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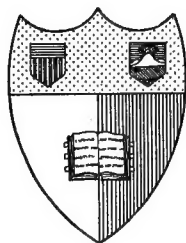
The Farm Woodlots of  
Tompkins County

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F. E. Robertson

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1909



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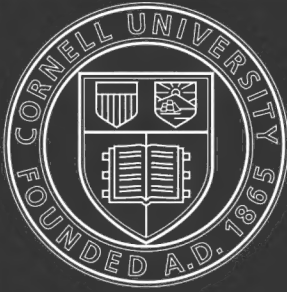
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THE FARM WOODLOTS

OF

TOMPKINS COUNTY.

BY

F. E. ROBERTSON.

1909.



## Introduction.

In making a study of the farm woodlots of Tompkins County, the object has been to treat the subject from the standpoint of farm management, in so far as the woodlot is related to the farm, rather than from the forestal or botanical point of view. For want of time and means, the ecological and adeptic factors that influence forest growth, are not considered to any great extent, except as they are noticeably in evidence and have a bearing on the care of the woodlot or on the question of tree planting.

At the present time Tompkins County has woodlots, not forests. The care of these woodlots should be closely related to farm management. Their future worth to the farm depends upon the care that they now receive.

The following discussion has to do with early history of the forests, the present condition of the woodlots, and a few suggestions as to what may be done in order to improve their condition in the future.

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Mr. Charles Bruce of Danby, Mr. Holmes Hollister of Ithaca, and others, for much historical information in regard to lumbering methods, early prices, etc.



## PART I.

The History of the Early Conditions.

In the year 1789, ten years after the memorable expedition of General Sullivan, history records the first permanent settlement made in Tompkins County, as being located near the present site of Ithaca. Other settlements were made soon after this, and within a period of fifteen years there were various settlements located in each of what are now townships. The greater part of this territory was then a portion of Albany County. Since that time the boundaries have been frequently changed until at the present time Tompkins County consists of nine townships : Caroline, Danby, Enfield, Dryden, Groton, Ithaca, Newfield, Ulysses and Lansing.

Closely following the beginning of each of these settlements, sawmills were erected. The following table shows the recorded dates.<sup>1</sup>

Township	First settlement	First sawmill
Caroline -----	1795 -----	1800 -----
Danby -----	1795 -----	1797 -----
Dryden -----	1797 -----	1800 -----
Enfield -----	1804 -----	1812 -----
Groton -----	1798 -----	1811 -----
Ithaca -----	1789 -----	1813 -----
Newfield -----	1801 -----	1809 -----
Ulysses -----	1791 -----	1796 -----
Lansing -----	-----	-----

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1. From the "History of the Lumber Industry of N.Y. State".



At this time Tompkins County, as well as almost the whole of Western New York State, was covered with a dense growth of great forest trees, consisting of pines, oaks, hemlocks, hickories, maples, beeches, elms, basswood and many other species, both coniferous and deciduous. It is doubtful if anywhere in the United States was there a more varied and luxuriant growth of pines and hardwoods than originally grew in this section. In those early days it was the white pine (*Pinus Strobus*) that was considered most valuable, and even it, owing to the lack of markets and shipping facilities, was valuable to the settler only in proportion as it provided material for the building of the home. Its abundance, straightness, and the ease with which it could be worked up into timbers, boards, and shingles made it of prime importance to the settler even before the first sawmills were built. Not only was the pine of a fine quality, but the old oaks, so important for ship timbers, the hemlock, ash, hickory and maples - the so-called "first growth" - were of a quality far superior to any of the present day "second growth" timber.

For a considerable period (1789-1822) the only markets for the forest products of the county were those in the local villages. The lack of markets naturally created a certain amount of wastefulness.





Clearing the Land.

"Early and late about his farm he goes,  
A diligent worker with his own hard hands ;  
He plows the rolling upland, and he sows,  
And in waste places clears the wooded lands."

-----oOo-----

The present condition of the woodlots in Tompkins County is but a natural result of the extravagant indifference of the early settlers, and of a lack of just appreciation for the value of the forest.

The clearing of the forest growth from the land was one of the first needs of the settler as soon as he had located and erected a home for his family. It was quite natural that the early settler should regard the forest as an obstacle to his progress, for he had no use for such a vast amount of timber, other than what would supply his daily needs. Doubtless this habit of extravagance and thoughtlessness concerning the value of the forests has been inherited by present generations, a fact which might explain our present indifference to forest protection. In the process of clearing the land for farming purposes, a certain amount of the timber was converted into charcoal and potash, both of which had a stable market value. However, the practice of converting timber into charcoal and ashes does not appear to have been



as common in Tompkins County as in other sections. As rapidly as the land could be cleared and burned over it was sown to wheat, planted to corn, or made into pastures. "After having cut away the smaller trees and underbrush, they trimmed some of the larger ones, girdled the pines, and rolled them into heaps to burn."<sup>1</sup> In this way it is roughly estimated by men whose fathers settled in Tompkins County, that fully sixty per cent. of the forest growth was ruthlessly destroyed. In the thoughtless haste to get tillable land, and to obtain what little income they could from the forest, much rough, hilly land was denuded of its forest cover, and thus there were left, many steep, bare, unproductive hillsides that are by nature fitted to grow little else than forests. This condition of denuded hillsides is particularly evidenced in the townships of Caroline, Danby and Newfield. The other townships are somewhat better fitted for agriculture, and yet, it is an evident fact that there is considerable rough waste land in any of the townships, from which the forest growth ought never to have been cut. Such areas are ordinarily of no great value for pastoral purposes as they are overrun with bushes or badly cut up by the elements of soil erosion and will never be fit for cultivation.

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1. History of Dryden.



Early Lumber Markets.

Before there were any facilities for shipping the forest products to market, the local timber had but a nominal value. The settler looked upon the forest as a barrier to his progress rather than as a natural resource of value. Soon after the completion of the Erie Canal in 1822, there grew up a market for the pine, which was shipped to Albany by canal boats. At that time Albany was the chief lumber market in New York State. The shipping of pine, and of oak for ship and boat timbers caused to be built up a considerable lumber trade at Ithaca. The very finest grades of pine brought \$6.00 per thousand feet delivered at the wharf at Ithaca ; and \$10.00 per thousand feet delivered at Albany. In 1835 the business of building canal boats at Ithaca was in a prosperous condition. In the townships of Lansing and Groton, oak, ash and beech timber was hauled overland to Auburn during the winter months.

It was not until after 1850 that other markets and means of transportation were obtained. The following dates show when the various railroads were built and new markets were made available to the forest products of Tompkins County.

Cayuga and Susquehanna R.R. (Ithaca Owego)	(Lackawanna )	-----	1834
Lehigh Valley R.R. (Ithaca to Geneva)		-----	1870
" " " (Auburn Division )		-----	1874
Midland R.R.		-----	1872
Ithaca and Cortland R.R. (E.C. & N.)		-----	1871



Owing to the great abundance of timber, the meager shipping and marketing facilities, and the desire for cleared land, the forests were not valued as they should have been.

### The History of Local (log run) Timber Prices.

Statistics show that the prices for all classes of lumber are increasing rapidly. In this connection, it is interesting to note the advance in local "log run" timber prices for a series of decades (1843 - 1908) or since shipping facilities and new markets influenced the demand for forest products. The following Table I and its accompanying Chart I show the prices for "log run" grade of timber for a series of years in Tompkins County. They are the averages obtained from a number of sets of figures taken from old books in possession of some of the oldest lumbermen in Tompkins County and are of value in that they are representative of local conditions.

These figures are interesting not only as they show the gradual increase in the price of timber in a local section, but they also show, to some extent at least, the tendency to make use of lower grades of timber such as : chestnut, hard maple, elm, birch and beech, as the better grades become scarce or are exhausted.



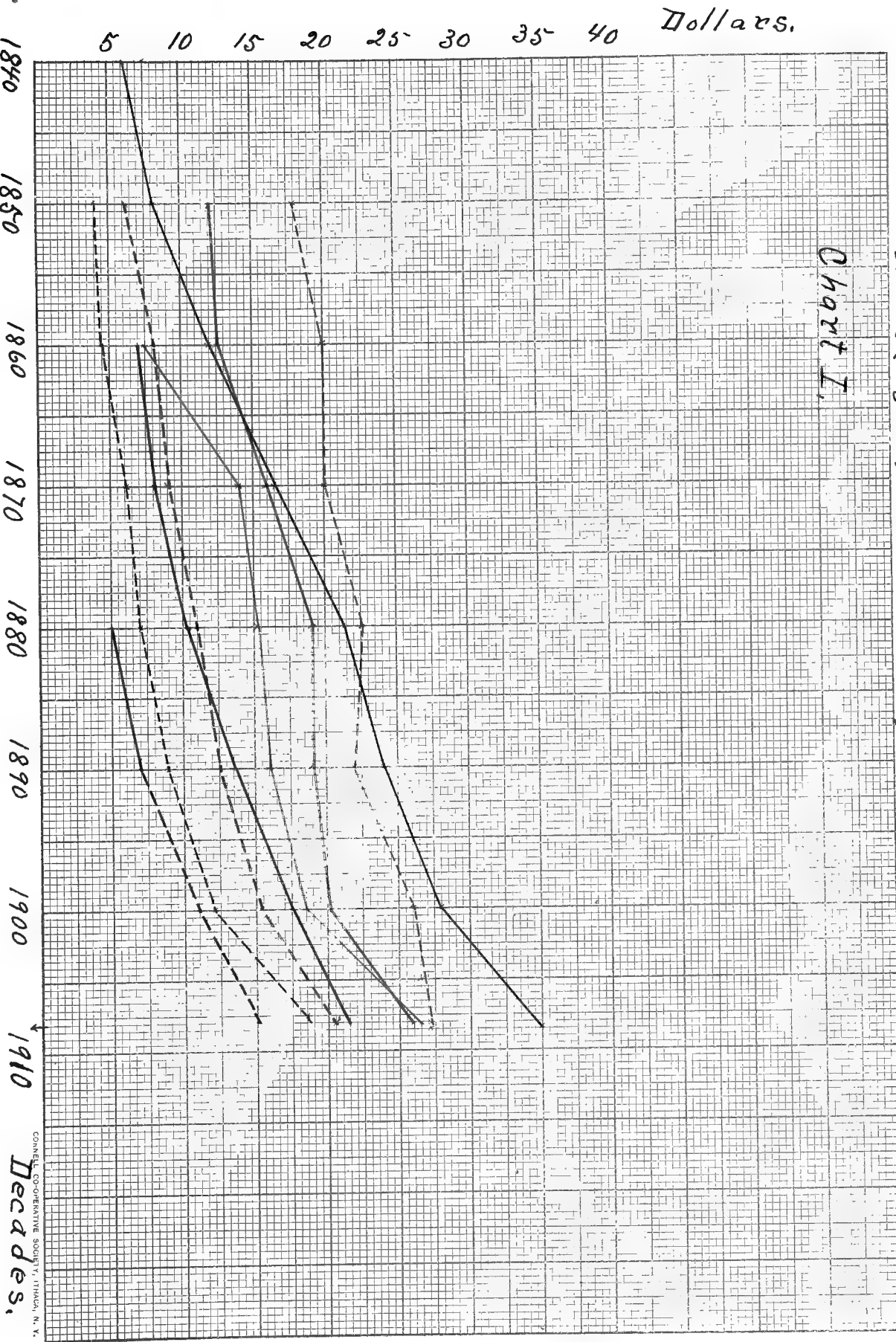






Local (logrun) Timber Prices for Tompkins County, 1840-1908.

Chart I,



CONNELL CO-OPERATIVE SOCIETY, THIRDA, N. Y.



## PART II.

### Present Condition of the Farm Woodlots.

The present conditions of the farm woodlots in Tompkins County are, perhaps, quite representative of the conditions of the woodlots in many other counties in New York State. They might well be described as irregular, detached pieces of woodland, consisting of all sizes and ages of mixed deciduous and coniferous species, of first, second, and <sup>st. p</sup> coppice growths. (See Figs. 1, 2, 3, 4.) They occupy no definite position as regards soil or altitude. Steep hillsides and ravines are denuded of their forest covers, in certain sections, and in other sections more or less thrifty woodlots occupy good agricultural land. They have no definite relation to the general lay-out of the farms. Composed, as they are, of dead, diseased, young, mature and weed trees all thrown in together, the valuable left to struggle for supremacy with the invaluable but hardy species, and in addition, frequently required to withstand the ravages of fire and stock, these remnants of the old virgin forests are evidence of their natural strength in withstanding the adverse natural and artificial conditions that tend towards their elimination. st

Could the detrimental influences of mankind, fire, and stock be removed from the woodlots, Nature, in a few





*Fig 1.*



*Fig 2.*





generations, would make them as healthy and vigorous as they were before artificial conditions were brought to bear upon them. In default of this natural revitalization, it remains for man, for the farmers who own the woodlots, to remove or remedy these undesirable and detrimental conditions and to intelligently put into practice, practical methods of forestry that will tend to improve present conditions.

It is a deplorable yet self evident fact that nowhere in Tompkins County have the farmers or timber owners done anything toward making a study of the means for improving their woodlots, or in putting into operation any intelligent and practical methods of caring for them as they exist today, although the average farmer or other owner of woodland is well aware that the prices of all kinds of forest products have increased rapidly within the past fifteen years. <sup>the</sup> Although a few thinking men <sup>not here, T. K. Mathews and a few others are doing some work in this</sup> are planting locust and catalpa trees in certain parts of the county, as will be noted later, there still remains that element of selfish indifference regarding future disposition of the woodlots.





*Fig 3.*



*Fig 4.*



Woodlot Acreage per Farm, Township and County.

The following Table II and its accompanying Chart II show the number of farms, the average acreage of land per farm, the average acreage of woodland per farm, and the total acreage of woodland in the separate township and in the whole county. These figures are taken from the data secured by the Tompkins County Farm Survey recently completed.

TABLE II.

Township	No. farms reported	Avg. farm Acreage	Acreage woodlot per farm	No. farms reporting timber	Acreage woodlots for these	Total acreage woodlot
Caroline	173	147.71	25.57			4423
Danby	210	105.5	19.62	174	23.64	4122
Dryden	365	106.45	13.52	290	17.	4933
Enfield	194	103.7	10.9	156	13.5	2114
Groton	298	88.4	10.4			3099
Ithaca	135	103.32	11.48	103	15.05	1551
Newfield	114	111.55	13.54	95	16.25	1544
Ulysses	178	59.7	7.65	112	11.14	1361
Lansing	273	101.2	10.93	200	14.91	2983
<b>Total No. 1940</b>						<b>26130</b>
<b>Avg. acreage for county</b>		<b>103.06</b>	<b>13.73</b>			









With reference to the above table, it should be understood that these averages are for the number of farms reported. In certain townships there were tracts of woodland, the owners and acreage of which could not be ascertained at the time. It is quite probable that the total woodlot acreage for the county is somewhat greater than the above table shows, however, the average size of the woodlots per farm, in each township and in the whole county is the important point, and it will be from this figure (13.73 acres), that further deductions will be drawn with reference to the question as to whether or not the woodlots of Tompkins County are increasing faster than they are being used up. (See later Rate of Increase Growth of Woodlots of Tompkins County.)

#### Present Methods of Care.

In making a study of the conditions of the farm woodlots in Tompkins County, perhaps the most striking factor is the sameness of the conditions in the several townships, especially as regards their care. With but few exceptions, the farm woodlots are valued only for what they will produce in fire-wood, or as a source from which a small bill of lumber or fence posts may be cut when needed. If the woodlot provides present gratifications in this respect, it is given no further thought.



The fire-wood is ordinarily cut in a hap-hazard manner with little thought given to the protection of the young trees. In a majority of cases, no attempt is made to select out the dead, crooked, and weed trees for fire-wood in order that the thrifty, young trees of the more valuable species may have a better chance to grow.

Indiscriminate cuttings or slashings are the rule. Large trees are felled with no thought of the destruction they may cause by breaking down the smaller trees ; the brush is left to entangle the young seedling trees ; roads are cut at will, and slashings made without any idea of a systematic plan. To cap the climax, and it would seem in order to hasten the destruction, many of the woodlots are fenced off and cattle allowed to browse at will.

#### Woodland Pasture.

Perhaps a third of all the woodlots in the county are being pastured. The majority of the farmers admit that the woodland pasture is of little value as pasture, and their only excuse for continuing the practice is borne in the fact that they do not consider the woodlot to be valuable enough to protect it from the damage caused by cattle and sheep browsing upon the young trees and punching up the soil of the forest floor. The stock enjoy the shade during the heat of summer and besides,





*Fig 5.*



*Fig 6.*



a new fence would have to be built in order to keep the stock out. Doubtless the practice of pasturing the woodlots will be continued until the farmers awaken to the fact that the value of the future woodlot will be greatly lowered by continued pasturing, because there can be no hope of regeneration in the woodlot so long as stock are allowed to browse at will upon the young stuff. The grove-like appearance so generally seen in the woodlot is indicative of the effects of browsing stock. (See Figs. 5, 6, 7, 8.)

#### Ignorance of Present Value of Woodlots.

Doubtless the true reason why the farmers in Tompkins County do not take a greater interest in caring for their woodlots is because they are ignorant of the true market value of the standing timber. They have no simple and reliable method of determining the value of the stand of timber, nor in determining the yearly increase in value due to increased growth. For this reason many farmers sell their woodlots to more experienced timbermen for a very small part of their true value. It would seem that this matter of determining, not only the value of the standing timber but also the probable annual increase in value, would be very important in order to awaken a greater interest in the care of the woodlots.

To illustrate this point more fully, the three







*Fig 7.*



*Fig 8.*



following examples are given to show how careless and ignorant farmers are of the value of their woodlots. These examples are not exceptional in any way, in fact, such bargains are of common occurrence in Tompkins County.

Example I.

A farm of 122 acres, 80 acres of which was woodland, consisting of mixed hard and soft wood timber as : oak, basswood, hemlock, maple, cherry, beech, ash, birch, elm, etc. was sold.

Price paid for farm -----	\$1,750. <del>00</del>
Proceeds from lumber sales :	
500,000 ft. mixed lumber at \$20.00 per M.    10,000. <del>00</del>	
500 cds. slab wood at 50 ¢ -----	250. <del>00</del>
Resold farm with top wood -----	<u>700.00</u>
TOTAL SALES -----	\$10,950.00
Cost of marketing -----	<u>4,250.00</u>
NET SALES -----	\$ 6,700.00
Original cost of purchase -----	<u>1,750.00</u>
PROFIT -----	\$ 4,950.00



## Example II.

A farm of 50 acres, 35 of which was of mixed hardwood.

Price paid for farm -----	\$ 500.00
Proceeds from lumber sales :	
110,000 ft. mixed lumber at \$20.00 per M.	2,200.00
2,600 R.R. ties at 45 ¢ -----	1,170.00
1,700 " " " 69 ¢ -----	1,173.00
2,200 fence posts at 6 ¢ -----	132.00
150 cds. slab wood at 50 ¢ -----	75.00
Resold lot with top wood and chestnut ---	<u>344.00</u>
TOTAL SALES -----	\$5,094.00
Cost of marketing -----	<u>1,500.00</u>
NET SALES -----	\$3,594.00
Cost of farm -----	<u>500.00</u>
PROFIT -----	\$3,094.00

## Example III.

A lot consisting of 16 acres of mixed hardwood,

Cost of lot -----	\$ 500.00
Proceeds from lumber sales :	
98,000 ft. mixed hardwood -----	\$1,960.00
300 R.R. ties at 58 ¢ -----	174.00
120 cds. slab wood ----- at 50 ¢ -----	<u>60.00</u>
TOTAL SALES -----	\$2,194.00
Cost of marketing -----	<u>900.00</u>
NET SALES -----	\$1,294.00
Cost of purchase -----	<u>500.00</u>
Profit -----	\$ 794.00

There is no reason why the farmers should not market their own wood and thus save the profit.



Cost of Putting Lumber on the Market.

Most of the timber cut in Tompkins County is sawed up into stock lumber by portable sawmills. The lumber then has to be hauled to market. The distance to market varies greatly, but ordinarily it is from two to six miles. The estimated cost of cutting the timber, sawing and delivering to market is as follows :

Cutting (logs) per thousand feet	-----	\$ .75
Skidding to mill " " "	-----	2.00
Sawing " " "	-----	3.00
Sticking (piling lumber) " "	-----	.40
Delivering to market " "	-----	2.00
Estimated overrun " "	-----	<u>.35</u>
Total expense per M. board feet	-----	\$8.50





## PART III.

Future Possibilities as Regards the Problem of  
Waste Land. Reafforestation, Soil Influence, etc.

The history of the early conditions and management of the forests in Tompkins County is valuable only as it records the mistakes that others have made in dealing with this problem, and as a knowledge of the facts may prevent similar mistakes being made in the future. History records, in a general way, the several phases through which the forests have passed in reaching their present critical condition - the woodlot. The past cannot be remedied. Out of necessity, then, we must take up the problem as it is at the present time, and try to find some means whereby we may check the customary wastefulness and indifference in dealing with these remaining woodlots, and in some way contrive to create an interest in, and, establish a practical system of caring for them with the idea of correcting past mistakes, remedying present conditions, and in making the future woodlot a more valuable farm crop.

Leaving aside a consideration of the excellent supply of literature that deals with practical forestry, the care of the woodlot from the standpoint of the farmer seems to be of the greatest importance. The principles that underlie intelligent forest management will apply in Tompkins County as well as anywhere, but, with respect



to the problems of cheap waste land, soil influences, altitude and kinds of timber trees to plant, there are local factors that must be considered with reference to Tompkins County alone.

#### Utilization of Waste Land.

There are many small areas of so-called waste land in Tompkins County. These consist of swamps, gullies, ravines, steep hillsides and stony areas. There is scarcely a farm in Tompkins County but what has a certain amount of waste land. Such land is, in most cases, best fitted to grow trees. Formerly most of these waste areas did grow trees, but they were cut off and since then the factors of fire, soil erosion, and stock have combined against natural reforestation. These waste land areas might well be set out to quick growing trees, such as, locust or chestnut, either of which will grow into excellent post timber in from fifteen to twenty years. A few men in Tompkins County are far sighted enough to take advantage of these conditions and are planting limited numbers of locust and catalpas for future fence post timber.



Examples of Locust and Catalpa Plantations.

In the township of Groton an area of 13 acres - the largest plantation in the county - has been started. This plantation is located on rough, bushy land unfit for cultivation. The soil is Volusia loam and the field has a southern exposure. This plantation was started in the spring of 1907. The first planting consisted of 12,000 black locusts (*Robinia pseudocacia*). They were planted 6 x 8 feet apart (about 925 per acre). In 1908, 1200 trees more were used to fill in where some had died, and 3800 additional trees were planted. At the present time there are about 15,000 young trees, some of which have made a growth of from 6 to 10 feet. These seedlings cost from \$4.00 to \$7.50 per thousand delivered at Groton and were planted at a cost of about one cent per tree. By comparing the probable growth of these with other locust trees in the vicinity, it is believed that good post timber can be cut in from 10 to 15 years.

Another smaller plantation in the township of Lansing consists of 1000 catalpas (*Catalpa speciosa*) and 500 black locusts. This plantation is on strong agricultural land (Miami sand). The trees are set 6 x 8 feet apart. At present they stand from 4 to 10 feet high with a diameter of from 1-1/2 to 2 inches at the base, three years from planting. The catalpas grow faster than the locusts, but their tips have heretofore winter-killed slightly. It has



not yet been proven that the catalpa will be generally hardy in this county.

No other plantations are known of in the county. There are a few groves of self-sown locusts in various parts of the county, that are making a vigorous growth and are being cared for in a crude way. Some of them furnish an excellent supply of post material at 15 years' growth.

### The Care of the Woodlot.

The farm woodlots of Tompkins County are in urgent need of attention. The woodlot, unlike a forest tract, is just as much a part of the farm as the orchard is, and it should be replanted and cared for with just as much interest. It may be some years yet before the average farmer will become awakened to the need of protecting his supply of firewood and timber. They must be shown that it will be worth their while to care for the woodlots, and it would seem to be the duty of the state to give instruction and to provide necessary experimental plots where examples in practical farm forestry could be observed.

In view of the fact that the prices of lumber are gradually advancing, the source of supply constantly becoming less, the future timber crop must necessarily be more valuable than the present. Hence the practice of planting trees and caring for the young woodlots, with the





idea of providing a future supply, ought to receive greater attention even if only from a monetary standpoint.

The Influence of Soil on the Kinds of Trees to Plant.

The determination of the kind of trees to plant on a given soil, and exposure, or in a certain locality, is a problem that can best be solved by making a study of the trees growing in that vicinity. From the observations gathered in the study of the woodlots in Tompkins County, regarding this topic, there seems to be certain correlations between the types of soil and certain species of trees growing thereon. The slight changes in altitude do not appear to affect the quality or quantity of tree growth. This is due to the fact that there are no very great extremes in the altitude, (381 to 2000 feet above sea level).

In regard to the species of trees that grow better on one soil than on another, perhaps the most striking example is that of the chestnut (*Castanea dentata*). In the townships of Lansing, Groton, Ulysses and part of Enfield, there is scarcely any chestnut. The farmers say this is not a "chestnut soil". The only known exception to the rule that chestnut does not grow in these townships is that along the west side of Cayuga Lake, from Ithaca to Taughannock Falls, there is a narrow strip of chestnut timber.

The greater part of the soil types of these townships



consists of Volusia loam, Dunkirk stony clay, Dunkirk and Miami stony loam. These soils were formed by glacial action in a slightly different way and from different materials, than the soils in the southern part of the x county. The Volusia loam, Dunkirk and Miami soil types contain more or less lime. Chestnut does not grow well on limestone soil or soils rich in lime. It would seem natural to conclude that it would not be wise to plant chestnut on these soils.

On the other hand, chestnut is generally distributed in the southern townships, Caroline, Dryden, Danby, Ithaca, Newfield and part of Enfield. In these townships, especially on the Volusia silt loam, chestnut grows luxuriantly. The Volusia silt loam is formed largely from the underlying shale rock.

While chestnut seems to be the tree most subject to soil conditions, it is also to be observed that such types of trees as the elms, hickories, basswood, ash, walnuts, and hemlock grow better on the soils in the northern part of the county than in the southern. The oaks, pines and maples are generally distributed over the county regardless of soil conditions.

It would be natural to conclude from these observations that the soil has considerable influence on the species of trees grown in a given locality, and that a study of these conditions is necessary in order to decide what kinds of trees to plant on a given soil in Tompkins County.



### Improving the Woodlots by Selective Cuttings.

Under natural conditions where the growth of trees is thick and uncared for, thinning will be brought about through a struggle for existence, in which the weaklings will be killed out by the stronger and hardier trees. When artificial thinning and selective cuttings are put into practice by the farmer, a great deal of energy wasted in the struggle for existence, may be done away with. Increased growth and earlier maturity would result. There is just as much reason for thinning the woodlot as there is for pruning the orchard.

In the process of thinning, which could be carried on during the winter months, the inferior trees could be cut out for firewood, or fencing material. This would leave the more valuable timber trees in better condition, for it would obviate much of the struggle for existence that is so evident in any average woodlot.

The only knowledge required in thinning the woodlot is a familiarity with the best and most rapid growing timber trees. In this respect <sup>the</sup> farmer should become acquainted with the trees that grow best on his soil.

### Sources of Damage to the Woodlot.

The principal sources of damage to the woodlots in Tompkins County are : (a) indiscriminate cutting, whereby a great deal of young stuff is destroyed and the rubbish



left to entangle the young growth. (b) Pasturing the woodlots. The stock browse upon the young trees, break down the saplings, punch up the soil of the forest floor, causing injury to the roots of the trees, and, promote soil erosion. (c) Fires carelessly started and as carelessly allowed to burn. The seedlings and young saplings are killed or injured, large trees are scarred and made valueless for lumber, and regeneration is almost completely held in check. (d) Fungous diseases and insect pests are both factors that injure the growth of the woodlot to a greater extent than is realized.

All of these injurious conditions can largely be obviated if a little attention is given to the care of the woodlot. The remedy lies in the hands of the men who own the woodlots.





## PART IV.

History of Specific Woodlots.

The task of looking up and getting the complete history of individual woodlots, in order to determine their increase in growth and value, proved to be less easy than was anticipated. The reason for this is that few men have given much attention to the growth of any particular woodlot, and too, in very few cases are there any woodlots that have been let alone and allowed to grow unmolested for any length of time. So long as the average woodlot furnishes enough firewood, fencing material, and an occasional stick of timber as required, no further notice is generally given it by the farmer.

A majority of the woodlots consist of all aged trees, from saplings to rotten stubs. Only two examples that are at all representative of what the woodlots in Tompkins County can do, if allowed to grow, could be secured. In these cases, the period of growth was ascertained, and then the woodlots were cut off. The value of the timber was ascertained and the yearly increase in value per acre was thus calculated.

## Example I.

In the township of Lansing, sixteen years ago a certain 6 acre tract of pasture became covered with bushes so that its value as pasture was impaired. The bush-lot was then four years old. The soil was Dunkirk stony clay.



The young growth consisted of a mass of beech, elm, bass-wood, maple, hickory, cherry, oak and many other species. (See Fig. 9) The owner (Mr. W. Havens) decided to thin out some of the young stuff and allow the remainder to grow. This was done and the trees made a vigorous growth.

During the past winter part of this lot was cut over, cleaned up and the product sold. Most of the wood was cut into bolts and sold for barrel staves. The following figures show the proceeds and the yearly increase in value per acre, from 2-1/2 acres which at this writing have been determined.

125 cds. 30 inch bolts at \$3.00 -----	\$375.00
Pole wood (firewood) -----	<u>100.00</u>

Total value of products(2-1/2 acres)---- \$475.00

$\$475 \div 2\text{-}1/2 = \$190$  Value per Acre

$\$190 \div 20$  (years growth) =  $\$9.50$  which is the value of the increase growth per acre per year.

These figures do not include the cost of harvesting the crop. The cost of harvesting the crop might be estimated at \$75.00. The prices are based on the value of the timber on the ground, not delivered to market. For representative conditions of this lot at the beginning and at time of cutting, see Figs. 9 and 10.

#### Example II.

In the township of Danby, a lot consisting of 35 acres composed of mixed hardwood was cut off and the net proceeds from the timber sales amounted to \$4938.00. Men, who knew the history of this woodlot, claimed that 75 per cent. of





*Fig 9.*



*Fig 10.*



the wood had grown in the past 22 years. That is, the lot was cut over 22 years ago and the greater part removed.

$$75 \text{ per cent. of } \$4938 = \$3703.50$$

$\$3703.50 \div 35 \text{ (acres)} = \$105.80$  increase in value per acre.

$\$105.80 \div 22 \text{ (years growth)} = \$4.80$  which represents the yearly increase in value per acre for the 22 year period. *at top*

The second example of yearly increase in value per acre is without doubt more representative of what the average woodlot in Tompkins County is doing in the way of added growth. In the first example the soil was fertile and the trees were young and consisted of rapid growing species. In the second example the soil was Volusia silt loam and the woodlot was in ordinary condition.

Rate of Increase Growth of the Woodlots  
in Tompkins County.

The question that arises here is : At what rate are the woodlots of Tompkins County increasing by added growth ? Will the average woodlot provide enough wood to constantly supply the needs of the average farm ? To our knowledge, no work of any value has been done in New York State to determine the probable increase in the growth of our farm woodlots. It would seem that such a determination would be of value to the farmer. Other states have done something along this line. The strength of the soil and





the species of trees are factors to be considered in this connection. The average woodlots of Tompkins County grow on medium strong soil and they consist largely of mixed second growth hardwoods. For this type of woodlot, the U.S. Department of Agriculture (Circular 138) estimate an increase of 110 cu. ft. per acre per year. The Delaware Experiment Station (Bulletin 82) estimates an increase of 76.8 cu. ft. per acre per year. The Connecticut Report of "Survey of Litchfield County" estimates an increase of 48.6 cu. ft. per acre per year. The average of these three figures is 78.4 cu. ft. and this factor will be used here to estimate the probable increase in growth of the average woodlot of Tompkins County.

By referring back to Table II, it will be seen that the average size of the farm woodlot in the county is 13.73 acres. If we assume that the average yearly increase per acre is 78.4 cu. ft., then the amount of wood available for use on each farm reported, will be 1076.43 cu. ft. or 8.4 cords (128 cu. ft.) per year.

The average farmer in Tompkins County burns for fire-wood alone from 6 to 10 cords (128 cu. ft.) per year, hence it follows that the farmers are burning up each year about as much wood as their woodlots are producing. The wood used for fence posts, timbers, and that drawn to the villages and towns to be sold, must then represent the rate of destruction - the annual decrease.



## CONCLUSION.

### The Attitude of Some People.

Replies to the following question evidence the attitude of a great many farmers toward the subject of woodlots. "In view of the fact that the price of lumber is advancing rapidly, and that the woodlots are being destroyed, what ought the farmers to do with the woodlots ?"

#### Some of the replies :

"We have no children, hence, we have no object in keeping the woodlot for others."

"The need of getting out of debt compels many of us to sell our timber."

"Someone else may own my farm ten years from now. Why leave the wood for him to cut and sell ?"

"Every man should plant trees on his waste land."

"There should be a law to compel or assist farmers to plant trees."

"A man can cut off his woodlot, sell the wood, clean and cultivate the land, and from the proceeds of his crops buy coal. He will get along just as well and make more from his land."

### Some Common Forest Trees of Tompkins County.

#### Slow Growing Species :

White pine (Pinus strobus)  
 Yellow " ( " rigida )



Hemlock	( <i>Tsuga canadensis</i> )
White oak	( <i>Quercus alba</i> )
Red "	( " <i>rubra</i> )
Scarlet "	( " <i>coccinia</i> )
Chestnut"	( " <i>prinus</i> )
Hickory	( <i>Hicoria orata</i> )
Sweet birch	( <i>Betula lenta</i> )
Yellow "	( " <i>lutea</i> )
Beech	( <i>Fagus ferruginea</i> )
White elm	( <i>Ulmus americana</i> )
Slippery elm	( " <i>pubescens</i> )
Black cherry	( <i>Prunus serotina</i> )
Sugar maple	( <i>Acer saccharum</i> )
Red "	( " <i>rubrum</i> )
Black ash	( <i>Fraxinus nigra</i> )
White "	( " <i>americana</i> )
Cedar	( <i>Juniperus Virginiana</i> )

#### Rapid Growing Species :

Butternut	( <i>Juglans cinerea</i> )
Black walnut	( " <i>nigra</i> )
Chestnut	( <i>Castanea dentata</i> )
Cucumber-tree	( <i>Magnolia acuminata</i> )
Tulip-tree	( <i>Liriodendron tulipifera</i> )
Sycamore	( <i>Platanus occidentatis</i> )
Locust	( <i>Robinia pseudacacia</i> )
Basswood	( <i>Tilia americana</i> )
Poplar	( <i>Populus grandidentata</i> )

#### Weed-trees and shrubs not good for timber.

Witch hazel	( <i>Hamamelis Virginiana</i> )
Thorn-apple	( <i>Crataegus punctata</i> )
Red wild cherry	( <i>Prunus pennsylvanicus</i> )
Choke cherry	( " <i>Virginiana</i> )
Sumac	( <i>Rhus hirta</i> )
Boxelder	( <i>Acer negundo</i> )
Dogwood	( <i>Cornus florida</i> )
Hornbeam	( <i>Carpinus caroliniana</i> )
Ironwood	( <i>Ostrya Virginica</i> )
Shad or Juneberry	( <i>Amelanchier Canadensis</i> )











