestry by the lumber companies, and, therefore, to the satisfactory working out of any tax system designed to encourage timber growing is the absolute lack of popular appreciation of the damage wrought to a forest by fire and the callous disregard on the part of many settlers for the state's fire laws. As a result the fire damage throughout this whole region is simply enormous, and the injury to young growth which is usually not considered, is almost irreparable. A representative of one of the large lumber companies in Price county gave it as his opinion that in this county alone at least 20,000,000 board feet of lumber were annually ruined by fire. According to Mr. E. M. Griffith, State Forester of Wisconsin, the damage to mature timber and property from forest fires in 1908 amounted to fully $9,000,000. Consequently a most adverse feature of this fire situation is that no individual or company can consider forestry methods or hope to obtain reproduction on cut-over land until some adequate system of fire control has been tried and its efficiency amply demonstrated. Very little success along this line can be expected until the state is willing to provide for a thorough fire patrol during all dangerously dry seasons.

As clearly pointed out in the report of the State Forester of Wisconsin for 1908, the present system of fire wardens, while good as far as it goes, falls far short of meeting the actual needs of the situation. Under this system the fire wardens are all local men, and it is not strange that in a great many instances they should fail to take legal action against a neighbor who may have been guilty of breaking the fire law. But the most serious defect in the present law is its failure to provide for fire patrol, which is the one great need of this whole region. The lumbermen so fully appreciate the urgency of such measures for prevention of fires that they are willing in many cases to form a fire protective association to be maintained by levying an annual assessment on an acreage basis from each member, and having as its primary object an extensive system of fire patrol. Such a patrol should not cost over 2 cents per acre per year, and could be placed directly under the State Fire Warden, by whom the individual local patrols could be appointed and made regular fire wardens. A patrol system of this kind should extend to the other parts of the towns as well as to the holdings of the associated lumber com-

panies, and the towns should be charged for patrol and fire-fighting service within their borders. At present it is left entirely to the discretion of the towns as to how much they shall pay for such services, whereas they should be compelled to settle all accounts for fire fighting or patrol submitted by the wardens and audited and approved by the State Fire Warden.

Another variation of this same plan may be suggested whereby the present town fire warden system should be maintained independently of the lumber companies' patrol, but working in harmony with it under co-operative agreement between the state and the association. In any case it is quite obvious that very limited results can be looked for from tax reform until the fire risk is largely eliminated through adequate legislation and effective enforcement of the same.

Attention has already been called to the fact that a large number of the companies interviewed declared that a satisfactory tax law with a deferred tax on the yield as its basic feature would influence them to hold certain portions of their lands for a second growth of timber. It would seem, however, decidedly unwise to place unqualified reliance on these seemingly favorable expressions of opinion. This means no reflection on the sincerity of such companies, but there is undoubtedly need of calling attention to certain difficulties. In the first place, it is far from certain what the lumber companies would agree on as a satisfactory law. There is, in fact, actual basis for a belief that certain of the forestry regulations which would be deemed essential to the successful administration of such a law would meet with the serious disfavor of many of the companies. Efforts already exerted on the part of the Wisconsin State Board of Forestry to secure the co-operation of the lumber companies in obtaining fire protection have in several instances met with considerable opposition wherever slash burning under careful supervision was insisted upon. It is extremely improbable that many lumber companies would desire to avail themselves of a deferred tax provision if it entailed a compliance with regulations that were distasteful to them.

Moreover, it is not at all improbable that a great many companies which at present believe that with a change in the tax system they would practice forestry, may gradually realize the seriousness of the objection brought forward by several of the largest lumber concerns of that section to the effect that forestry, because of its long-time features with the attendant risks, does not afford a sufficiently attractive investment to appeal to private capital. The views of one of

the large operators along this line were that although a tax on yield would undoubtedly be of distinct advantage in its effect on the conservation movement in general, and would most likely react favorably in influencing the future owners of the land to keep non-agricultural areas in timber, yet its effect on present-day lumbering operations would be scarcely noticeable. He believed it would be, for many years to come, financially advantageous for a lumberman to clean up his operations and dispose of his cut-over land as quickly as possible, and he was firmly of the opinion that it was the province of the state to have full control of absolute forest lands. Mr. A. E. James, Statistician of the Wisconsin Tax Commission, in pointing out how insufficient might be the relief afforded a lumberman by such a law because of this very limitation, cites the following example which well illustrates the unsatisfactory possibilities. "Where, say $10,000 is to be raised, if the assessment is $1,000,000, the rate will be 1 per cent. If $100,000 of that million is agricultural and improved land and $900,000 is forest land, the forest will obviously pay a tax of $9,000. If we assume $600,000 represents the value of the timber which it is proposed to exempt, the valuation of the town would be cut to $400,000, of which $300,000 would represent the (timber) land value exclusive of the timber. With the same amount of tax to be raised the rate would be 2½ per cent and the timberland would bear a tax of $7,500." In other words, under the example assumed, the exemption of $600,000 of timber would only result in the reduction of the tax by $1,500. Any material tax on the timber when cu would undoubtedly very much more than make up for this difference and would ultimately result in heavier rather than lighter taxation of forests.

While this example fails to give due prominence to the effect of the income from the tax on yield in keeping down the tax rate, it certainly points out difficulties in the way of the adoption of such a law. Because of these difficulties in the successful administration of the law and more particularly because forestry is fundamentally a long time proposition extending through many years before returns may be expected, there is much to be said in favor of state control of all absolute forest land.

TREE BELT AND FOREST PLANTATION LAWS.

For many years there was a law* in force in Wisconsin which apparently was designed to encourage the growing of windbreaks. By this law every owner of five or more acres of land who successfully grew forest trees of certain species in tree belts of a specific character, should be entitled to have the land on which such tree belts grew exempted from taxation from the time the trees commenced to grow until they reached a height of 12 feet, after which time the owner was to be allowed an annual bounty of $2 for each acre grown.

It is not doubted that the framers of this law were well-meaning but it is not clear why they thought it necessary to be so exacting in regard to the species to be planted, the height the tree should attain before the exemption period ceased and the bounty period began, and the height to which it should eventually grow. Also, why they should be so exacting with regard to the relative location of the tree belt. Although the law was in force for many years, it is doubtful whether any persons ever attempted to comply with its provisions. If they did, there is every reason to believe they were not successful, for the 35 replies received from inquiries addressed to 60 counties

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* In order to show the particularities to which an applicant had to conform before becoming entitled to such exemption and bounty, the law is quoted in full:

"(Sec. 1469. Statutes of 1898.) Every owner or possessor of five acres of land or more who shall successfully grow by planting with forest trees, consisting of the following kinds of such species thereof as will grow to the height of 50 feet or more, viz.: arbor vitae, ash, balsam fir, basswood, beech, birch, butternut, cedar, black cherry, chestnut, coffee tree, cucumber tree, elm, hackberry, hemlock, hickory, larch, locust, maple, oak, pine, spruce, tulip tree, and walnut, tree belts in the manner and form prescribed in the next section shall be entitled to have the land on which such tree belts grow exempted from taxation from the time the trees commence to grow until they shall reach the height of 12 feet, and after they shall have attained that height to receive an annual bounty of $2 per acre for each acre so grown.

"(Sec. 1470. Statutes of 1898.) Such tree belts shall be planted on the west or south sides of each tract of land, be of uniform width throughout their entire length, contain not less than eight trees, at nearly equidistance, on each square rod of land, and be at least 30 feet wide for each 5-acre tract, 60 feet wide for each 10-acre tract, and 100 feet wide for each square 40-acre tract, and upon all square tracts of land upon two sides thereof. All tree belts owned by the same land owner must be planted not to exceed a fourth of a mile apart and on the west and south sides of every square forty acres, and shall not exceed one-fifth of the entire tract of land on which the same are planted; provided, that when the east and north sides, or either, of any tract of land is bounded by a public highway, a tree belt one rod wide may be planted next to said highway, although it, with the others on the west and south sides, shall exceed one-fifth of

said that no exemption or bounty had ever been granted under the law. It was very properly repealed by Section 23, Chapter 264, 1905.

In 1907 the Legislature enacted a law (Sections 1494—101 to 1494—111, inclusive) to encourage the planting and cultivation of woodlots. By its terms the owner of any land in the state who shall set apart any specific portion thereof, not exceeding 40 acres, for forest culture and plant the same with not less than 1,200 trees to the acre, shall be exempted from taxation for a period of 30 years from the time of such planting, provided the trees are kept alive and in a healthy condition. After the trees have been planted 10 years the owner may, without waiving the tax exemption, thin them out so that not less than 600 trees shall be left upon each acre.

Persons applying for exemption under the provisions of this law are required to file in duplicate a description and plat of all lands so planted; one copy of the description and plat to be filed with the county clerk and the other copy with the State Forester. Except upon the written approval of the State Forester, the provisions of the act shall not apply to any lands within two miles of the limits of any incorporated city or village.

While it is not entirely clear, it would seem from the wording of Section 1494—106 that the necessary implication would be that the exemption can not apply to any tract of land of an average value of more than $10 per acre at the time of planting. The owner may

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the whole tract; and tree belts may be planted on any other lines within each forty square acres by permission of the assessor.

"(Sec. 1471. Statutes of 1898.) The assessor shall, upon the application of the owner thereof, in each year, at the time of assessing the personal property in his district, make a personal examination of all tree belts for which bounty or exemption from taxation is claimed and ascertain whether they have been planted as required in the preceding section and are thriftily growing; and if he shall be satisfied thereof he shall not assess the same for taxation unless the trees therein shall have attained the height of 12 feet; and in that case he shall deliver to the owner a certificate that he is entitled to an annual bounty of $2 for each acre of such tree belts, stating therein the whole amount of such bounty and giving a description of the entire land of which the tree belts form a part, and the amount of such bounty shall be credited by the treasurer in payment of any taxes assessed on such land as so much cash; but if not so satisfied the assessor shall assess the land for taxes or refuse to grant any certificate for the bounty, as the case may require; and if, after any certificate for such bounty shall have been issued, the owner of any such tree belts shall suffer the same to die out by want of cultivation or otherwise, or shall cut the same down, or in any other way allow the same to be so thinned out that, in the opinion of the assessor, he ought no longer to receive such bounty, he shall give the treasurer written notice thereof, and thereafter no further bounty shall be allowed until such owner shall again receive a certificate therefor."

have the value of the tract determined in advance of planting by the board of review of the town in which it is located. If the board determines the average value of the tract to be not over $10 per acre, such determination shall be final for all purposes of the act, as to so much of the tract as shall be planted in accordance with the requirements within two years thereafter. But if it shall determine such value to be more than $10, the owner is not precluded from making an application for another valuation of the tract in any subsequent year. When a tract has been planted under the provisions of this act without previous determination of its value, the allowance of the exemption by the assessor and board or review, or by the board of review, shall be deemed to include a determination by such board that the value of the land at the time of planting did not exceed $10 per acre, and shall have the same effect as if made before such planting. If the exemption shall be disallowed, the action of the board of review disallowing the same may, on written application of the claimant, be reviewed by the State Forester. In such case the claimant's application must be accompanied by an undertaking with one or more sureties, for the payment of the expense of the State Forester in making such review in case the exemption claimed shall be disallowed by him. His determination upon written approval of the State Tax commission shall be final, but if adverse to the claimant it shall not preclude him from applying for like exemption in any subsequent year upon compliance with the requirements of the act.

The State Forester is authorized, upon written complaint being filed in his office that exemption has been allowed on any plantation which has not been established or maintained in conformity with the provisions of the act, to determine whether the facts as set forth in the complaint are just and true. If they are found to be true he shall cancel such exemption, after which such plantation or so much thereof as is not so established and maintained shall cease to be exempt from taxation until it is replanted and otherwise brought within the conditions of the act.

The right to exemption shall be inviolable and irrevocable as a contract obligation of the state so long as the owner of the land fully complies with the requirements, but in no case for more than 30 years.

TAX LAWS IN OTHER STATES.*

Twelve of the states have enacted various tax laws to encourage the planting and cultivation of trees and the practice of forestry. Under these laws there is allowed entire or partial exemption from taxation, rebates of part of the taxes or bounties to be deducted from the taxes. In most of the states the law provides for complete exemption from taxes on land and trees for a definite period of time, ranging from five to thirty years. These exemptions, rebates or bounties are generally granted to owners of timberlands in consideration of the public benefit derived from the planting, cultivation and growing of trees.

None of the laws providing for exemptions, rebates or bounties has solved the problem of forest taxation. Practically no results have been obtained under them, although many have been in force for years. It is not difficult to see why results have not been obtained, because most of these laws are impractical from a forestry standpoint. Almost uniformly they apply to plantations and fail to include natural reproduction. In some of them the required number of trees to be planted to each acre is too large or the planting is restricted to certain species which are not always well chosen, or else valuable species have been omitted. The proper care of the trees after once planted is often interfered with by requirements of the law. Even if these defects were not present, it is not believed that the laws would be productive of the results intended.

PROBABLE RETURNS FROM FOREST INVESTMENTS.

It has been shown that the burden of taxation on cut-over land is proportionately much greater than upon timbered land, although the actual assessment is, of course, less. Thus, if the assessment on timbered land is $15 per acre and the actual true value of land and timber is $30, the ratio of the assessed to the true value is 50 per cent. If on the other hand, the land is cut-over the assessment is perhaps reduced to $6 per acre, but if the land is only worth $3 per acre, the ratio of assessed to true value is 200 per cent. That few objections have been registered in the past to this state of affairs is undoubtedly due to the fact that timberland owners have

* Taxation of Timber Lands, by Fred R. Fairchild, in the "Report of the National Conservation Commission," Vol. II, pages 584–589.

not considered holding their cut-over lands for a second cut. While a high rate of assessment on cut-over land is, of course, less of a burden to a timberland owner than a high rate of assessment on timbered land, provided he owns a considerable area of both classes, it is still an increasing burden as his area of cut-over land increases with the cutting of timber. If the owner intends to hold his cut-over land for a second cut, it will take a period of 50 or 60 years, or possibly longer. Such a burden of taxation upon the land becomes of great importance and may result not only in a loss on his investment, but also may amount to more than the actual value of the land itself long before the rotation period is up.

Three tables have been prepared to show what the probable profit or loss will be at given periods on pine timber grown under both the present method of taxation, and the method proposed later in this report where the land is taxed annually and the timber when it is cut. In the absence of data showing the yield per acre of pine in Wisconsin, it was necessary to use yield figures based upon growth and volume studies for the same species in other states. Stumpage values are, of course, variable, but the figures used in these calculations are considered conservative if applied to tracts not over three to five miles from a railroad, and they are especially conservative when consideration is given to the probable rise in pine stumpage during the next fifty years. The total stumpage value per acre is expressed in the column headed "returns."

As a rule, young stands of timber in Wisconsin are not now considered in fixing assessed values. It is, therefore, assumed that for the first thirty years under the present method the timber is exempt from taxation. The land, however, for that period is taxed. Only non-agricultural land was considered, and its value assumed to be $2 per acre in Tables 1 and 2, and $2.50 in Table 3. An annual tax rate of one and one-half per cent on full valuation is used in all the tables. The tax burden resulting from such rate on full valuation will be approximately equivalent to the present tax burden now borne by timberlands in northern Wisconsin. The tax on the yield is fixed at 10 per cent. According to the calculations in these tables, this is the highest rate which could reasonably be applied.

Possible returns from forest investments in natural and planted stands in Wisconsin.

TABLE 1.

Age.	Yield per acre.	Stumpage per M.	Returns.	Cost of protection and land.	Total taxes present system.	Total taxes deferred system.	Total expense present system	Total expense deferred system.	Net profit present system.	Net profit deferred system.	Net annual income, present system.	Net annual income, deferred system.
Years.	M. bd. ft.											
30	2.0	$5	$10.00	$5.61	$1.68	$2.68	$7.29	$8.29	$2.71	$1.71	$0.048	$0.030
40	5.3	6	31.80	9.50	4.65	6.03	14.15	15.53	17.65	16.27	.186	.171
50	8.0	7	56.00	15.26	13.00	10.18	28.26	25.44	27.74	30.56	.182	.200
60	12.5	9	112.50	23.80	29.70	18.39	53.50	42.19	59.00	70.31	.248	.295
70	16.5	10	165.00	36.43	64.62	27.43	101.05	63.86	63.95	101.14	.176	.278
80	20.0	11	220.00	55.12	125.78	38.54	180.90	93.66	39.10	126.34	.071	.229
90	23.0	12	276.00	82.80	226.15	52.44	308.95	135.24	—32.95	140.76	—.040	.170
100	26.0	12	312.00	123.76	384.82	68.33	508.58	192.09	-196.58	119.91	—.159	.097

TABLE 2.

30	2.0	$5	$10.00	$7.97	$1.99	$2.99	$9.96	$10.96	$.04	$-.96	$.001	—$.014
40	5.3	6	31.80	14.50	5.51	6.80	20.01	21.30	11.79	10.50	.098	.087
50	8.0	7	56.00	25.12	15.40	11.88	40.52	37.00	15.48	19.00	.074	.091
60	12.5	9	112.50	42.43	36.04	21.86	78.47	64.29	34.03	48.21	.096	.136
70	16.5	10	165.00	70.62	80.35	34.16	150.97	104.78	14.03	60.22	.024	.102
80	20.0	11	220.00	116.54	162.44	51.14	278.98	167.68	—58.98	52.32	—.061	.054
90	23.0	12	276.00	191.35	306.49	75.44	497.84	266.79	-221.84	9.21	—.139	.006

TABLE 3.

				Planting, protection, and land.							
30	3.7	$5	$18.50	$35.39	$2.49	$4.34	$37.88	$39.73	$-19.38	-$21.23	$-.292	— $.320
40	12.6	6	75.60	59.86	8.05	12.09	67.91	71.95	7.69	3.65	.064	.030
50	21.0	7	147.00	99.71	27.92	22.55	127.63	122.26	19.37	24.74	.093	.118
60	26.7	9	240.30	164.62	73.75	37.29	238.37	201.91	1.93	38.39	.005	.109
70	31.0	10	310.00	270.35	165.01	53.07	436.36	323.42	-126.36	—13.42	—.215	—.023
80	35.0	11	385.00	442.55	329.38	74.92	771.93	517.47	-386.93	-132.47	—.398	—.136

In all three tables the tax rate is 1½ per cent on full valuation.
The land is valued at $2 in tables 1 and 2, and $2.50 in table 3.
The rate of interest used is 4 per cent in table 1, and 5 per cent in tables 2 and 3.
The cost of protection assumed is 2 cents in tables 1 and 2, and 5 cents in table 3.
The cost of planting in table 3 is $5.50 per acre; tables 1 and 2 have natural reproduction.
—means loss.

In Table 1, the rate of interest used is four per cent, while in Tables 2 and 3 it is five per cent. The annual cost of protection assumed is two cents per acre in Tables 1 and 2, and five cents per acre in Table 3. Protection at an annual cost of two cents per acre is possible only where large holders cooperate in protective work. The cost of planting in Table 3 is $5.50 per acre; Tables 1 and 2 represent lands having natural reproduction. If two-year-old seedlings are used $5.50 should cover the cost of planting. In case

three-year-old transplant stock is used this item should be increased to about $8.75.

Table 1 is based upon a four per cent rate of interest, but since many savings banks pay as high as four per cent, such rate would undoubtedly be too low to attract private capital. Tables 2 and 3 are based upon a five per cent rate of interest. Even a five per cent rate is considered by many too low for forest investment, considering the danger from fire and the impossibility of securing fire insurance on the timber. All returns above the five per cent on the investment in Tables 2 and 3, or above the four per cent in Table 1 are considered profits and expressed both as net profits and as an equal annual profit by discounting to the end of each year of the rotation. The calculations in Tables 2 and 3 are not carried out for rotations greater than 90 and 80 years respectively, since after that period the investment is continuously a losing proposition.

Unlike Tables 1 and 2, Table 3 applies only to planted stands of pine, and therefore the cost of planting is included in the items of expense. Planting enables one to obtain a fully stocked stand, and as a result, plantation yields are much above those of naturally grown stands. Growth studies for pine plantations in Wisconsin have not been made because of the lack of such plantations in the state. Studies of this kind, however, have been made for a large number of plantations in Massachusetts, and separate tables have been constructed that show the average yields per acre on the best, medium, and poorest quality of sites. The sandy $2 and $2.50 land in Wisconsin, however, probably has a very low productivity and, therefore, a separate yield table which should apply to these sandy tracts was constructed to amply allow not only for a smaller yield per acre but also for a less complete utilization of small sizes. Since so large a part of the yield of 50 and 40 year plantations is very small material, only 50 per cent of the yield given in the Massachusetts tables for these ages was used. It is believed, therefore, that the values for yield are very conservative.

As shown by these tables, the taxes on natural growth stands under the present system constitute a very large part of the total expense. In Table 1, where four per cent interest is used, after the fiftieth year they are greater than the annual expense for protection and the interest on the land together. At the end of 60 years in this table, which would be the most profitable time to cut the timber, the owner would have paid, per acre, $23.80 in interest on the investment itself and in

annual protection, and $29.70 in taxes under the present system of taxation. This would leave him a net profit of $59 under the present system, or under the deferred system where the total amount of taxes would amount to $18.39, a net profit of $70.31. It must be remembered that in all of these tables the owner is obtaining interest on his investment at the per cent indicated, and that the net profit is over and above the amount of interest on such investment.

In Table 2 the best rotation is likewise 60 years, and in this case where interest has been figured at five per cent, the owner will have paid at the end of 60 years $42.43 in interest on the investment itself and in annual protection, and $38.04 in taxes under the present system. This would leave him a net profit of $34.03 under the present system, or under the deferred system, where the total amount of taxes would amount to $21.86 a profit of $48.21. These are, to be sure, small profits to obtain after waiting for so long a period as 60 years. In the first case at four per cent interest it amounts to an annual net profit of $.248 per acre under the present system, and $.295 per acre under the deferred system. In Table 2 it amounts to $.096 per acre annual profit under the present system, and $.136 per acre under the deferred system. If a higher tax on yield under the deferred system than 10 per cent is used the profits are so far reduced that the investment is no longer attractive.

In Table 3 the initial investment includes the interest on the land and the cost of planting with interest, and the annual cost of protection at 5 cents an acre a year. The reason for the increased expense in this table is due entirely to the cost of planting and the interest thereon. Interest on the entire investment is figured at 5 per cent. This table indicates that the most profitable time to cut the timber would be at the end of 50 years, although in fact the timber might be too small at that period to make it worth while cutting. At the end of 50 years, the owner would have paid for planting, protection and interest on these two items and on the cost of the land $99.71, and he would have paid $27.92 in taxes under the present system. This would give him a net profit of $19.37 under the present system, or under the deferred system where the total amount of taxes would amount to $22.55, a net profit of $24.74.

If a deferred tax on the yield of less than 10 per cent is used it is not believed that the income from taxation would be sufficient for the needs of the town and county, while if a greater per cent than 10 per

cent is used, the profit to the owner is so far reduced as to make the investment unattractive, therefore, 10 per cent has been adopted.*

CONCLUSIONS

As is clearly brought out in the preceding tables, the present method of assessing forest lands is ridiculously uneven and in many cases unfair to the timberland owner. That it is not unfair to the timberland owner in every case is no fault of the present law, but is due to the lax administration of the law by the assessors. While considerable cut-over land has been abandoned in the past on account of taxes, little or none is now being so abandoned. The reason for this is not decrease in taxes, because, as has been shown, taxes have increased, but the increased or expectation value of the land itself for agriculture. While forests have in some cases been overtaxed, leading in a few cases to hastening the cut, taxation has not in the past greatly influenced logging operations in Wisconsin. But the fact that it has had little influence in the past does not mean that it will not have more in the future. The great increase in assessments on forest land in the last few years (as shown in the table on page 64), coupled with the fact that assessments are still increasing, and, more than this, with the fact that under the present tax law they can still increase, makes it inadvisable at present for a private owner to practice forestry on his lands. In such a long-term investment as forestry a private owner must know definitely what the annual charges against his business will be. Under the present system he has no means of knowing how great will be his taxes in 10, 15 or 20 years. In an investment covering such a long period as this, 50 or more years, where fire risk also has to be considered, it is important to know exactly what taxes will have to be paid. Tables 1, 2 and 3 on page 91 show the influence taxes have on such an investment. Probably nothing discourages investments more than uncertainty as to future costs. And whatever can be said of the present system of taxation, there can be no question of its arbitrariness and uncertainty. If there is added to risks from fire, from insects, from fluctuation in lumber values and other hazards of forestry, a further uncertainty as to what the taxes are going to be, private owners can not be blamed for some hesitation

* For an exhaustive discussion of the rate of interest to be used in the calculations of expectation values, see Report on Taxation of Timberlands, by Fred R. Fairchild, in the Report of the National Conservation Commission, Vol. II, pages 624–626.

in starting on an investment which may have to pay taxes for 50 or more years before returns can be realized. And the timberland owner can not safely figure on the continuance of the present lenient administration of the property tax. As has been shown in this report, the tendency is toward a stricter enforcement of the law, and consequently higher assessments.

The possibility of the practice of forestry by private owners depends on two things—an equitable system of forest taxation and protection from forest fires.

Admitting that the evidence gathered in connection with this study shows that, on the whole, owners are not now excessively burdened by the taxes on their standing timber, it does not necessarily follow that the present method of taxing this class of property is satisfactory. We have seen that in the equal administration of the law every rule of equality and uniformity has been violated, and that precision and certainty have been displaced by arbitrariness and uncertainty. Under these conditions owners can not manage their timber in accordance with approved methods of forestry with a view to holding for a second cut, for there would not even be a semblance of certainty as to what the tax burden of future years would be. On the other hand, if the present tax laws were strictly enforced, thereby enabling an owner to determine with a fair approach to certainty the probable amount of taxes he would have to pay in future years, the burden would appear to be so prohibitive that no prudent man would attempt as an investment to protect and care for the young growth with a view to obtaining a second or future cut.

In the past, the one thing that probably has prevented a more wasteful cutting than has actually taken place, and that has saved much of the remaining timber, is the fact that the lax enforcement of the tax laws has kept the burden on timber at a minimum.

The evidence presented in this report has demonstrated that with respect to timbered land the general property tax is administratively unworkable. The problem of forest taxation can never be satisfactorily worked out under it because the system is fundamentally wrong. It is believed that nothing short of a complete readjustment of the present method of taxing this class of property will make possible an equitable solution. Growing timber is so essentially different from the great mass of real property that it deserves different treatment in the matter of taxation. Especially is this true if the state desires to encourage the perpetuation of forest growth and the practice of for-

estry on privately-owned lands. If possible the adjustment should be so made as to promote an adherence to the essential principles of modern forestry among timber owners, and the care and protection by them of young growth both before and after the removal of the mature timber in order that the land may be held for a second or future cut without making it necessary to resort to artificial planting.

It should be said, however, that it is not believed an adjustment of the tax laws, no matter how perfectly worked out and administered, will alone bring about the practice of forestry, except in a limited way, or the extensive growing of timber as an investment, on privately-owned lands. Taxation is only one of several important factor which at present makes the growing of timber commercially unprofitable and consequently unattractive to investors or those engaged in the timber business. The fire hazard, the length of time before returns on the investment commence to come in, stumpage values, and many other less important considerations are factors which many regard equally as deterrent as taxes. While this may be true to-day, it may not be true to-morrow. The menace from fire is admittedly great, but the time must, and surely will, come when it will be reduced to a minimum by the inauguration of more effective measures of prevention and control than now exist. It is to be hoped that the ever-recurring destruction of forest growth from fire will bring about the strictest possible enforcement of the fire laws now on the statute books, and if they are found to be inadequate, then the enactment and enforcement of laws which will reach and remedy this devastating evil. Undoubtedly much can also be done along educational lines toward correcting this evil. With few exceptions all forest fires originate from some agency within human control, and it is therefore reasonable to believe that those exercising such control can by thorough and systematic instruction be trained to exercise the utmost caution in building and caring for fires which by chance are likely to spread to neighboring timber.

The long period which must elapse before there is any substantial return on the investment is, of course, a discouraging feature. Whether it will greatly retard the commercial growing of timber, if all other conditions are favorable, can only be conjectured. Undoubtedly the increase in stumpage values which occurs as the timber supply is gradually diminished will do much to make the proposition more attractive as an investment than it appears to be to-day.

While the introduction of a more equitable system of taxing grow-

ing timber might not in itself be a sufficient inducement to cause private owners to engage extensively in the growing of timber commercially, it would undoubtedly be a step in the right direction. That such an innovation would help immensely to stimulate this sort of enterprise and make it much more profitable and attractive than it is at present can not be gainsaid. The change must come sooner or later if the state is to attempt to remedy existing conditions, and there is no apparent reason why decisive action with that end in view should not be taken now. The remedy can not, of course, affect the past or to any great extent the present, but must necessarily be confined to the future. Its aim should be to encourage the growing and proper management of new forests. And although a change for the better in existing conditions may do much to promote the growing of a future timber supply by private capital, it is firmly believed that if the supply is to be commensurate with the local needs the greatest part of the burden in providing it must and will rest with the state.

RECOMMENDATIONS.

In preceding pages, it has been shown that the present method of taxing timber is fundamentally wrong; and that the time seems ripe for the formulation and application of some remedy. The next question is, what remedies may be regarded as feasible. For convenience of discussion the proposed solutions are divided into (1) woodlots, limited in area, and (2) private forests, without any limitation as to area.

Woodlots.

As has already been pointed out, this state along with many others has endeavored by means of bounties and total exemption from taxes for a certain period of time to encourage the growth by planting of tree belts and woodlots by private owners. The results obtained under these laws in Wisconsin have been inconsequential. Their aim was entirely confined to the encouragement of tree planting in a limited way, and failed to make any provision whatever for the encouragement of woodlots naturally grown. The tree belt law, now repealed, needs no further comment here. The law passed in 1907 is much more commendable than its predecessor, yet it is not satisfactory in every respect. It can be made far more satisfactory if so redrafted as to include the main features enumerated in the recommendations which follow.

In order to encourage the maintenance of woodlots by private owners and the practice of forestry in the management of such woodlots, the enactment of legislation along the following lines is recommended:

1. The owner of any land which is occupied by a natural or planted growth of trees, or by both, may apply to the State Board of Forestry, in manner and form to be prescribed by it, to have such land separately classified for taxation, but in no case shall more than 40 acres owned by one person be so classified.

2. Each application for such classification should be accompanied by a plat and description of the land and such other information as the State Board of Forestry may require.

3. As soon as practicable after the receipt of an application, the State Board of Forestry shall cause an examination to be made of the land for the purpose of determining whether or not it is of a suitable character to be so classified.

4. If the decision of the State Board of Forestry is in the affirmative, it shall submit to the owner a plan for the future management of the land and trees, and shall certify to the town clerk that the land has been separately classified for taxation in accordance with the provisions of the act.

5. So long as the land so classified is maintained as a woodlot and the owner faithfully complies with all provisions of the act and instructions of the State Board of Forestry, it shall be assessed at not to exceed $10 per acre and taxed annually on that basis. In fixing the value of the land for assessment the assessor shall in no case take into account the value of the trees growing thereon.

6. When the owner desires to cut any of the trees he shall give the State Board of Forestry at least thirty days' notice prior to the time he desires to begin cutting, so that it may have ample opportunity to make an examination of the land and designate for the owner the kind and number of trees, if any, most suitable to be cut for the purpose for which they are desired. The cutting and removal of the trees so designated to be in accordance with the instructions of the State Board of Forestry.

7. After such trees are cut and before their removal from the land, the owner shall be required to make an accurate measurement or count of all of them or of their products, and file with the town clerk a true and accurate return, under oath or affirmation, of such measurement or count and of the variety and value of the material so cut.

8. Before any of the material so cut is removed from the land the

owner shall pay to the proper county officer an amount equal to 10 per cent of the stumpage value of the timber, provided, however, that any material which is actually used for domestic purposes by the owner or his tenant shall not be subject to such tax.

9. To knowingly file a false return as to the quantity, variety, or value of the material cut, or failure to comply with the provisions of the act or with any instruction of the State Board of Forestry, shall be deemed sufficient ground for canceling the certificate separately classifying the land for taxation.

The aim of the legislation above proposed is to encourage and make it profitable for the small owner, especially the farmer in the agricultural districts, to utilize a part of his land for the production of wood and timber, thereby affording him a ready supply of wood material for domestic use, as well as a shelterbelt for his other land. All the necessary administrative details have not been covered in the recommendations, the purpose being to point out the essential features of any tax law which is designed to encourage the growth and maintenance of woodlots. The number of acres owned by one person which may be separately classified for taxation is limited in order to prevent an owner from resorting to the law for speculative purposes. It is believed that the amount specified will be sufficient for all ordinary purposes. While it is suggested that the tax which is to be paid for all timber cut and sold by the owner shall be collected by the local authorities, it is not material, except from the standpoint of local revenue, whether this suggestion is followed or not. It may be preferable for the state to collect such tax as it is suggested shall be done in the case of timber cut from privately-owned forests.

Private Forests Without Limitation as to Area.

In the northern counties there is a great area of essentially forest soil, land which will probably never be susceptible of any use other than the growing of timber. In order to encourage the owners of such land to hold it as a forest property and to apply practical forestry to its management, the enactment of legislation that will include the following provisions is recommended:

1. That any land in the state suitable for timber growing and occupied by a natural or planted growth of trees, or both combined, may be separately classified for taxation; and that when so classified the land and the wood and timber thereon shall be taxed in accordance with the plan set forth in paragraphs 5 and 6.

2. That the determination of the question as to whether or not any land is suitable for timber growing shall rest with the State Board of Forestry.

3. That all applications to have land so classified shall be made to the State Board of Forestry, in manner and form to be prescribed by it, and shall be accompanied by a description and plat of the land and such other information as said Board may require.

4. That if the decision of the State Board of Forestry is in the affirmative, it shall submit to the owner a plan for the future management of the land and trees, and shall certify to the State Tax commission that the land has been separately classified for taxation in accordance with the provisions of the act.

5. That when so classified the land shall be separately taxed annually; that in making the assessment the land shall not be valued at more than $1 per acre; and that in fixing the valuation the assessor shall in no case take into account the value of the growing timber.

6. That whenever any timber or wood is cut from such land the owner shall be required to pay an amount equal to 10 per cent of the gross value on the stump of the wood and timber so cut.

7. That the owner be required before the timber is removed from the land to file with the State Tax commission, a true and accurate return under oath or affirmation of the variety and gross amount and value of all material which has been cut.

8. That the assessment and collection of such tax on the timber shall be in the absolute control of the state, leaving the tax on the land where it is now.

9. That the management of lands so classified under the act shall be subject to such supervision as the State Board of Forestry may deem necessary to protect the public interest, and to insure the proper management of such land and timber.

10. That failure on the part of the owner to comply with any provision of the act or to carry out any instruction of the State Board of Forestry shall be sufficient cause to cancel the certificate separately classifying the lands for taxation.

11. That where a certificate separately classifying land is canceled for either of the causes mentioned in the preceding paragraph, the owner of the land covered by such canceled certificate shall be required to pay an amount equal to what the total taxes under the general property tax would have been for the period of time the land was so separately classified.

12. That when there is reason to believe that a return is incorrect or where the owner has failed to make a return, the State Tax commission may require from the owner such further information as may be deemed necessary; and for the purpose of ascertaining the correctness of such return or for the purpose of making a return where none has been made by the owner, the State Tax commission shall be authorized to designate an agent to examine any books or papers bearing upon the matter and to determine the actual amount and gross stumpage value of the timber cut, which determination shall be the basis for fixing the amount of taxes the owner shall pay.

Conditions in Wisconsin indicate that a tax on the yield, together with a nominal annual tax on the land, is superior to any of the various tax laws which have from time to time been proposed. It would be far more equitable, however, if no annual tax were levied on the land, or if levied, to allow the aggregate amount of such taxes together with interest to be deducted from the tax on the yield when it is levied. But if such a tax were not collected annually, it is probable that the local revenues might be so reduced as to seriously interfere with the fiscal affairs of the community. It is not recommended that the annual tax with interest be deducted from the yield tax at the time it is levied, because it would be simpler, administratively, to offset such annual tax by reducing the rate of the yield tax.

The maximum value at which land shall be assessed is fixed at $1 per acre. In many of the towns cut-over lands are now assessed at that rate. However, in others the rate is much higher, and for that reason it may be preferable to increase the maximum value to $2 per acre. The self-assessment feature of the proposed law is made with a view of lessening the cost of administration. It would be far more desirable for the state authorities to check in every instance the return of the owner for the purpose of verifying the amount and value of the material cut, and it is recommended that this be done if the cost of such verification is not prohibitive.

If the foregoing plan for assessing woodlots and private forests is adopted, some provision should be made for returning all or a part of the revenues collected by the state authorities to the counties and towns entitled thereto.

What the State Should Do.

Even though a satisfactory adjustment is made of the tax laws so far as they relate to timber, it is none too certain that it would result

in promoting the growth of timber by private capital on a very extensive scale. Certainly such remedial legislation can not be expected to assure the future generation of a sufficient timber supply. While a consideration of state forest reserves may be somewhat irrelevant to the subject of forest taxation, it nevertheless deserves mention here because it is believed that only through direct state action can there be a reasonable assurance of a sufficient supply of timber in the future. The state has already made a splendid start in the establishment of forest reserves, and it is to be hoped their extension will be rapidly carried forward. There are extensive tracts of land in the northern part of the state that are essentially forest lands, and it is feared that unless the state takes up the work of reforesting them they will continue as they are now, unproductive wastes.

Of the various plans which might be adopted for the acquirement of these lands by the state, the simplest, least expensive, and most effective method will be for the state to purchase them in the open market. The present plan for raising money with which to purchase forest reserve land, although an excellent one, has its limitations. It will hardly furnish all the funds that will be needed if the state is to do all that it can and should do in reclaiming these lands from their present idleness. By all means the state should immediately provide by appropriation such additional funds as may be needed in carrying forward this important work. Not only should waste and cut-over lands be purchased, but also lands chiefly valuable for the growing of timber which contain a growth of young or partly mature trees. The purchase of restocked lands would make it possible for the state forest reserves to be revenue producers practically from the beginning.

The perpetuation of a timber supply in the state is so fundamentally important to the general welfare of the people as to make it necessary for the state to at once take affirmative action along the lines suggested, and not rely to any great extent upon private enterprise. At present the great tracts of land in the northern part of the state that are now unproductive, but that should be under forest cover, can be purchased by the state at a comparatively low figure. The longer they remain in their present condition, the more difficult it will be to make them productive as a forest property because the fires which are continually running over them are gradually but surely so impoverishing the soil as to eventually make them valueless for any purpose.

APPENDIX.

Prof. Fred. R. Fairchild, Assistant Professor of Political Economy in Yale university, has probably made a more exhaustive study of forest taxation in the United States than has any other person. Prof. Fairchild's views on the subject have been so well expressed in an article published in the Yale Review for February, 1909, that the article is here quoted almost in full.

THE ECONOMIC PROBLEM OF FOREST TAXATION.

The American general property tax has had most of its many shortcomings thoroughly exposed by this time. Recently, however, the discussion of forest taxation has called attention to a serious defect which has heretofore attracted little notice. The defect referred to is the necessary tendency of the general property tax to place an excessive burden of taxation upon invested wealth which is increasing in value. Suppose a man invests $10,000 in a perpetual annuity at 5 per cent., yielding an annual income of $500. Suppose an annual property tax of 1 per cent. is imposed. The tax will take $100, or 20 per cent. of the income, each year. Suppose now another man, having $10,000, puts it in trust for 14 years, after which time, the principal having doubled, he invests it in a perpetual annuity of $1,000 a year. Under the property tax he is taxed $100 the first year, but the second year, his capital having increased to $10,500, he pays a tax of $105. His tax increases each year until the fourteenth, after which it is $200 a year. The present value of all the taxes paid by the first man is $2,000, or 20 per cent. of his capital. The present value of all the taxes paid by the second man is $3,428, or 34 per cent. of his capital. That is, the man who does not use up his income, but reinvests it, is punished by an excessive tax.[1]

Now the business of forestry is apt to be like the investment of the second man. The annual growth of the trees, instead of being taken each year as income, is left to increase the capital till many years later when the timber is cut and the income accrues. The general property tax provides for the assessment of all wealth (barring certain exemptions) at its full market value, the tax being then determined as a cer-

[1] This criticism of the general property tax is parallel to Prof. Fisher's criticism of the income tax when savings are counted as income. Cf. The Nature of Capital and Income, pp. 249–255.

tain fraction of the assessed valuation. As applied to timber lands, this means the annual taxation, at their actual market value, of land and trees. Strictly enforced, according to the plain letter of the law, such taxation cannot fail to put an excessive burden upon forest investments. * * *

As a matter of fact, forests are not taxed so heavily as this in the United States to-day. Indeed, up to the present time, it is not probable that forests have been taxed at all excessively in most parts of the country. It is true that in certain sections there is some evidence showing excessive taxation. But as a rule this does not seem to be the case. Timber lands, like other property in general, are as a rule greatly undervalued by the assessors. The assessment of timber lands is probably even more lenient than that of other kinds of real estate. It is only recently that assessors (to say nothing of the owners themselves) have awakened to the value of the forests. Underassessment and lax administration of the law thus far saved the forests from an excessive burden of taxes. Likewise the cry that taxation is causing the destruction of our forests and preventing the practice of forestry, of which we are lately hearing so much, is greatly exaggerated, to say the least. On these questions the writer has collected a large amount of evidence. For the present paper, however, we shall have to be content with the statement of conclusions just made.

These conclusions, however, are no mitigation of the charge against the general property tax. It is only because the general property tax has not been effectively administered that it has not yet been responsible for more serious results. It is only because the American lumbermen have so far had no particular desire to practice forestry that our tax system is not yet open to the charge of preventing the practice of forestry. So far we have been exploiting our forests with little regard for the future. But the present methods cannot last much longer. Before long we shall *have* to practice forestry. And whenever we are ready to seriously undertake it, we shall find our methods of taxation a heavy handicap.

Indeed, it is safe to say that we can never expect to see the general practice of forestry by private owners under our present system of taxation. It has been shown that the general property tax, strictly enforced, is capable of taking away a large part of the income of the forest. It may be objected that in practice the general property tax is not strictly enforced. Forests are actually not taxed on their true value, and this fact would have been recognized in the examples given above.

The answer is, first, that it has already been recognized by using a tax rate of one per cent., which is equivalent to the present rate on *true value;* and second, that even if such excessive taxation as has been illustrated is not likely to occur in all, or even in the majority of cases, this does not relieve the situation very much. The mere chance that it may occur in any given case would be enough to frighten the investor. Nothing more effectually discourages investment than uncertainty as to future costs. And whatever may be said of our present system of taxation, there can be no question of its arbitrariness and uncertainty. If to all the other risks of forestry, we add uncertainty as to what the taxes are going to be, we cannot blame investors for hesitating to embark on an enterprise which may have to pay taxes fifty years before the returns begin to come in.

Moreover, the investor cannot safely base his calculations on the continuance of the present generally lenient administration of the property tax. In many parts of the country there is to-day the feeling that timber lands are not paying their just share of taxes, and the tendency is unmistakable toward a stricter enforcement of the law and a heavier burden of taxation upon timber lands.

There has been a feeling for a long time that, in the interest of forestry, timber lands should be granted some relief from the burdens of the general property tax. This feeling has found expression in the tax laws of many of our states in the way of certain concessions to forest lands.

The important laws which give special concessions to timber lands are of three kinds, tax exemptions, rebates of part of the taxes. and bounties deducted from taxes. Such laws are in force at present in twelve states, including all of the New England states. The commonest form of law is exemption from all taxes on land and trees for a certain definite period of time, ranging from five to thirty years, twenty years being perhaps the average. Rebates and bounties are less common. These laws apply generally only to plantations and sometimes apply only to land not at the time woodland or sproutland or containing more than a certain number of trees per acre. The exemption may begin either immediately after the land is planted or set aside for tree cultivation, or after the trees have attained a certain age or a certain average size. These statutes generally contain various requirements. Usually the number of trees per acre is specified and the trees must be selected from a list of specified kinds. Directions regarding the care of the trees, thinning, and so forth, are frequently contained in the laws.

In some states the statute, of which the new Rhode Island law is an example, provides that the forest must be managed under a working plan drawn up by some state officer or board. In addition to the laws of the general character just described, a few states have laws providing for bounties or prizes, but without any reference to taxation. These laws are at present in force in six states. However, with the single exception of Minnesota's bounty law, these laws are of no practical importance and require no discussion here.

None of these schemes of exemptions, rebates, bounties, and prizes has touched the real problem of forest taxation. Obviously, laws giving occasional small prizes for the best examples of tree plantations, hedge fences, and so forth, can have no far-reaching effects on the burdens of taxation. The same is true of the bounty laws of Illinois, Kansas, and Wyoming, which merely permit the several counties to grant small bounties for a few years. The Minnesota bounty law is the only one that has produced any results. Up to 1906, $440,000 has been spent by the state for this purpose, as a result of which it is claimed that some 50,000 acres have been forested.[5] If this result has indeed been accomplished it has been at a heavy cost. Evidently we shall not find a solution to the problem here.

Something more might perhaps be expected of those laws which really give some abatement of the burden of taxation by means of exemptions, rebates, and bounties. Yet here also we find that practically no results of importance have been produced. Massachusetts has had an exemption law in force since 1878. A legislative committee in 1906 reported that this law "has been a failure, as practically no planting has been done under it."[6] One of the members of the committee reports that he could find only sixteen acres in the state that had been affected by the law since 1878.[7] With regard to the rebate law of New Hampshire, the State Forestry commission reports that "This abatement provision, although three years old, is not widely known among land owners, and has so far been inoperative."[8] In Connecticut, the exemption law has likewise been ineffective. Similar reports come from the other states where these schemes have been in operation long enough to have produced any results. The conclusion that these laws have produced no important results is confirmed by the testimony of all who have investigated the subject.

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[5] Report of the Massachusetts Legislative Committee of 1905 to Consider the Laws Relative to the Taxation of Forest Lands, p. 10.

[6] Ibid., p. 17.

[7] Akerman, Southern Woodlands, June, 1908, p. 39.

[8] New Hampshire Forestry Commission, Report for 1905–6, p. 204.

This lack of results may be explained in part by certain very important defects in these laws. In the first place, the common restriction of the tax abatement to plantations, and the further restriction in many cases to land other than woodland, in large measure destroy the usefulness of the laws at the very beginning. The chief problem is in connection with not the planting of new forests on agricultural or other land but the protection and preservation of our present forests.

Moreover, the regulations regarding planting, thinning, etc., are not drawn in accordance with scientific forestry principles. Often the number of trees required per acre is too large. When the planting is restricted to certain specified kinds of trees, the list is not always well chosen, valuable species being often omitted. The proper thinning of the growing forest and the most profitable use of the forest are often interfered with by the requirements of the statutes.

Again, the burden of the tax reduction is not provided for or not properly placed. The justification of the concession to the timber owners lies in the advantage to the state in general. Yet the particular locality in which the land is located is called upon to bear the whole or the principal part of the burden of a diminished revenue. What the timber owner gains must be made up by heavier taxes on other local property. This point was apparently not considered at all in framing the laws. Certain local assessors have taken this matter into their own hands, and have adopted the custom of adding enough to the assessment of some other property of the timber owner to make up for the reduced taxes on his timber lands.[9] In this way they protect the local revenue, and also defeat the whole purpose of the law.

The actual financial consideration in these laws is really not very great. Generally, the exemption is limited to a rather short period of time, after which the land and trees are again subject to the general property tax. Moreover, the abatement comes in the years when the trees are small and when the taxes would not be very heavy anyway. The remission of taxes resulting from these laws is small when compared with the expense of planting trees and holding them to maturity.[10]

In short, these laws are based on no sound principles either of forestry or of finance. It is not to be inferred, however, that the failure of these laws to produce important results is wholly due to the defects just described. It is very doubtful whether any law of this character, no matter how scientifically drawn and administered, short of a com-

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[9] Elliott, Forestry and Irrigation, April, 1906, p. 178.
[10] Fernow, Forestry Quarterly, Feb., 1904, pp. 63–68

plete exemption of growing timber, can have any great influence on forests and forestry.

What are the principles on which a scientific system of forest taxation should be based? It may be assumed, without much danger of controversy, that taxation should be apportioned according to ability as measured by income. In applying this principle, taxes may be levied either on the actual income when it accrues or on the capital value of the income. If the rates of the income tax and the capital tax bear the proper relation to each other, the results will be identical. For example, if the interest rate is five per cent., an income tax of twenty per cent. is equivalent to an annual capital tax of one per cent., provided the business is earning a regular annual income.

In the case of forests, we may have either an income tax on the yield whenever any timber is cut or a capital tax on the "expectation value" of the forest based upon all its future expected incomes and expenditures. This proposition may be illustrated by the following examples: Suppose that a forest is so managed as to yield a net income of $150 per acre sixty years from today, and again every sixty years thereafter, without any cost for planting. If interest is at 5 per cent., a simple calculation will show that the present expectation value of the forest is $8.47 per acre. Suppose it is desired to tax this forest at the rate of 20 per cent. of its net income. This may be accomplished either by a tax of 20 per cent. of the net yield whenever it occurs or by an annual tax of 1 per cent. of the expectation value. The first would mean a tax of $30 paid every sixty years, when the timber is cut. The second would mean a tax of 8½ cents paid every year. The present value of these two taxes—that is, $30 paid sixty years from date and every sixty years thereafter, and 8½ cents paid every year beginning at once—is exactly the same.

This is an example of a forest managed to produce a sustained periodic yield; that is, the timber is cut at long intervals, the forest being renewed after each cutting so as to produce about the same yield after each rotation period forever. Forests may also be managed so as to produce a sustained annual yield. In this case timber is cut annually, about the same amount each year, and the forest is maintained without deterioration forever. And finally, forests may not be managed according to any system of forestry, the yield being purely irregular.

Obviously the tax on yield when cut may be applied to any forest, whatever the system of management, or even where no systematic management is employed. This method simply takes a certain part of the

yield whenever any timber is cut. On the other hand the tax on expectation value is more complicated. It requires the calculation of present value based on all future expected incomes and expenses. And in the case of the forest with irregular yield it is impossible to apply this method at all, for there is no way of calculating the expectation value.

A most important factor in the calculation of expectation value is the rate of interest. In the examples given so far, five per cent. has been assumed as the rate of interest, and this rate has served as well as any other for the illustration of theoretical principles. The selection of this particular rate, however, has not been meant to carry with it any assumption that five per cent. is in fact the correct rate at which to capitalize forest investments, nor that the selection of the rate of interest is a matter of slight importance. It is really of the most vital importance; indeed, it is hardly an exaggeration to say it is the crux of the whole theory of the tax on expectation value.

To show the importance of the rate of interest, it may be sufficient to remind the reader that if in the example given above the rate had been four per cent. instead of five, the annual tax would have been sixteen cents instead of eight and a half cents. Under other kinds of forest management the tax is still more dependent upon the rate of interest. When we consider that a change of one unit in the rate of interest may double or even treble the amount of the tax, we begin to realize that if our tax system is to be based on expectation value all our search after an equitable tax will be a farce unless means are taken to correctly determine this factor of the problem.

That this question has never received proper investigation is evident from the character of its discussion in the technical works on forestry. In working out problems of expectation value, these works use rates of interest which are almost certainly too low, if forestry is to be considered on a commercial basis. For example, Endres uses three per cent. in calculating expectation value.[11] Schlich, after a discussion covering three pages, decides on two and a half per cent., basing his decision mainly on the fact that, at the time he was writing, that was the rate paid by British consols.[12] Fernow argues in favor of a low rate of interest,[13] on the grounds that interest rates are likely to fall in the future, that forests will generally be a safe investment, and

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[11] Endres, Die Besteuerung des Waldes, Forstwissenschaftliches Centralblatt, Sept.–Oct., 1899, p. 496, etc.

[12] Schlich, Manual of Forestry, Vol. III (third edition), pp. 113–116.

[13] Fernow, Economics of Forestry, pp. 214–215.

that the price of wood is likely to rise. He concludes that, since trust companies and savings banks are making long time investments at three and three and a half per cent., we may safely use those rates or even lower ones in calculating the value of forest investments. In an example on another page, however, he uses five per cent.[14]

These examples will illustrate the reasoning commonly employed on this subject, the conclusion being that forest investments should be capitalized at a relatively low rate of interest, not higher than two and a half or three per cent. This conclusion may possibly be valid for the settled condition of forestry which prevails in certain parts of Europe, though even this is open to question. But for conditions such as prevail in America such reasoning and such a conclusion cannot be accepted.

Instead of being lower than the ordinary commercial rate, the writer is satisfied that the rate of interest for forest investments should be fully as high as for ordinary investments, or even considerably higher. Forestry is a business of a peculiar character. In the first place the risk is very great. The danger of fire is so great that no insurance company will take the risk. There is also the risk of injury by insects, wind, etc. These risks must be taken account of in the rate of interest, and it will require more than a slight increase in the rate to fully compensate for them. To put forest investments on a par with government bonds and the better class of trust company and savings bank investments is absurd under present American conditions.

But the circumstance which above all others makes forestry a business by itself is the very long period which must generally elapse before the investment begins to yield an income. The investment of $1,000 in a perpetual annuity of $30 or $40 a year is one thing. To put capital into an investment from which no income is to be expected for fifty or sixty or even one hundred years (very probably not till after the death of the investor) is a very different thing. Innumerable investments of the first kind are being made every day, and we can determine the prevailing rate of interest by a glance at the dealings on the stock exchange. Investments of the second kind are so rare that we are unable to say from actual dealings what the rate should be. The comparison of future with present goods, on which rates of interest depend, is a psychological process, and is influenced by a multitude of considerations. One of the most important of these is the remoteness of the future good, and it is certain that the rate at which men dis-

[14] Ibid., p. 251.

count future events tends to increase with the remoteness of the event. Many a man who is satisfied with an investment which yields him three or four per cent. at once would not consider for a moment an investment at the same rate whose income was to commence sixty years from date. It is safe to say that, other things being equal, men will not be tempted by forest investments, unless the rate of interest is considerably higher than that of investments whose income begins at once. It is clear that we cannot put forestry on a par with the better investments of trust companies and savings banks.

Even a brief examination will show the weakness of some of the arguments cited above in favor of a low rate of interest. The assumption that the rate of interest tends to fall is belied by recent history. Schlich, writing in 1895, based his rate on British consols, which paid two and a half per cent., and he has made no change in this paragraph in his third edition, published in 1905. But today British consols yield three per cent. on their market price, and French and German government bonds yield even higher returns. Fernow's book was published in 1902, yet even this brief time has seen a considerable rise in interest rates, and many a savings bank today is paying four per cent. to depositors. On account of the depreciation of our monetary standard, resulting from the great production of gold, interest rates have been rising for the past decade, and the same influence is more than likely to cause a further rise in the future. So far as the future of the rate of interest is concerned, the effect should be to cause a higher rather than a lower rate on deferred incomes.

That the price of wood is likely to rise, and so increase the profits of forestry, cannot be denied. This circumstance, however, should not properly enter into the determinatoin of the rate of interest. It should rather be taken account of in estimating the value of the future yield of the forest, in this way entering into the determination of expectation value. Any proper estimate of the value of future yield will take into account the probable increase in the price of timber. This factor being thus accounted for, there is no reason for lowering the rate of interest on its account.

We may conclude, then, that as compared with ordinary investments, the income of forestry should be capitalized at a relatively high rate of interest. Further study would probably show that, if the rate of five per cent. adopted for the examples above is not the correct one, it errs in being too low rather than too high. This question must be carefully considered in applying a tax on expectation value.

It has been shown that in theory a correct system of forest taxation may be applied either as an annual tax on the expectation value or as a tax on the yield when cut. The choice between these two methods must depend largely on practical considerations. It does not require an extended study of American forest conditions to convince any one that the tax on expectation value is not capable of general application in this country. This method of taxation depends on the general practice of forestry, whereas in America the practice of forestry is a rare exception. The calculation of expectation value requires accurate yield tables for the different species of trees, different kinds of soil, and different parts of the country. Such tables do not exist for America, and only the smallest beginning has been made toward their construction. Finally this method of taxation can not be applied to forests which produce an irregular yield. Yet nearly all the forests in the United States are of this kind.

The tax on yield, however, does not have to rest its claim to superiority on these negative arguments alone. It is supported also by some positive considerations of the utmost importance. We have seen that the crucial point in the determination of expectation value is the rate of interest, and that we have no principles which can guide us to the correct rate for forest investments. Even if we may suppose the correct rate to have been determined at any particular time, there is no guarantee that it will long remain the correct rate. Yet taxes for fifty or a hundred years to come may be based on a rate fixed today. To determine the whole burden of forest taxation in any such arbitrary fashion is not to be thought of. The tax on yield escapes this whole difficulty. When a forest is taxed on its yield the value of the yield and the value of the tax will bear the same relation to each other no matter what the rate of interest, since both are always discounted at the same rate.

Another advantage of the tax on yield is that it avoids the necessity of estimating future prices of timber. All such estimates are largely a matter of more or less skillful guess work, and this circumstance subjects calculations of expectation value to a wide margin of error. The objection to a tax system based so largely on guess work is obvious. In the case of the tax on yield, however, this matter presents no difficulty. The tax is a certain part of the yield at the time it is cut, and any change in prices affects both the tax and the yield in exactly the same way.

A third reason in favor of the tax on yield is that it eliminates the