

THE ESTABLISHMENT AND  
DEVELOPMENT OF THE YELLOW SPRINGS,  
OHIO, SCHOOL FOREST

by  
Alan Woog

1949

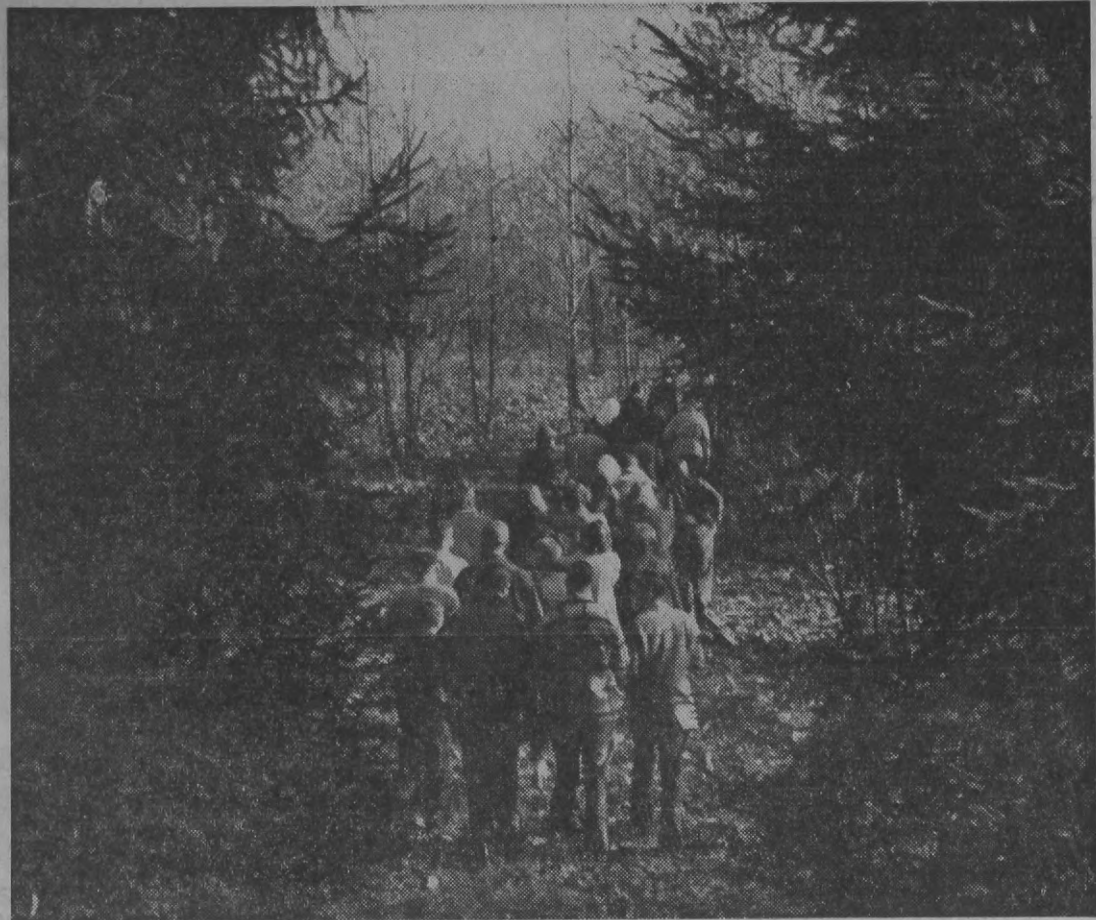
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A thesis submitted in partial fulfillment  
of the requirements for the degree of  
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**TO GATHER OWN TREES.** Yellow Springs, Dec. 18.—The town of Yellow Springs will gather its own Christmas trees this afternoon. The whole community is turning out for the tree-cutting party at the Yellow Springs school forest, 100-acres in Glen Helen, the wooded tract belonging to Antioch college. Purchasers of the 135 Scotch pine and Norway spruce trees ready for cutting, will choose the tree that strikes his fancy. Bryan high tree salesmen will be on hand to wield the axes, and collect the money—\$1.50 per tree regardless of size and shape. The students plan to use the money for school equipment. Decorating a living Christmas tree with suet and seeds for the birds, carol-singing around a bonfire, and piping hot refreshments will complete the Yellow Springs community Christmas festival.

## ACKNOWLEDGMENTS

I wish to express my sincere appreciation to the following men for their assistance, guidance, and cooperation in developing this project: Dr. Kenneth W. Hunt, Director of Glen Helen, Antioch College; Professor Shirley W. Allen, School of Forestry and Conservation, University of Michigan; Dr. Henry Federighi, Chairman, Yellow Springs Community Council; and Mr. John Halchin, Superintendent, Bryan High School, Yellow Springs, Ohio.

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## I. BACKGROUND

Antioch College is a small co-educational liberal arts college in southwestern Ohio. It is based on the co-operative plan which sends its students out every other three months to take jobs in their field of interest. Thus the program for an A. B. or B. S. degree ordinarily takes five years. It also is constantly experimenting with new ideas in education which have been the tradition ever since 1853 when Horace Mann organized the college.

The Glen Helen Endowment is the gift of Hugh Taylor Birch, who gave the 1,000 acre tract of land to his alma mater. Through the aims set up in the Endowment, and in the tradition of the College, Glen Helen is being developed as a demonstration area of practical, progressive methods of forest, soil, farm, and wildlife management.

One development was the setting up of a fellowship that would enable a graduate student to conduct research at the College and continue his academic studies at a school that would give an advanced degree. I am the recipient of the first fellowship, taking as my project the development of a school forest on Glen land for the local high school.

The idea of setting up a school forest had been in the minds of the Director of Glen Helen, Dr. Kenneth W. Hunt, and other interested individuals for sometime and its establishment seemed like the most immediate need in the development of Glen Helen. Approximately one hundred acres had been chosen including some 36 acres that had been planted by the State Division of Forestry twenty-three years ago.

In the spring of 1947 and again in the spring of 1948 small areas were planted, and during both these years some trees were cut from the pine stand for Christmas trees. The advantages of such a project, as seen then, had also been set down in a report by Dr. Hunt to the Glen Advisory Committee of Antioch College in February, 1948.

"The advantages of such a project are several:

- 1) It should reduce vandalism in the Glen, by giving the youngsters a stake and feeling of pride in the property. It would also enlist community sentiment on our side in the effort to prevent cutting of trees.
- 2) If successfully managed, it could be a strong factor in improving community relations. Social occasions could be made of annual events, such as tree planting and a community Christmas tree cutting.
- 3) School forests have proved a most effective technique in conservation education, particularly in New York, Michigan, and Wisconsin. Some 56 are listed for Ohio, but for the most part they are very small and lack effective management. We are in a position to show the way in this state."<sup>1</sup>.

My first job was to gain an understanding of school forests, their purpose, need, history, and the success and failures in developing them in other areas.

School forests are very similar to community forests, differing in that the emphasis and leadership is in the high

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1. "Glen Helen--A Report and Proposed Program", p. 8.

school instead of a town board of directors. "Some of the more obvious purposes usually included are

1. To provide facilities for more extensive outdoor recreation for the people.
2. To grow timber which will in time yield a steady income.
3. To preserve certain woods areas which are threatened by commercial use.
4. To beautify the environs of the town.
5. To eliminate certain unsightly or problem areas.
6. To create a war memorial.
7. To provide laboratory facilities for teaching conservation in the schools.
8. To provide an arboretum.
9. To provide food and cover for game.
10. To develop a wildlife sanctuary.
11. To protect the watershed of the community water supply.
12. To provide a site on which youth groups may carry on projects incidental to their training in citizenship.
13. To provide shade at a bathing beach.
14. To screen and protect certain fishing streams from silting and erosion.
15. To provide a summer camp site for youth groups.
16. To establish a shelterbelt or windbreak and stop a dust nuisance.
17. To enclose and screen a municipal sylvan theatre.
18. To provide facilities that will attract tourists.
19. To provide a source of fuelwood for relief families.

20. To provide productive work for relief labor.
21. To provide a source of supply of Christmas trees and evergreens for municipal decorations.
22. To serve as a demonstration in tree growing for the benefit of private landowners.
23. To put idle tax land into productive condition.
24. To stop wind erosion and traveling sand dunes." 2.

It was evident that all these purposes would not apply to our school forest and as the project developed, purposes that did apply, and other purposes not mentioned here, became evident.

The need for school forests became apparent, both from reading the articles by Nelson C. Brown (listed in the Bibliography) and from my own experience and ideas on:

- 1.) How and where the problem of putting the majority of our forested acres on a sustained yield basis must be met, and
- 2.) How the philosophy of working with nature instead of exploiting nature could be brought about in this country.

The United States Forest Service made a reappraisal of the Nation's forest resources in 1945 and 1946. Figures 1-5 were taken from the report.<sup>3</sup>

"Figure 1 represents our present usable drain. Figure 2 represents our usable drain fifty years from now. Figure 3

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2. "Starting a Community Forest", Division of State Forestry Bulletin, U. S. Forest Service, Washington, D. C. Dec. 1944.
  3. "Reappraisal of the Forest Situation", U. S. Forest Service, Washington, D. C., 1946.

is our present growth and Figure 4 is a prediction of our growth fifty years from now. All these tables must be analyzed together. In bridging the gap between present drain and growth and drain and growth fifty years from now, the transition to greater drain and growth will be a gradual one providing there is not another war to offset the general economic trend. We are using, today, approximately 53.9 billion board feet of sawtimber, or 13.7 cubic feet which is really a better criterion since it includes wood below sawtimber size. We are growing 35.3 billion board feet, or 13.4 billion cubic feet. We can, therefore, say that there is no problem in total cubic foot drain in regard to total cubic foot growth, but there is a problem in regard to board foot, or sawtimber, growth versus drain. However, there is a problem in the former in that the trend is toward reduced quality in the tree itself and in tree species, and in ever increasing poorer distribution of this growing stock. Our growing stock is forty-three per cent less than it was in 1910. The trend, therefore, must be changed from a decreasing amount of growing stock to an increasing amount as our needs become greater and as more of the virgin timber is consumed. In sawtimber our problem is more critical. Our drain far outdistances our growth and an additional factor is that fifty-two per cent of our present sawtimber (1601 billion board feet) is in virgin growth. This means that the problem of balancing board foot drain to growth is greater than we realize. This can be seen in Figure 3 where thirty-seven per cent of our drain is in the West which contains sixty-

five per cent of our growing stock, mostly virgin timber in Washington and Oregon. We must grow timber now, not only to close the gap between growth and drain, but to offset the scarcity that will arise when the virgin timber is gone.

Let us now look to the future. Our needs are going to increase and therefore our growth must increase. With present trends we will use seventy-three point five billion board feet annually fifty years from now, or twenty-one billion cubic feet. It can also be seen in Figure 3 that pulpwood will play an ever increasing role in our future needs. In order to meet this demand in 1998 we must have a growing stock of seventy-two billion board feet or twenty billion cubic feet distributed as shown in Figure 4. This will mean that we will need 1700 billion board feet, which is wood of sawtimber size by 1998 and this must be on growing areas. Fifty-two per cent of it can not be in virgin growth as virgin growth will no longer exist fifty years from now. That is the real problem. We not only have to increase the amount of sawtimber available, but we can no longer depend upon virgin growth - it must be of growth coming in annually to meet the annual needs.

Figure 5 represents the ownership pattern of our commercial timber. It can be seen from this figure that almost all of our federally owned timber is in the West, but it is not an important factor in board foot production because of its quality and inaccessibility. The figures here are 32.4 per cent of the sawtimber on 15.8 per cent of the land. However, this figure is reversed on farm woodlots

where 15.2 per cent of the sawtimber is on 30.2 per cent of the land area and these woodlots are producing one-third of our forest products. There is a definite problem here because these lands are being overcut and management practices are poor or nonexistent. National forest lands have the best cutting practices, yet three-fourths of our commercial timber land and 57.1 per cent of our sawtimber is in private ownership. So we can see that the main problem of obtaining adequate growing stock to meet future demands must be met on private land areas, mainly on farm woodlots and small private holdings.

We must grow stands of sawtimber size on the farm woodlots and small holdings in the South and North where the majority of these holdings are located (Figure 5). We must also distribute this growth in proper age classes so it matures regularly to meet annual demands. We must also start at once because these areas are in poor condition. Of our total area that is poorly stocked and denuded, eighty-one per cent is in the North and South. Figure 3 shows that in the North thirty-seven per cent of our total land area had only fourteen per cent of our growing stock, and in the South forty per cent of our total land area has only twenty-one per cent of our growing stock. This is contrasted to the West where sixty-five per cent of our growing stock is on twenty-three per cent of our total land area. This is a situation that calls for action."<sup>4</sup>

One answer is the development of school forests. School

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4. Woog, Alan, "A Forest Policy for the United States," University of Idaho, unpublished, 1948, pp. 2-6, 11.

Figure 1

Present Usable Drain ( Wohletz, Lecture Notes, 1948 )				
Use of the Wood	Cubic feet		Board feet	
	Billions	% in class	Billions	% in class
Lumber	6.7	55	34.4	69
Fuelwood	2.2	18	3.9	8
Pulpwood	1.3	11	4.8	10
Veneer logs	0.4	3	2.0	4
Hewed ties	0.4	3	1.6	3
All others	1.2	10	3.0	6
Fire Insects Disease	1.5		4.2	
Totals	13.7	100	53.9	100



Figure 2

Usable Drain Fifty Years Hence (Wohletz, Lecture Notes, 1948)				
Use of the Wood	Cubic feet		Board feet	
	Billions	% in class	Billions	% in class
Lumber	8.0	51	41.0	66
Fuelwood	1.7	11	2.8	4
Pulpwood	3.3	21	10.7	18
Veneer logs	0.6	4	2.8	4
Hewed ties	0.2	1	0.9	1
All others	1.8	12	4.3	7
Safety factor Fire, Insects Disease.	5.4		11.0	
Totals	21.0	100	73.5	100

Figure 3

Present Distribution of Growth (Wehletz, Lecture Notes, 1948)							
Area	Cubic feet		Board feet		Distribution		
	Actual Growth Billions	Percent	Actual Growth Billions	Percent	of Growing Stock	of Land Percent	of Drain Percent
North	4.7	35	8.4	24	14	37	17
South	6.4	48	19.9	56	21	40	46
West	7.3	17	7.0	20	65	23	37
Totals	13.4	100	35.3	100	100	100	100

Figure 4

Distribution of Growth Needed Fifty Years Hence (Wohletz, Lecture Notes, 1948)				
Area	Cubic feet		Board feet	
	Actual Growth Billions	Percent	Actual Growth Billions	Percent
North	5.8	29	17.6	25
South	10.1	51	37.4	50
West	4.1	20	17.0	25
Totals	20.0	100	72.0	100

Figure 5

Ownership Pattern					
commercial timber: 461 million acres, 1601 billion board feet					
(Wohletz, Lecture Notes, 1948)					
Type of Ownership	Sawtimber S and Land L	Area % of North	Area % of South	Area % of West	Percent of U. S. Total
Farm	S	4.7	8.4	2.1	15.2
	L	13.2	15.0	2.0	30.2
Other Private	S	7.7	11.4	22.7	41.8
	L	17.1	21.3	6.3	44.7
Total Private	S	12.4	19.8	24.8	57.1
	L	30.4	36.2	8.2	75.0
National Forest	S	0.5	0.9	31.0	32.4
	L	2.0	2.2	11.7	15.8
Other Federal	S	0.1	0.2	6.1	6.5
	L	0.4	0.9	2.2	3.5
State and Local	S	0.6	0.2	3.2	4.1
	L	4.1	0.4	1.1	5.9
All public	S	1.2	1.3	40.3	42.9
	L	6.5	3.5	15.0	25.0
All owners	S	14.0	21.0	65.0	100.0
	L	37.0	40.0	23.0	100.0

forests will not only serve as demonstration areas for adult farmers to see, but the school children, the future farmers and citizens, will learn habits of forest management and conservation practices as they are growing up, and will not have to throw over old habits when they are older for their own best interests and the best interests of the nation. It is a philosophy that can be developed, the philosophy of working with nature instead of exploiting her. It is an answer to the crying need expounded in such recent books as William Vogt's Road to Survival, Fairfield Osborn's Our Plundered Planet, and Ward Shepard's Food or Famine.

These are the two primary needs for school forests from a conservation standpoint. However, there must be a motivating force to get people started in the right direction. In the Tennessee Valley Authority they found that one of the most difficult things to accomplish was to make the adults realize what was best for themselves and the country.<sup>4</sup> It is one of the unfortunate aspects of human nature that people usually do not plan ahead until they have to. And this is true especially of land planning by people actually on the land. Farmers in southwestern Ohio, by and large, can still satisfy their needs; and their standard of living is higher than it has ever been. Therefore, there must be some motivating force besides pure reason and statistics to put across these new ideas. There is a positive answer and it has worked in Yellow Springs.

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4. Lillienthal, TVA - Democracy on the March.

Man has evolved to a point where he has found freedom, but he doesn't really know what to do with it. We have the ability to choose, to act, but we are characterized by being in a spiritual vacuum. It is ever present in our society and especially in the younger generation. It is emphasized in the conflict between a capitalistic philosophy of survival of the fittest by competition and a desire for self expression through cooperation. Joshua Liebman's book, Peace of Mind, which was a best seller for a long time, points to man's craving desire to belong, and to feel a part of something in a society that has a very lost feeling. The book, Escape from Freedom, by the noted psychiatrist, Erich Fromm, brings this out, and he feels that the solution of man's need to express himself should be through love and productive work.

People want to work together, and if they are motivated to do so by the sheer joy of creating something outside themselves, the results are usually successful. This was the basis on which the Yellow Springs School Forest was developed and the results can now be measured in human values as well as material values.

As to the history, school forests are comparatively new in this country and stem from the well-established community forests that are prevalent in Europe. Community forests, forests for the benefit of all in the town and administered by the town, first started in New England. School forests, which I feel should be community forests with the emphasis and leadership in the high school, developed from the idea of community forests. Massachusetts has 177 community forests, New Hampshire 102, and Vermont 44. Including school and

community forests, New York has 579, Wisconsin 174, and Michigan 112.<sup>5</sup> In Wisconsin, where considerable progress has been made, a school forest is "a tract of land comprising twenty acres or more, which is owned by the school district, acquired and administered by the school boards, and devoted to the idea of giving students a real knowledge and appreciation of the things of nature, particularly trees".<sup>6</sup> Ohio has had very little success in the development of school forests.

Carl Johnson's Masters thesis, "School Forests in Ohio" is a report of his study of the status of school forests in Ohio in 1947. His thesis states that, "Ohio schools at present own about 10,000 acres of land which they are not using for educational purposes. The land is distributed among at least three-fifths of our schools. One-fifth of the 659 high schools contacted in the survey reported that waste, abandoned, tax delinquent, or wooded land adjoins their school grounds. These data, given in Chapter II, prove that most Ohio schools have some facilities for developing out-of-door laboratories for the teaching of conservation or conservation related studies.

In Chapter III, the information obtained from the 56 Ohio schools which have school forests, together with interpretations added from personal observations of these forests is discussed. The 56 school forests, 39 of which belong to schools below college level and 17 of which are owned by Ohio colleges and universities, total 1776 acres. Most of the forests are small, under 6 acres, while the larger

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5. Brown, N. C. "Community Forests Close to Home and Serving Local People", Page 3.
  6. McNeel and Calhoun, "School Forests in Wisconsin", Page 3.



areas owned by a few schools make up the bulk of the total area. Sixty per cent of Ohio's school forests have been established in the last ten years. In general, little use, either educational, recreaxtional or economic, is made of these potential conservation laboratories."

He goes on to say that "Ohio, though more heavily populated than Wisconsin and Michigan, has its full quota of land better suited to forestry than to agriculture."<sup>7</sup>

In regard to laws related to school and community forests, he stated that:

"Our laws seem quite vague with respect to what should become a large program. However, we have sufficient permissive legislation to go ahead and with the consciousness of need for wise resource use and conservation education steadily growing; it seems that certain favorable opinions and decisions can be obtained from our Attorney General and the courts if necessary. More adequate legislation will be forthcoming when the need is clearly demonstrated."

Thus it can be seen that little has been done to develop the school forest potentialities in Ohio. Realizing this, and in line with the philosophy of developing Glen Helen as a demonstration area for practical, progressive forest management, a management plan that would serve not only for the Yellow Springs School Forest, but as a guide for other schools in setting up their school forests was developed.

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7. P. 133.

## II. THE MANAGEMENT PLAN

The land that was designated to be developed as a school forest under the Glen Helen Endowment consisted of approximately one hundred acres in Township 4, Range 8, Section 13. The land is owned by Antioch College and is part of the thousand acre tract known as Glen Helen.

My first undertaking after arriving at Antioch in September, 1948, was to take an inventory of what we had to work with. This consisted first of making a plane table map of the area with my student assistant. As this developed, I made contacts to obtain some aerial photographs of the area. The only photographs available were taken by the Soil Conservation Service, but at too high an altitude to be of use on this relatively small area. Therefore, I obtained the services of two students, one a pilot, and the other familiar with aerial photography. On the first good flying day which was September 14th, we took pictures of the area. These are shown in Figures 6 and 7. These pictures were taken at approximately five thousand feet, using a Kodak Graphlex Camera with Super XX film and a yellow filter. The pictures were taken by cutting a hole in the floor of a cub plane and mounting a frame to hold the camera. As can be seen, they are relatively clear but there is some tilt. However, they were adequate for our purposes. Figure 6 represents the entire school forest area as can be seen by comparing it with Figure 8 which shows the boundaries of the forest area. Figure 7 represents Bryan Field, the first area to be planted. The scale is

one inch to 200 feet in Figure 6, and in Figure 7 the scale is one inch to 100 feet. Several prints of both Figure 6 and 7 were enlarged to 16" by 20" for more accurate planimeter calculations and for display purposes.

With the plane table map, these aerial photographs, and the necessary ground control to use these maps as a basis, a management plan was developed. These data were supplemented by other material as time went on, including a 100% tally of trees in the pine woods to be used as a basis for determining how many trees could be cut each year from this area in the interim period until the planted trees were large enough to be cut, and soil samples that were sent to the Agricultural Extension Service at Ohio State University.

The area, as can be seen by Figure 6 and Figure 7, consists of a large, level open field in the northern end of the School Forest. It was once pasture, and in recent years has been left idle resulting in an infiltration of poison ivy and elm saplings. As will be shown later, it will eventually be used for continuous Christmas tree production. To the south of it on the eastern half of the forest is the pine woods. This area was planted twenty-three years ago by the Ohio Division of Forestry as an experimental planting when the area was part of Bryan State Park. Since that time, in a land exchange, the area has become part of Glen Helen. This planting covered the eastern half of the forest from the present east-west road to Bryan Field. But the southern half of the planting failed and the stand of



Figure 6  
Yellow Springs School Forest - Scale 1 inch = 200 feet



Figure 7

Bryan Field Area of the Forest - Scale 1 inch = 100 feet

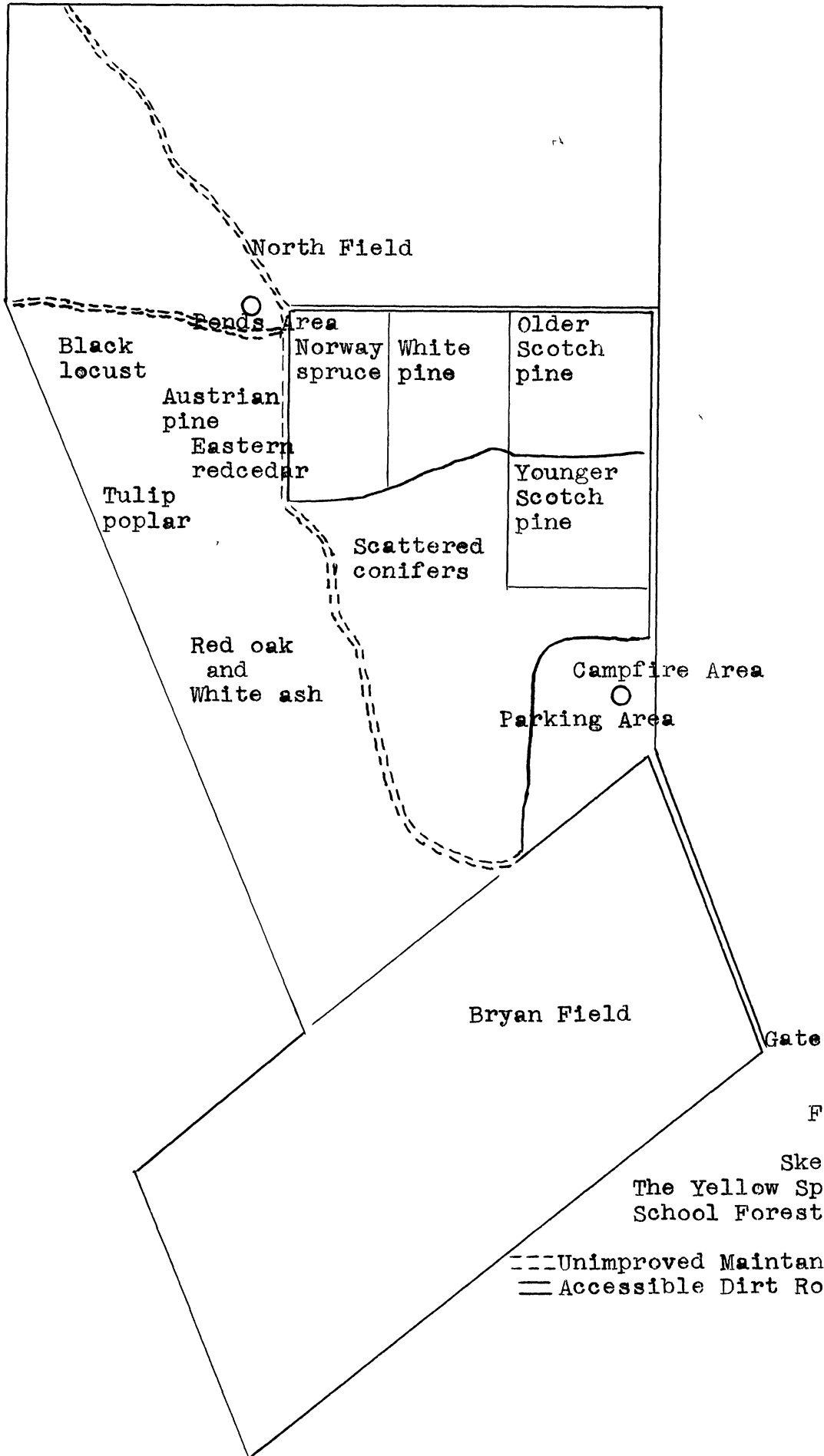


Figure 8

Sketch of  
The Yellow Springs  
School Forest 1948

Figure 9

Approximate Acreage of Areas  
in School Forest

1. Pine woods.....	7.25
2. Younger Scotch pine.....	1.91
3. Scattered conifer area.....	11.60
4. Oak and Ash area.....	9.20
5. Eastern redcedar.....	0.73
6. Austrian pine.....	0.92
7. Tulip poplar and Black locust.....	4.90
8. Horace Mann Maple Area.....	0.02
9. Ponds Area.....	0.92
10. Twelve tree planting areas.....	38.03
11. Miscellaneous (roads, fire-breaks, gullies,)	25.00

younger Scotch pine was planted nineteen years ago. The remaining southern area is now just scattered conifers that survived from the original planting. Progressing from east to west in the northern half of this planting, there are plantings of Scotch pine (Pinus sylvestris), white pine (Pinus strobus), and Norway spruce (Picea abies). To the west are scattered plantings of eastern red cedar (Juniperus virginiana), Austrian pine (Pinus nigra), black locust (Robinia pseudoacacia), and tulip poplar (Liriodendron tulipifera). These were also planted by the State twenty-three years ago with fair survival. To the south of these plantings is an excellent stand of red oak (Quercus borealis), and white ash (Fraxinus americana); also planted by the State twenty-three years ago, and planted alternately by rows. To the south of the State plantings is a large field that was pasture and is broken into three sections by a Y shaped gully. It also has been idle for several years, resulting in overgrowth of elm saplings and poison ivy. As can be seen from the aerial photographs, there are also quite a few mature trees in this area. The approximate acreages of these areas are shown in Figure 9.

The topography is fairly level in general. The northern field is level and well suited for continuous Christmas tree production. The state plantings slopes gradually downward from east to west with a gully running east to west between the well-established stand and younger Scotch pine and scattered conifers. The southern half of the State planting



slopes gradually in the southwest, and the Bryan Field area slopes also in this direction. It, as noted before, is divided by a Y shaped gully.

Soil samples were taken from three areas. The results are shown in Figure 10 and include M. F. - Middle Field - which will be planted in the spring of 1949; B. F. - Bryan Field - an area of which will also be planted in 1949; and P. W. - Pine Woods - of which a soil sample was taken to determine the pH effect of this successful planting of conifers. Soil samples of other areas will be taken at later dates when needed. The effects of cultivation, grazing, and neglect in the Bryan and Middle Field areas is readily noticeable, and it is also interesting to note the effect the pine woods has had on the pH of the soil.

Other features in the School Forest include: A Ponds Area, a campfire area, and a parking space. The ponds area consists of three artificially made ponds that are just west of the Norway spruce plantation. This area was developed by Hugh Taylor Birch, who donated the land. Since his death, the area has deteriorated, but it could be cleaned up and developed as a picnic or meeting ground area. The campfire area is shown in Figure 8, and is in the form of large rocks in a ring around a large maple that has died and fallen down. A plaque dedicating it as the Horace Mann Maple is also there. Horace Mann, the founder of Antioch College, used to sit and meditate under this maple. A young maple could be planted and this area also cleaned up as a meeting ground. Campfires could then be held at the ponds

Figure 10

Soil Samples of Areas in Yellow Springs School Forest (Results of Tests by Agricultural Extension Service, Ohio State University)						
Sample Number	Kind of Soil	pH	Active Calcium	Available Phosphorus	Available Potash	Agr'l ground lime-stone needed tons per acre
B.F.	yellow brown silty clay loam	5.9	Medium	Low	Low	2
M.F.	yellow brown silty clay loam	5.0	Low	Low	Low	2 1/2
P.W.	light gray brown silty clay loam	4.6	Low	Low	Low	3

area or at the open-air amphitheater. The parking area is now just a large field with remnants of the furrows plowed by the State twenty-three years ago when they attempted to plant this area. It is in need of leveling and graveling.

The area is easily accessible. The road in Figure 6 that runs from northeast to southwest in the southeastern edge of the picture, connects with roads that lead to both Yellow Springs and Antioch College. The School Forest, by road, is 2.0 miles from Antioch College and 2.6 miles from Bryan High School. However, the road leading into the parking area in the School Forest is a single lane dirt road that needs to be widened to permit double lane traffic. The single lane dirt road from the parking area to the northwest corner of the pine woods should be widened to permit double lane traffic to the Christmas tree thinning areas and will have to be widened when the North Field is developed for Christmas tree production. However, this is not essential at present and a system of shuttling Christmas trees to the Parking Area by truck can be used during the Christmas festivals. The maintenance road from the northwest corner of the pine woods south to the parking area can be left as such until the development of the proposed open-air amphitheatre is built in the area shown in Figure 11 or a more extensive system of roads are developed in the School Forest. This is also true of the maintenance road leading northwest from the northwest edge of the pine woods.

With the inventory completed, the next step was to develop a planting plan. This was developed to show the

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students, on a small scale, what a sustained yield operation in land use planning means, and of also taking advantage of trees made available by the Ohio Division of Forestry. Under the regulations of the Ohio Division of Forestry plan, seedlings may be obtained for the cost of transportation providing at least six hundred trees <sup>per acre</sup> are left to grow to maturity. Thus, with the idea of developing the Bryan Field area into a mature white pine forest, and of harvesting successive crops of Christmas trees each year, the Bryan Field area was divided into seven different areas of approximately two acres each. These areas are shown in Figure 11. The exact boundaries of these areas are shown on the enlarged aerial photograph. Areas IA and IB were selected for the spring planting in 1949 because they required the least amount of work to free them of poison ivy and to poison the invading elms. Area II was planted in an experimental planting in 1947 and 1948. These plantings were not completely successful and interplanting needs to be done, but they gave us an understanding of the methods needed for successful plantings in the future. Part of this Area was planted with Norway spruce without plowing, and this plan showed us that it is too difficult for the school children to attempt to plant trees successfully in the heavy bluegrass that is present in these fields. Also competition from this grass retards growth and sometimes causes death to the seedling. Another area was plowed, and red pine was planted on top of the furrows as is done at the Muskingum Watershed Conservancy District in northeastern Ohio. However, this

showed us that the school children are not careful enough to avoid the danger of air pockets. It also showed us the necessity of careful contour plowing to control water runoff. These lessons showed us that the best methods were to plow shallow, accurate contours and to plant the trees in the furrows. The plowing was done, with the aid of a nearby farmer, on Areas 1A and 1B in November, 1948, and the land left for the spring planting. Using a hand level, adequate guide stakes were set out with a five by five spacing in mind. These contours were plowed and then intermediate contours were placed in between these contours by eye, keeping the five foot spacing.

Succeeding areas will be planted each year with stock obtained from the Ohio Division of Forestry. Figure 12 shows the number of trees to be planted each year. From Figures 11 and 12 it can also be seen that the North Field, which is divided into five areas will be brought into Christmas tree production. This area, due to its level topography and easy accessibility, will be kept in continuous Christmas tree production. By the time planting starts in this area, enough income from previous sales will be available to buy tree seedlings from a private nursery and then the areas can be harvested each year during the Community Christmas-tree Cutting Festival. Rotation will continue on this Area and the Bryan Field Area will be left to grow to a mature forest. This continuous cropping in the North Field will necessitate the use of fertilizer, but the profits from Christmas tree sales can be used for this purpose. Figure 11., which shows the area, also shows that access roads

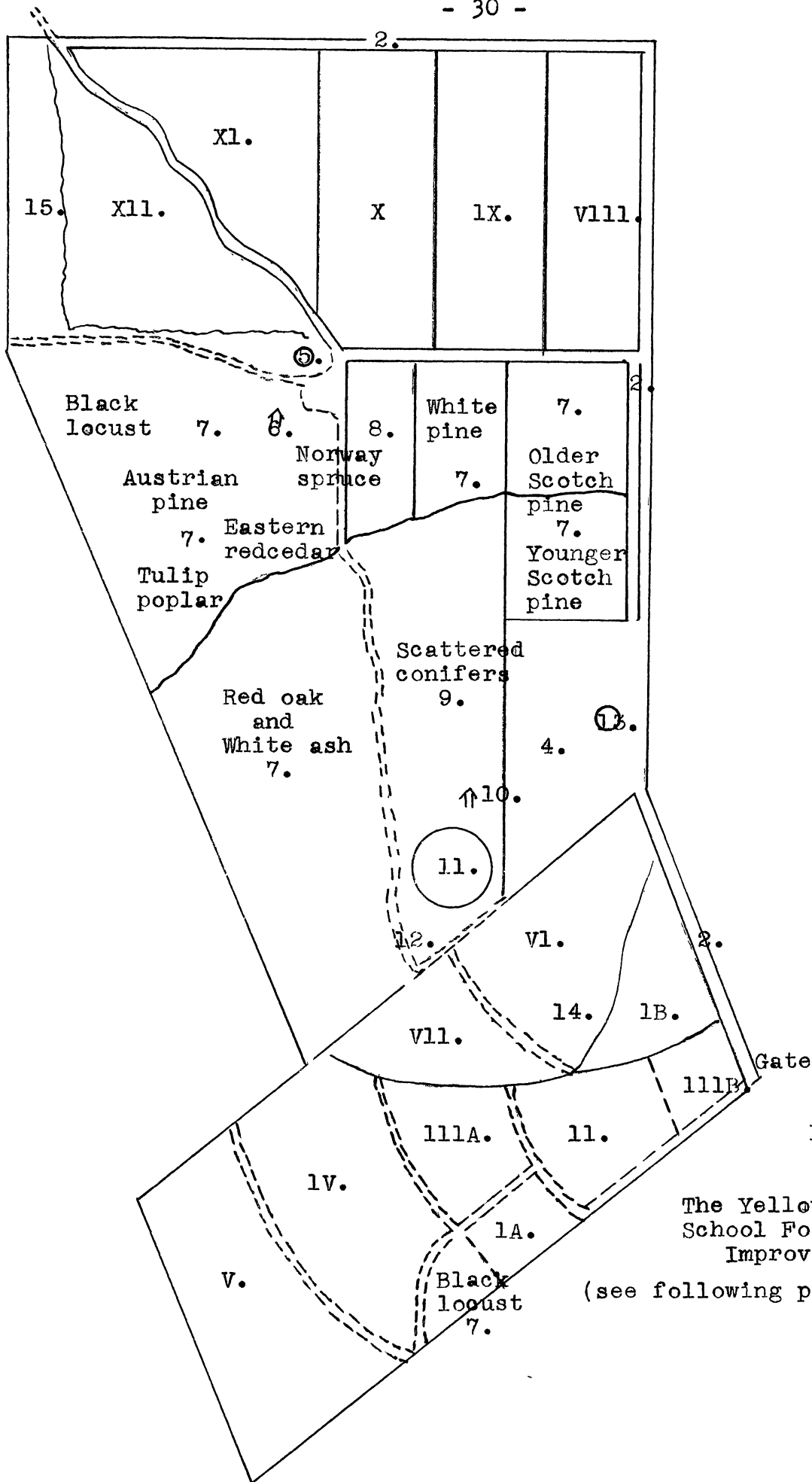


Figure 11

Sketch of  
The Yellow Springs  
School Forest with  
Improvements

(see following page for legend)

Legend for Figure 11

1. North Field - to be progressively planted and kept in continuous Christmas tree production in Areas 8 - 12.
2. Dirt road additions to give a continuous two way drive.
3. Improved turn-off at Ponds Area.
4. Enlarged and graveled parking area.
5. Improved Ponds Area for recreational activities.
6. Cabin set back in Austrian Pine plantation.
7. Improved stands of these species.
8. Picnic facilities in spruce stand after final Christmas tree thinning.
9. Picnic facilities and plantings
10. Nature Museum.
11. Open Air Amphitheatre.
12. Maintenance roads and fire breaks.



Legend for Figure 11 (Continued)

13. Campfire area.
14. Bryan Field - to be progressively planted and thinned for Christmas trees, letting enough grow to make a mature white pine forest, in Areas 1 - 7.
15. Hardwoods.

will be developed to serve as fire lanes and assist in planting, caring for and harvesting the trees.

Thus our planting plan is to plant the first seven acres successively, one each year, in the Bryan Field Area with trees from the Ohio Division of Forestry. The spacing will be five by five, thus planting approximately 1700 trees per acre. Six hundred trees per acre will be left to grow to maturity, and it seems best to leave white pine as the species. In five years from the first planting, 1954, the first area planted will be ready for thinning as Christmas trees. At this time approximately 590 trees per acre can be harvested (1700 per acre planted, estimating 70% survival, and leaving 600 trees per acre to grow to maturity). Thus harvesting would start in the first area in 1954 and continue on successive areas. The areas being planted would continue and when the seven areas in Bryan Field had been planted with trees from the Ohio Forestry Division, planting would start on successive areas in the North Field with trees from a private nursery, or if there is enough interest, trees grown by the school children. Thus the first planting in the North Field would be in 1956, and the last planting there would be in 1960. The first harvest, which would be 100 per cent in the North Field would be in 1961, and the following spring the same area would be planted. Harvesting that fall would be on the next area with it planted the following spring and the rotation would continue in the North Field. Thus the North Field would be devoted to Christmas tree production and Bryan Field left to grow to a

Figure 12

CHRISTMAS TREE PLANTING PLAN FOR YELLOW SPRINGS SCHOOL FOREST

Area Number	Acres to be Planted	Year Planted	Species Planted	Type Stock Plant	No. trees Planted	No. trees Survival	No. trees Harvested	Est. Gross Profit
1A.	.89	'49	Red pine White pine	2-2 2-2	750 750	1,050	1,068	\$1,068
1B.	.83	'49	Red pine White pine	2-2 2-2	750 750	1,050		
11.	2.43	'48 '47 '50	Red pine Norway spruce Inter-planting	2-2 1-1 2-2	4,240	2,960	1,502	\$1,502
111A.	1.49	'51		2-2	2,590	1,810	1,364	\$1,364
111B.	.72	'51			1,260	880		
1V.	2.66	'52		2-2	4,630	3,240	1,644	\$1,644
V.	2.58	'53		2-2	4,490	3,140	1,592	\$1,592
VI.	2.18	'54		2-2	3,800	2,660	1,352	\$1,352
Totals	13.78				24,010	16,780	8,522	\$8,522

CHRISTMAS TREE PLANTING PLAN FOR YELLOW SPRINGS SCHOOL FOREST

Area Number	Acres Planted	Year Planted	Species Planted	Type Stock Planted	No. trees Planted	No. trees Survival	No. trees Harvested	Est. Gross Profit
VII.	2.05	'55		2-2	3,490	2,450	1,220	\$1,220
VIII.	4.32	'56		2-2	7,500	5,250	5,250	\$5,250
IX.	4.32	'57		2-2	7,500	5,250	5,250	\$5,250
X.	4.69	'58		2-2	8,160	5,700	5,700	\$5,700
XI.	4.44	'59		2-2	7,720	5,400	5,400	\$5,400
XII.	4.43	'60		2-2	7,700	5,390	5,390	\$5,390
Totals	24.25				42,070	29,440	28,210	\$28,210

Grand Totals  
for Twelve Year Period

1.	Total acreage planted.....	38.03
2.	Total trees planted.....	66,080
3.	Total number of tree survival.....	46,220
4.	Total number of trees harvested.....	36,732
5.	Total number of trees left in Bryan Field to grow to maturity.....	9,488
6.	Total gross profit.....	\$36,732

mature white pine forest. Species to be planted would depend on availability and local taste as to Christmas trees. Stock should be at least 2 - 2 to insure Christmas tree maturity in five years.

Figure 12 also gives the number of trees to be planted in each area with five by five spacing, and the number of trees expected to survive. This figure was taken at 70 per cent which is the average survival of Scotch, Red, Pitch, and Shortleaf pine in Ohio.<sup>7</sup> From each plot the approximate number of trees to be left to grow to maturity (using six hundred per acre as a base) was subtracted, and the number of trees to be harvested from each area was determined. From this a gross profit per area was estimated. Due to the uncertainty of prices, \$1.00 was taken as the sale price of each tree, which at the present time is a very conservative estimate. For the first seven plots, the main item that must be subtracted to get the net profit is the cost of shipping the trees from the State nursery (which will be \$37.50 in 1949 for 3000 trees), and the cost of plowing the land (which was \$25.25 for Area 1, 1.62 acres). For the North Field Area the cost of buying and shipping the trees from a private source will be approximately three times as much as buying the trees from the State. Estimates for gross and net profits are a difficult thing to predict for a project such as a school forest, as there are so many variable factors present. The sale price of the trees will depend upon the

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7. Paton, Secrest and Ezri, "Ohio Forest Plantings", p. 72.

present market conditions for Christmas trees. The costs will vary inversely with the enthusiasm of the school children and the town for the project. Thus if there is good enthusiasm, the plowing could probably be obtained free from a local farmer. At Antioch, since we had not started on a public relations campaign, we hired a farmer to plow the land at \$3.50 an hour. We were also fortunate in having the services of the two permanent Glen Helen maintenance men in poisoning the elm saplings and the poison ivy, and the help of one college student in laying out the stakes. However, this work could have been done by the school children. The land upon which the plantings will be made is tax free which takes care of another cost. The technical advice and services were supplied by the author while at Antioch on a fellowship. Thus the two factors of land cost and technical assistance were cases that kept the costs at a minimum. In generalizing for school forests in other areas, these factors would have to be considered, and this aspect of school forest development will be discussed in the conclusion of the paper. It can be seen however, that even with these variable factors, from a purely economic standpoint, school forests provide an attractive source of income for high schools.

In most instances, planting plans similar the ones described above would mean successive plantings for five years before a monetary return could be realized. At Antioch we were fortunate in having the State planted pine that could be thinned for Christmas trees to give an immediate return

Figure 13

100% Tally of Trees in Pine Woods		
Area	Standing	Stumps
Younger Scotch Pine	513	17
Older Scotch Pine	1607	-
White Pine	1700	-
Norway Spruce	702	159



and stimulate interest as well as to become a part of the overall management plan for the School Forest.

This area, including the younger stand of Scotch pine, includes about ten acres. In November, an estimate of the number of trees present in the younger Scotch pine stand and in the Norway spruce stand was made to determine how many trees could be cut at the Christmas Tree Cutting Festival and still leave enough to be cut in successive years until the first planting would be ready for harvest. In January, a one hundred per cent tally count was made of all the trees in the pine woods. The results are shown in Figure 13. This does not include the partially successful planting south of the white pine and spruce where some thinning can be made. An accurate tally count was necessary to determine future thinnings. A volume cruise was not taken as the trees will not be harvested for some time. However, a volume tally and increment studies would be valuable and could be incorporated as a student project.

The younger Scotch pine area and the Norway spruce area will be thinned for Christmas trees during the next five years. The original plan was to use all the younger Scotch pine and then replant that area and to thin the Norway spruce area, leaving enough trees to make a mature stand. However, our stump tally after the Christmas Tree Festival showed us that the town's taste for Christmas trees was definitely toward Norway spruce. (Sufficient trees of both species were marked so a choice could be made.) Thus the emphasis during the next five years must be on harvesting the Norway

spruce, and it seems best to cut at least one hundred trees each year in order to maintain an active interest.

In 1948, one hundred and thirty-five trees were slated to be cut and that number of orders were taken in line with the idea of utilizing the Scotch pine. The trees were marked mechanically in rows to open up the stands, every sixth row being marked in the Norway spruce and every seventh row in the Scotch pine. One hundred and thirty-five trees were paid for, but our stump tally showed us that 159 spruce and 17 Scotch pine had been cut. These forty-one unpaid-for cut trees were due to the fact that trees were cut and discarded, and also the fact of theft when no one was in the School Forest. Both of these factors can best be overcome, in my opinion, by stimulating greater pride in the townspeople and the students for their School Forest and making them realize that there are only a limited number of trees available.

Now that the stands are accessible, the best policy for the next five years in the Spruce and younger Scotch pine stands will be to mark the trees to be cut selectively. One hundred orders each year can be taken, realizing that most of the trees will be taken from the spruce area. If one hundred trees are cut each year from the spruce area alone, there will be 102 trees left. However, the spruce growing in the partially successful stand south of the main stand can be utilized to a limited degree. Also greater pride and publicity must be initiated to make people realize that they cannot cut indiscriminately. The Spruce stand, with its ever broadening lower branches due to thinning,

and its fine needle floor, can then be used as a picnic area with a few tables and other picnic facilities made available. The Scotch pine stand will grow with added increment to pulpwood or sawtimber size. The price of these trees will depend upon local market conditions. The trees were sold in 1948 for \$1.50 each no matter what size, but with more time to plan for next year, a graduated scale according to size could be worked out. Ideas for future festivals will be discussed later in summarizing the meeting held by the students after the 1948 Christmas Festival.

The white pine stand is in need of immediate attention. Money is being lost every day. The planting is very close--approximately three by three. No thinning has ever been done, and though stagnation has not taken place, growth is very slow. There are some hardwoods that were probably present when the planting was made, and these are causing restricted and deformed growth. The next concrete project should be a thinning of this stand and a pruning of the better trees. Volume and growth data would be valuable, but is not essential to the stand itself as the trees will not be merchantable for some time. Data, however, should be secured as to the best use for this stand when it is mature.

The older Scotch pine is in fairly good shape with few dead trees. A thinning and pruning operation apparently took place here at some time. However, more work could be done in removing the dead trees and thus increase growth.

The Ponds Area, which is just west of the Spruce stand, can be cleared and developed as a central meeting place. The road extends to it and just south of it is an area where cars could turn around and park. It is also suggested that a double lane road be made all the way from the gate to the Ponds Area. This would facilitate greater use of the Ponds Area now, and would also enable people to drive their cars to the Spruce stand where the greater part of the Christmas tree cutting will take place in the next five years. Also it will make the Spruce stand more accessible when it becomes a picnic area. In fact the Ponds Area, once cleaned up, could be the center point for the Christmas Tree Festival. A double lane road would also make the North Field more accessible and would help in harvesting timber from the White pine stand. One alternate suggestion for a double lane road is to extend the present road northward around the outside edge of the North Field and connect it to the maintenance road that leads northeast from the spruce stand. This could be a one way scenic drive and would eliminate the need for roads between the five acres in the North Field for harvesting Christmas trees. In cleaning up the Ponds area it will be necessary to eliminate the poison ivy with 2-4D or some similar product and to poison the elm saplings that are coming in. This procedure will also have to be done on all the areas to be planted in the Bryan and North Fields.

Just south of the Ponds Area in the Austrian pine stand would be a good location for a cabin if one is desired. The Austrian pine stand is in need of interplanting to bring the

area into full productivity and a cabin could be placed in one of the clearings. No work has been done in the Austrian pine, tulip poplar, black locust, or eastern red-cedar stands. All are in need of improvement cuttings and inter-planting. The Eastern redcedar stand is in the best condition and valuable work on the growth and consequences of thinning and pruning of redcedar in artificial plantations could be done. All four of these areas could ultimately be brought into demonstration areas and could provide financial returns in the future.

The area between the pine woods and Bryan Field consists of approximately twelve acres. This land was planted by the State, but the planting was only partially successful as can be seen from Figure 6. A small area just south of the Norway spruce stand actually needs thinning, and these can be utilized as Christmas trees. The remaining area with trees consists of scattered trees of various species, mostly Norway spruce, white pine, and Scotch pine. It appears that these plantings failed either because of poor planting technique or lack of moisture due to excess runoff from poor contour plowing. This area could be used in a number of ways. One way would be to use it for a picnic area until the spruce stand is completely thinned in five years. If the demand was still high for this use, it could remain a picnic area and the adjoining spruce stand in the north added to the area. If it was no longer needed as a picnic area it could be planted. The land is probably capable of maintaining hardwoods now and a small planting on an experimental basis could be made to determine this. If hardwoods

will grow successfully, the area could be used for the growing of fence posts, furniture stock, wood for croquet sets (Osage-orange, Maclura pomifera), oak for kegs, beekeeper's supplies (Basswood, Tilia americana), or wood for specialty products. All these uses have markets within shipping distance and it could be determined which would be the best to grow from an economic standpoint and as a demonstration area for farmers to see. Other uses could be the development of a sugar bush to have community maple syrup gathering events or the establishment of a walnut grove. The southwestern end of this area slopes downward in that direction and would provide the best area for an open-air amphitheatre for high school plays, concerts, and plays given by the Yellow Springs Area Theatre. This area is beautiful in the spring and fall with the oak and ash plantation to the west and eventually the forest of white pine to the south. The seats could be made from posts left over from Christmas tree cuttings in the pine woods--after the wood has been treated. The stage could also be made from wood taken from the school forest. The present maintenance road could easily be re-routed if this project were developed. It is also close to the parking space which will be developed in the southeast end of this field. The parking area is flat and needs to be leveled and graveled and can be extended as far north as the younger Scotch pine stand.

The present campfire area around the now dead Horace Mann Maple is in the middle of the Parking area. However, it would be best to have campfires some place else and plant a young

maple in front of the Horace Mann plaque where the old maple stood. Campfire programs could be held at the Ponds area or at the open-air amphitheatre if a moveable stage was made.

The best area for a nature museum would be just west of the parking area and north of the amphitheatre. Here interesting exhibits could be displayed as well as collections of plants, leaves and other interesting items from the School Forest. This area--the parking space, Horace Mann maple site, and nature museum--could serve as a meeting point for activities that would radiate out to other parts of the Forest, and the nature museum could display a map of the forest showing trails and depicting its progressive development and many advantages.

The oak and ash plantation is in good condition. Its crown cover has not yet closed as can be seen in Figure 6. It can serve as a demonstration area and can eventually be harvested with a good profit in store.

As can be seen in Figure 11, the extensive road system that will serve as access roads to harvest Christmas trees and as trails for walking will also, if properly maintained, serve as fire breaks. Therefore, fire control need only consist of maintaining these roads in good condition and of publicity at strategic points in the Forest and in the local newspapers during critical fire danger periods. Here again, the development of personal pride by the townspeople and school children in their school forest will do much to keep fires to a minimum.

The recreation possibilities have been mentioned in connection with the development of the open-air amphitheatre, the development of the Ponds Area, campfire programs, the Christmas Tree Cutting Festival, picnic areas, trails for hiking, the building of a cabin, a nature museum with displays, and the many ways in which people can find enjoyment and satisfaction working together in a common endeavor outside of themselves. The possibilities here, both for the students and the townspeople, are really unlimited. No definite time schedule has been suggested for the development of these many activities. Their development will be consistent with the interest of the students of the high school and college and the townspeople. The main thing is to let the people know that such an opportunity for self-expression, satisfaction, and education is available to them. In line with this a program of letting the community know what was available was initiated in November, 1948.



### III. THE CHRISTMAS TREE CUTTING FESTIVAL

The program of letting the community know what was available consisted primarily of contacting the public through talks, assemblies and of getting them out to see the School Forest. The initial stages of putting any new idea across always calls for a concentration of energy and of continually stressing and applying the new principles until they become part of the pattern and then activity generates itself as the new idea takes hold and advantages of a new way are seen. This was true in Yellow Springs. The publicity and talks stimulated interest and the Christmas Tree Cutting Festival got people out onto the Forest area and put across the idea that here was something new and wonderful for the whole community. Since then, as will be shown later, the School Forest has been developing actively and is becoming a part of the community structure.

The first step was to talk with the high school superintendent and enlist his support. Mr. Halchin, Superintendent of Bryan High School, was very much in favor of the idea and gave the project his active support. We discussed the possibility of a Christmas tree cutting festival for that coming Christmas to put the idea across and to show that school forests can be profitable.

After deciding to go ahead with the idea, I talked with a few of the local merchants. The year before the local merchants had been contacted to see if they would object to the school competing with them in the Christmas tree business. The

general feeling then was that they would be very willing to let the school children take over the Christmas tree business as they made little profit on Christmas trees and sold them mainly as a service to their customers. The same feeling prevailed in 1948, and so we went ahead with plans for a Christmas tree cutting festival.

The first step was to determine how many trees could be cut and still leave enough for future cuttings until the plantings matured. A preliminary cruise, as stated before, brought out that one hundred and thirty-five trees could be cut safely. It later became evident that the best method of thinning would be row-wise to open the stands up. Therefore, a purely mechanical process of marking was done, but in the future, the trees will be marked selectively.

On the evening of November 16th I gave a talk before the Antioch College students that was sponsored by the Antioch College Nature Group. On November 17th, I gave a talk before a meeting of the Yellow Springs Community Council. The text of this talk, which was designed to explain the purposes of the School Forest and to stimulate interest, follows:

"I want to tell you a little about your school forest. And I say yours because it is yours--a community enterprise in which we hope that everyone will take part with the high school leading the way. The land for the School Forest consists of about one hundred acres in Glen Helen. It includes the 'piney woods' and this area surrounding it

(map is shown). The land is tax-free and will be used exclusively for the School Forest to be developed as the school and community desire.

"School forests are comparatively new in this country and stem from the well-established community forests that are prevalent in Europe. Community forests, forests for the benefit of all in the town, first started in this country in New England. School forests, which are community forests with the emphasis and leadership in the high school, developed from the idea of community-owned forests. I feel we would want our forest to be a combination of the school and community forest emphasizing the best points in each. Massachusetts has 177 community forests, New Hampshire 102, and Vermont 44. Including school and community forests, New York has 579, Wisconsin 174, and Michigan 112. Wisconsin has done the most in this country in developing the school forest idea. In the past, in other communities school and community forests have been used in diverse ways including: laboratory facilities for teaching conservation in schools; to grow timber and Christmas trees that will yield a steady source of income for the community or school; to provide facilities for more extensive outdoor recreation and nature study for the people of the community; to serve as demonstration areas of wise land use; and as living war memorials.

"The school will take the lead because the greatest benefits can be derived by having the school children take part in its development, its maintenance, and its harvest. It is hoped that the School Forest will become as much an outdoor laboratory for conservation education as the chemistry and physics laboratories are in school. The children can learn about the basic relationships between land, water, and forests, and how we must use them wisely in order to develop a high standard of living and a better way of life. They can learn to identify trees for their biology courses; they can measure trees in order to learn arithmetic--the possibilities are unlimited and more than anything else, it will instill in them a sense of pride in their land and therefore they will use it wisely.

"The school will also reap the rewards in financial returns, which can be considerable sums, and this money can be used to buy school equipment and improve in other ways the educational advantages of the high school. For instance, this year the school children are going to cut one hundred and thirty-five trees in the pine woods which will be sold as Christmas trees. The money they get from these will be used to buy equipment for the shop at school. In later years there will be many more Christmas trees as well as pulpwood, fenceposts, fuelwood, and sawtimber to be harvested and sold. I want to tell you a little more about our Christmas Tree Festival, but I will wait until

I finish telling you of the possibilities of our School Forest.

"For the community, there is not only the satisfaction of harvesting our own Christmas trees and knowing the money will be used locally, but there are excellent recreational possibilities. Eventually this entire field (map is shown) will be a forest, and if we want to, we can develop an open-air amphitheatre in this area with a nature museum and parking space. The entire area can also be used by the Boy Scouts and other organizations for woodcraft, nature study, wildlife study, and other allied activities. The area can also serve as a demonstration of wise land use that would interest farmers who grow trees as crops. It can also serve as a model for other communities and schools that are interested in developing a school forest. Another use that I want to mention is that of a living war memorial. At this time we are creating memorials to men and women who gave their services and their lives in World War II and a real memorial is something that contributes to the health, security, and well-being of the people and which by progressively serving humanity will remind people of the sacrifice which they made. The school children are going to plant different areas each spring, and these, which will eventually be mature forests, can be dedicated to local men and women.

"I want to tell you a little about the first concrete step that we have taken this year and then I want to open

the discussion for your comments, suggestions, and ideas. On Saturday, December 18th, at 2:00 P.M., we are going to have a Christmas Tree Cutting Festival. I have been working with Mr. Halchin, Mr. Benham, and the Student Council, and today I told the high school students about it at an assembly. Everyone who wants a community Christmas tree will call their orders in to Miss Routzong, Mr. Halchin's secretary at the high school, --and I might mention that until we can plant and grow more of our own trees we can only take a limited number of orders, so if you desire one, please call your order in early. Everyone in the community is welcome to call their order in. We will meet at the School Forest at 2:00 P.M. and those who have orders will cut their own tree. The trees will sell for \$1.50 and the Home and School Association will serve refreshments. We'll have a big bon-fire, community singing, and a real good time. Two members of the Student Council, Roger Leuba and Dick Pillard, will handle the taking of the money and then the Student Council will use it to buy school equipment. Gerald Astrachan will hand out the tree-cutting directions which were mimeographed by Joyce Yates and Sue McNult. All are students at Bryan High School. Walt Rybeck, an Antioch student, will lead the younger children in the decorating of a standing tree with food for the birds and animals. Mrs. Abrams of Yellow Springs, and Marge Sill, an Antioch student, will

lead the community singing. Several Antioch and Bryan High School students will be present to assist in the Christmas tree cutting. The Nature Group of Antioch College is going to hold one of its weekly Sunday morning breakfasts in the School Forest soon to assist in preparing the area for the Festival. We'll all have a good time, and it will be the official launching of our school forest.

"I would now like to open the discussion for your comments, ideas, and suggestions."

The same day I gave a talk before the students of Bryan High School. The philosophy there to put an idea across, as explained by Mr. Halchin, is to give a short talk and show a long movie. The text of this talk is as follows:

"I want to tell you about something that is yours and that probably not too many of you are familiar with. It is your School Forest.

"We have about one hundred acres near town, in Glen Helen, that have been set aside as your School Forest. I guess you are wondering what a school forest is. I don't blame you because it is something new, and we are pioneers in that respect. As you know, the forests of America have been cut heavily in building up our country, and now it is up to us to plant trees in order to meet present and future needs. The Federal Government as well as the States and

private industry are doing this, and one way we can help is by establishing school forests.

"Developing and having a school forest is not only educational and significant, but it is a lot of fun. We plan to plant trees each spring and watch these trees grow. We also plan to harvest Christmas trees that we can not only use at home, but the money we get will buy school equipment. We won't be able to cut very many Christmas trees until we start to grow more trees, but this year we plan to cut about one hundred and thirty-five trees. The School Forest is yours and so in future years we want you to decide how many trees to grow, how many to cut, and what the money should be used for. However, in order to get the ball rolling this year I have talked with Mr. Halchin, Mr. Benham, and members of the Student Council, and we decided to sell the Christmas trees for \$1.50 each and use the money to buy school equipment.

"So we have planned to have a Christmas Tree Festival on Saturday, December 18th, at 2:00 P.M. The Home and School Association will serve refreshments. We will have a big bon-fire, community singing, and a real good time. We want everyone who has ordered a Christmas tree to come out at that time with their parents to cut their own trees. As I mentioned before, until we grow more trees we will only be able to cut a limited amount, so ask your parents to call in their orders to Miss Routzong at the high school as early as possible."



After the talk, I show the documentary film called "The River," and explained, after the movie, that our school forest could be a part of this vast new job of conservation. After the assembly I conducted the ninth and tenth grade science classes on a field trip through the School Forest. This was very effective and a lot of interest was aroused on this field trip.

The following evening I talked before the Home and School Association to enlist their support in having them serve refreshments at the Festival.

We also publicized the talks and the idea of the Festival by being sure the local and area newspapers carried stories. Figure 14 shows some of the more pertinent articles that appeared during the months of November and December.

A meeting had been held before any of the talks were given with the High School Student Council, and meetings were held periodically during November and December. It seemed best to work with the Student Council since they were the leaders and other students looked to them. The students mentioned in the talk before the Community Council are all members of the High School Student Council and did a commendable job of leadership. Several other students took an active part, especially as Cutting Leaders during the Festival.

The plan behind the Festival was to bring in as many different groups and interests in the community as possible and have the high school take the lead. The high school

Figure 14

Articles from The Yellow Springs News,

December, 1948

### First Trees from School Forest 18th

Only about half the 135 Christmas trees available from the Bryan school forest had been ordered from the school prior to Monday morning, Miss Phyllis Routzong, school secretary,

51 Christmas trees from the school forest were still available for sale at 4:00 p.m. last night, Miss Phyllis Routzong, school secretary, reported.

stated at that time. She said that phone orders (phone 7443) would be received until the 135 are reserved.

The trees are to be cut during a community-wide party in Glen Helen at the school forest Saturday, December 18. The Home and School Association will serve refreshments and carols will be sung. Smaller children will have a opportunity to hang food for the birds on the "bird's Christmas tree."

### Ceremonies at School Forest Saturday with Tree Cutting

2:00 p.m. Saturday is the hour set for the long-planned party at the Yellow Springs School Forest in Glen Helen. The party will mark the first cutting of Christmas trees from the school forest. 135 Christmas trees

trees will go to the school for such use as it sees fit and will be the first of annual fund which will come to the school from the sale of Christmas

(Continued On Page 4)

All 135 Christmas trees, scheduled for sale from the school forest Saturday, are sold, but late-comers may leave their names in case any reservation is cancelled, Miss Phyllis Routzong, school secretary, said this morning.

are scheduled to be cut from the forest by those who have ordered them through the Bryan High School office.

The money from the sale of the

### Ceremonies at Forest

(Continued from Page 1)

trees cut each year.

The party in the Glen will consist of supervised cutting of the trees, community singing, and coffee, cocoa and cookies served around an open fire by the Home and School Association.

A special feature for young children will include the decoration of a living tree with strings of popcorn, suet, raisins and other foods to make a Christmas tree for the birds. The strings of food have already been prepared by children under eight years of age in the Sunday Schools and nursery schools of the community. This ceremony is scheduled for 3:00 p.m. All children are invited to join in the activity.

Boy Scouts will be on hand to assist with the parking at the forest, which is located across the road from the Horace Mann monument. To facilitate parking, Glen forester Allan Woog has suggested that everyone coming to the cutting double-up with neighbors as far as possible to make as few cars present as possible and approach the forest from the park. This route is taken by going out the Clifton Pike to the Bryan Park road and continuing on the road instead of turning into the park at the park entrance. The route will be marked.

### More than 400 at Tree Cutting; More than \$200 for School Fund

An estimated crowd of four hundred men, women, and children tramped through the Yellow Springs school forest in Glen Helen Saturday afternoon to select the Christmas trees which are decorating 135 homes in the community this week. The keen winter air with a snow storm at the end of the day stimulated appetites to the point that 75 dozen cookies and 25 gallons of cocoa, provided by the Home and School Association were consumed.

The \$202.50 collected from the sale of the trees has gone into the Bryan High School treasury to be used for equipment yet to be decided upon. Poles left from the cutting are yet to be sold (will probably be put on the market in January) and money received from the sale of these will also be added to the school fund.

#### Annual Cutting

Trees this year were cut by rows to open up the forest. Next year's cutting of 135 trees will be done selectively and the best trees will be left to grow to maturity according to

Alan Woog, Glen forester. Selective cutting of 135 trees will be continued annually, until seedlings planted by Bryan High School students next spring are large enough for cutting. With 3,000 seedlings scheduled for planting then and more at later dates, Woog expects many more trees to be available each year after the new plantings become large enough.

Bryan High School students furnished much of the "man-power" Saturday to direct the cutting activities. Roger Leuba, Bob Metcalf, Gwil Owen, Dick Pillard, Dick Taylor, Ben Whitmore and Ronnie Williams served as cutting leaders under whose directions tree purchasers cut their own trees. Joyce Yates and Sue McNutt were cashiers and Gerald Astrachan handed printed directions to new arrivals at the scene.

Bryan pupils met Monday to plan to make next year's cutting an even greater success. It is planned that parking facilities will be increased and roads opened to enable motorists to drive closer to the actual place of setting.

students would act as Cutting Leaders and assist the families in selecting, cutting, and trimming the trees. With this idea, two of the girls, Joyce Yates and Sue McNult, became the cashiers, thus freeing Roger Leuba and Dick Pillard to become Cutting Leaders. The Cutting Leaders went out the day before the Festival to cut several trees for the School and the local churches, and to become familiar with the proper methods of cutting trees and their duties during the Festival. Swedish bow saws were used with a minimum number of axes as a safety measure.

The Antioch College Nature Group took part by holding a Sunday morning breakfast in the School Forest at which time they cleared underbrush and cleaned up the Campfire area. During the week, the services of the two full time Glen Helen maintenance men were also enlisted to clean up the area.

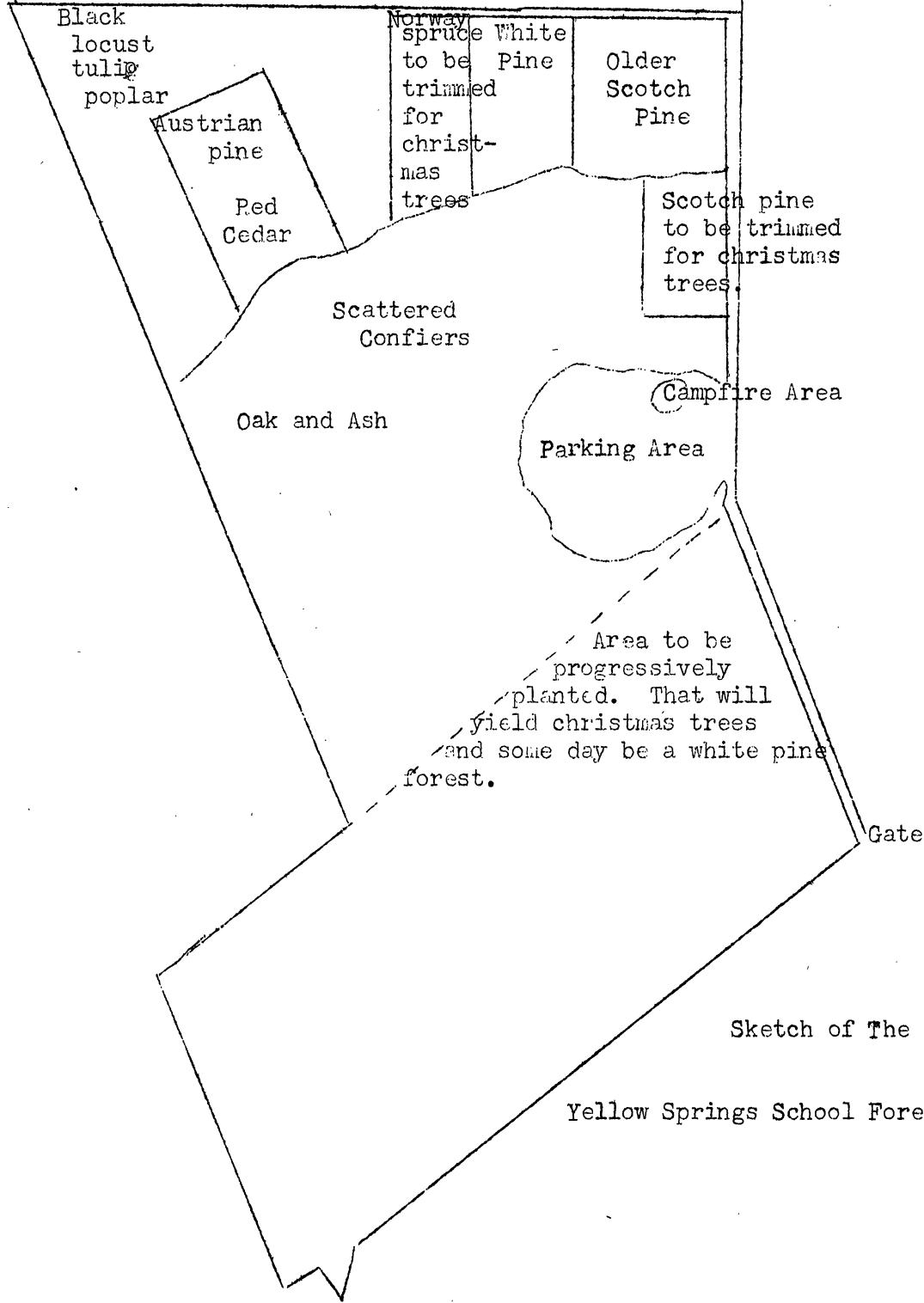
In order to bring the younger children into the picture so that they would feel they had a part in the festivities, it was decided that they should make strings of raisins, popcorn, and suet to put on a standing tree so the birds and animals would have a Merry Christmas. This work was under the direction of Walter Rybeck, an Antioch student, and was very successful in stimulating the interest of the younger children. The children made the strings in their Sunday School classes and in their Saturday morning recreation class.

The Boy Scouts directed the parking of the cars and the building of the campfire. A townslady and an Antioch student led the community singing.

HELPFUL SUGGESTIONS for CUTTING TREES  
and KEEPING OUR SCHOOL FOREST BEAUTIFUL

- I. Park your car in the area provided.
- II. Refreshments may be obtained either before or after cutting your tree.
  - A. There will be community singing at the bon-fire.
  - B. At 3:00 the younger children will decorate a standing tree with food for birds and animals.
- III. When you desire to cut your tree, there is a choice of either Scotch pine or Norway spruce.
  - A. Someone will help direct you to the species of tree you desire.
  - B. Someone will help you cut your tree if you desire.
- IV. If you desire to cut your own tree, please observe the following safety rules.
  - A. Pick up a bow saw or an axe.
  - B. Cut only trees that are marked.
  - C. Cut close to the ground.
  - D. Drag the tree out in the open.
  - E. Cut again at your desired Christmas tree height.
  - F. If you want boughs from the butt end, cut them off flush with the stem to leave clean poles.
  - G. Pile main stems at place designated.
  - H. Return saw to table.
- V. Please pay as you return to your car--All trees are \$1.50.
- VI. Thank you and have a good time.

Area to be progressively Planted to yeild christmas trees and if desired, some can grow to become a forest.



Sketch of The  
Yellow Springs School Forest

On the day of the Festival, signs were put up along the road directing the townspeople to the School Forest. Directions were handed out after the people parked their cars in the parking area. Figure 15 shows one of these leaflets. The people, in family groups, were shown the trees by the Cutting Leaders, and the Cutting Leaders gave any needed assistance in cutting the trees. The Cutting Leaders also supervised the piling and trimming of the poles as people cut their tree to their desired Christmas tree height after felling the tree. The smooth running of the cutting of the trees and the fact that no one was injured was due to the mature way in which the high school students took their responsibilities, and there was much comment about the educational benefits of the idea. Since cars could not go as far as the Spruce forest, a shuttle system using the Antioch College Community Government truck was employed to carry the trees from the Spruce woods to the Parking area.

The Home and School Association served 75 dozen cookies and 25 gallons of cocoa to over four hundred people who attended. Community singing took place at the campfire, and the younger children decorated a tree just behind the campfire area. The cashiers were stationed on the road by the campfire to take the money as the people took the trees to their cars. As mentioned before, the trees sold for a flat price of \$1.50 per tree.

The main thing, however, was the spirit that caught on and prevailed during the Festival. It was the spirit of people working together, and this is what made the Festival a success.

Comments on its success as a community function were numerous, and the enthusiasm of the students was seen by their desire to come out the following Monday and clean the area up and to have a meeting to discuss the Festival and how a better festival could be developed for the following year.

The following Monday the students who had taken an active role in the Festival met and it was reported that \$202.50 had been collected. This money was put in the Student Council treasury. Plans for a better festival were discussed including the idea of developing a better road system, and leveling, grading and enlarging the Parking area. The marketing of the poles was left to a later date until data were gathered as to the best use that could be made of them. The idea of raising the price of the trees the next year, now that the people realized what they were getting, was also discussed. Due to a snowstorm the cleaning up of the area was postponed until after Christmas vacation. All in all, the students felt that the Festival was a great success and were sold on the School Forest idea.

#### IV. THE ESTABLISHING OF A PERMANENT ORGANIZATION

On the first day of school after Christmas vacation, the students went out to the School Forest to clean up the area. At a meeting several days later of the Student Council, plans for the selling of the poles were discussed, as well as ideas for the spring planting, and also the best use for the money that had been brought in from the sale of Christmas trees. The Nature Group of Antioch College had advanced the idea of building a cabin in the School Forest with the high school students helping and using the poles left over from the Christmas Tree Cutting Festival. One member of the Student Council was appointed to discuss these plans with the Nature Group and to report back to the Council. It appears that these poles will either be used for the cabin or sold as fuelwood. Ideas for the spring planting of 3,000 pine seedlings were advanced, and it was decided that more definite plans would be made at a later date. In determining the use of the money, it was decided that the class representatives should poll their respective classes and then report their findings to the Student Council.

With an active project such as this, the next step was to set up a permanent organization to guide the work, and to permanently set the land aside as a School Forest. This was accomplished in a letter signed by Mr. Halchin, for Bryan High School, and the author, for Antioch College. This letter is shown in Figure 16. As can be seen, it records the understanding



between the two schools, explains the purposes of the School Forest, and sets up an Advisory Board to motivate activities and formulate general policy.

The Advisory Board met soon after the formulation of the letter and passed on the content of the letter and discussed various other aspects of its functions. The letter setting the land aside designated the operation of the basic functions, such as the division of expenses and profits between the two schools, but left further decisions up to the Advisory Board and the Student Councils. This was in line with the idea of giving the Student Council of the high school as much authority as possible, and the possibility of bringing in the public elementary school and private elementary school at a later date.

The Advisory Board would only check on the decision of the Student Councils, thus giving the School Forest an added value in giving students experience in making the decisions. The Advisory Board was left as a flexible organization in order to enable it to adapt itself to the various problems that would come up in the future. Thus, with the setting up of the Advisory Board, of which I am chairman, but which can meet and act while I am absent, I was free to relinquish the major share of my responsibilities and to continue by studies at the University of Michigan.

The future for the Yellow Springs School Forest is bright. Fifteen hundred red pine seedlings, and fifteen hundred white pine seedlings from the Ohio Division of Forestry will be planted this spring by the school children. Plans are now

being developed for this planting which will take place May 6, 1949. At this time the School Forest will be dedicated as Ohio's first recognized school forest by the Ohio Forestry Association. During the first week in April, I visited Yellow Springs and assisted the high school students in making plans for this event. We decided to have eight planting leaders who would be representative of leaders in high school activities. They would be in charge of forty first string planting teams (each planting leader would be in charge of five planting teams). These planting teams would consist of two men each, one student with a mattock and the other student carrying a pail with the seedlings and placing a seedling in the hole made by the mattock. Then the student with the mattock will heel the seedling in as the other student holds it in place. The planting leaders and first string planting teams will go out the day before the official planting and plant some trees to learn proper planting methods and determine which areas each leader and team will take. Then on the day of the official planting when the entire school will be there, these leaders and teams will start the planting. When the other students have seen how the trees are to be planted, the first teams will relinquish their mattocks and pails to other students who will form teams, and then the members of the first teams will assist the planting leaders. In this way every student will get a chance to plant some trees, and proper precautions will be taken to see that the trees are planted correctly. An Antioch student, Dave Kelts, will

coordinate the part sponsored by Antioch College, which consists of the bringing of the trees from the cold storage locker and the distribution and collection of the tools. A publicity committee was formed in the high school to notify the students of the event and of what to wear. Dr. Kenneth Hunt, Mr. John Halchin, and the author also plan to assist in any way to facilitate a smooth running and successful spring planting.

Plans are now going ahead to dedicate the area as Ohio's first recognized School Forest at this planting. This idea is being backed by the Ohio Forestry Association. The following excerpts from a letter written by Mr. William Laybourne, Executive Secretary of the Ohio Forestry Association, give an idea of the proposed program:

"I have contacted Mr. Charles Kettering but as yet have not had a reply from him with regard to participation in the program. It is my intention to have in attendance at the party, which will probably be around 1:00 P.M. or whatever time is most convenient, many County Superintendents of schools from neighboring counties, Vocational Agriculture classes and Veterans Training classes within the county, local legislators, County Agent, Soil Conservationists, presidents of neighboring colleges, Yellow Springs schools, Antioch College and prominent state officials who can be had at that time. I will contact such persons as: State Director of Education, State Supervisor of Vocational Education, State Supervisor of Vocational Agriculture, Director of Agriculture, State Forester,

Director of Agricultural Extension Service, State Soil Conservationist, Extension Forester of Ohio, President of the Ohio Forestry Association, Dean of the College of Agriculture, Ohio State University, President of Ohio State University, etc.

"We will work with the newspapers, radio stations, etc. for publicity and really make it a nice affair. The program itself will be about thirty to forty minutes in length. I should like to arrange a luncheon at some convenient place for all the distinguished guests who will be present."

This should give the School Forest itself and the school forest movement in Ohio added publicity and prestige if plans develop as now proposed. In the future the two main events of the year will be the Christmas Tree Cutting Festival and the spring planting. The planting and harvesting will develop according to the management plan outlined earlier in this paper. The other projects will develop, as stated in the letter setting the land aside, "by the school children to the extent of their interest, ability, and educational value to be gained." This brings up an entirely new aspect of the development of the Yellow Springs School Forest, in itself and as a model for other communities. That is, the methods by which school forests can be incorporated into the high school curricula so that they will become as much an outdoor laboratory for conservation as the laboratories for physics and chemistry are in the high schools.

Figure 16.

January 24, 1949

Superintendent  
Bryan High School  
Yellow Springs, Ohio

Dear Sir:

This letter is to record the understanding between the Yellow Springs School and Antioch College regarding the use of approximately 100 acres in Glen Helen for the purpose of a School Forest. As you know, school forests represent a forward step in the development of high school education and community ownership, management, and participation in the use of forest lands.

It is hoped that entire communities will take advantage of these forest lands with the high schools leading the way to developing a school forest that will:

1. provide laboratory facilities for learning a constructive philosophy of conservation, and of vitalizing the learning of other subjects through outdoor study methods.
2. provide facilities for extensive outdoor recreation.
3. grow trees which will yield a steady income for the school.
4. provide a source of Christmas trees and evergreens for decorations.
5. serve as a demonstration in tree growing and as a model school forest for other communities in setting up theirs.
6. provide a site on which youth groups may carry on projects in training for citizenship and leadership, and to serve in every way the best interests of the students, school and community consistent with the wishes of Hugh Taylor Birch in creating the memorial to his daughter Helen.

Figure 16 (Continued)

In order to accomplish this, the land designated in the enclosed map has been set aside to be used by Bryan High School as a school forest. The land may be used in any way that the high school students and Advisory Board decide is best. A five-man Advisory Board has been inaugurated. It consists of: the high school superintendent, the Director of Glen Helen, a forester, a delegate from the Miami Township School Board, and a delegate from the High School student council. This advisory board will motivate activities and formulate general policy.

Profits will go to the schools to be used as the school, through the Student Council, sees fit. Their decisions will be reviewed by the Advisory Board. Permanent improvements will not be deducted from profits and will be financed by the Glen Helen Endowment of Antioch College, since title to the land will remain with that body. Expenses for other improvements will be deducted from the profits by a method worked out by the Advisory Board.

The efforts of caring for the School Forest shall be performed by the school children to the extent of their interest, ability, and the educational value to be gained. Other work will be handled through Advisory Board decisions.

Any further matters concerning the status and management of the School Forest, as well as questions that will arise in the future, shall be left to the Advisory Board and student councils for decision.

Respectfully submitted,

(Signed)

Alan Woog

Alan Woog, for Antioch College

(Signed)

John Halchin

John Halchin, for Bryan High School

In conclusion, it may be stated that it is hoped that this paper will not only serve as a working guide for the future development of the Yellow Springs School Forest, but will serve as a guide and example in setting up school forests in other areas of Ohio. Conditions will vary in each locality and each area will have specific needs, but the general plan of development will be essentially the same. Other areas will not have the advantage of having land donated as is the case in Yellow Springs, and it is recommended that the Ohio Division of Forestry and the Ohio Forestry Association back legislation similar to that enacted in Michigan, Wisconsin, and other states to facilitate the setting up of school forests in Ohio. This legislation will have to be adapted to the special conditions that exist in Ohio, especially in that there is little tax delinquent, cut-over land available. However, the estimates in this paper show that school forests are paying propositions, and with the aid of state legislation they can become very profitable enterprises, since with a greater concentration of population there is a greater market close at home for products from the school forests, notably Christmas trees.

Technical assistance is also necessary in the initial stages of setting up school forests, and here again the State can aid, either through representatives sent out by the Ohio Division of Forestry or through district foresters. In whatever way it is done, the technical aid is essential to setting up a sound management program and assisting an Advisory Board in making future technical decisions.

However, school forests will not serve their maximum need and purpose until they become part of the high school curricula. The way must be shown by which: high school biology classes can use the school forests to learn the basic relationships between land, water, and vegetation; the arithmetic classes can learn by measuring trees, estimating growth, and other simple mensurational practices; art, music, and dramatic classes can participate in outdoor sketching classes, concerts and plays; and the many other ways in which a school forest can provide laboratory facilities for learning a constructive philosophy of conservation, and of vitalizing the learning of other subjects through outdoor study methods.

This latter aspect of the development of school forests is the next proposed project under the Glen Helen Endowment Fellowship at Antioch College. The work at Antioch with the aid of the Ohio Forestry Association, State legislation and State sponsored technical assistance can do much in the development of school forests in Ohio.



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