

Title: Forest leaves, v. 29

Place of Publication: Philadelphia

Copyright Date: 1939

Master Negative Storage Number: MNS# PSt SNP aAg064.7

Volume:

29

FOREST LEAVES

DEPT. OF FORESTRY

LIBRARY

The Pennsylvania State College



JANUARY 1939

THE PENNSYLVANIA FORESTRY ASSOCIATION

ING COMPANY
NNA.

CONTENTS

A January Road in the Cook Forest - - - - -	Cover
<i>Photo from Department of Forests and Waters</i>	
What Should be Taught as Conservation - - - - -	1
<i>John F. Lewis</i>	
What Pennsylvania Forestry Needs - - - - -	3
<i>George H. Wirt</i>	
Editorial - - - - -	4
Let's Look at the Game Commission - - - - -	5
<i>Merritt J. Harding</i>	
G. Albert Stewart to Head State Department - - - - -	6
The Perennial Challenge - - - - -	7
<i>H. H. Chapman</i>	
Hurricane Damage to Connecticut Forests - - - - -	9
Heat Injury to Trees - - - - -	11
<i>C. Luther Schnur</i>	
Planted Norway Spruce in Berks County - - - - -	14
Too Good to be True - - - - -	16
<i>E. F. Brouse</i>	

THE PENNSYLVANIA FORESTRY ASSOCIATION

Founded in June, 1886

Laborers to disseminate information in regard to the necessity and methods of forest culture and preservation, and to secure the enactment and enforcement of proper forest protective laws, both State and National.

Annual Membership Fee, Three Dollars

One Dollar of which is for subscription to FOREST LEAVES

Neither the membership nor the work of this Association is intended to be limited to the State of Pennsylvania. Persons desiring to become members should send their names to the Chairman of the Membership Committee, 306 Commercial Trust Building, Philadelphia.

President—H. GLEASON MATTOON

Honorary President—SAMUEL L. SMEDLEY

Honorary Vice-President—ROBERT S. CONKLIN

Vice-Presidents

W. B. McCALEB

DR. E. E. WILDMAN

EDWARD C. M. RICHARDS

FRANCIS R. COPE, JR.

EDWARD WOOLMAN

Secretary—W. B. McCALEB

Treasurer—R. A. WRIGHT, C. P. A.

FOREST LEAVES

PUBLISHED QUARTERLY

Entered as second-class matter at the Post-Office at Wayne, Pa., October 22, 1935, under the Act of March 3, 1879
Subscription \$1.00 per Year

VOL. XXIX—No. 1

WAYNE, PA., JANUARY, 1939

Whole Number 292

What Should Be Taught As Conservation?

JOHN F. LEWIS

Senior Instructor in Biology, Connellsville H. S.

CONSERVATION education today is like a Joseph's coat of many colors. Its shades are ill-defined, its cut nondescript, and its fit somewhat procrustean—for it can be stretched to fit almost any shape of conservation practice or belief. If the simile were to be carried further, one might say that its pattern is greatly in need of standardization. Just what that standard ought to be is very much an open question.

That there is a need to educate for the conservation of our natural resources is glaringly apparent. Widespread devastation of land areas once productive of worthwhile materials and its resultant economic instability, shrinking frontiers and with them the passing of the old concept of free land, the realization that natural resources are not inexhaustible—all these point to but one thing, namely: that a change in land-use and living habits must be made if human life is to exist upon a satisfactory basis. The present depression has done more to bring home this fact than any one event that has ever occurred in the history of this country. In the minds of thinking men, the idea is growing that something must be done to bring about a stabilization of economy in a land which is fast learning its socio-economic limits. Many agencies are at work on this problem. Whether or not the school will be an important contributor to its solution remains to be seen. The efficacy of its contribution will depend upon two factors. They are: (1) the philosophy of conservation the school teaches, and (2) who teaches it.

Conservation education developed outside the school. Its principal lines of growth have been mainly economic and recreational. From forestry's live oak agitation of the early wooden ship days, through the "denudatic" frenzy of the 80's and 90's, to agriculture's emphasis upon the preservation of birds as a means of controlling

insect pests, the economic angle of the problem has been presented to the public by able champions. Among those interested in recreation, the championing of conservation causes has produced a host of active and politically powerful organizations. These organizations have been responsible for much of today's conservation legislation—but their propaganda has been of a restriction on use and a protectionist nature. Emphases upon restriction of use and protection from predators are but preliminary steps in a conservation scheme which has land-use planning as its end.

Pressure groups of an economic and recreational nature have done much toward interesting the school population in conservation problems. Not all of their propaganda has been good. Backed by selfish interests, some of it has very definitely conflicted with the best in conservation thought. Fortunately, the worst offenders among these groups are now feeling the force of organized public opinion and are changing their tactics. The best of the pressure groups have arrived at the point where they are agitating for the inclusion of some sort of conservation education in the curricula of the public schools. A number of states have already made conservation education mandatory by law, and others will follow.¹ This sort of thing is not new to schoolmen. Schools have of old been bombarded with requests for putting in this course and that—requests often backed by considerable political pressure. Where new courses have been introduced, the already crowded curricula must stagger along under the weight of courses that some schools are not adequately prepared to teach.

1. Florida, Oklahoma, and Wisconsin. At least twelve other states are developing conservation education programs. Among the best of these is Georgia, whose program compares favorably with that of Wisconsin.

Too often schoolmen have been accused of standing pat. The lag between their instructional materials and practices and their adoption of what society currently considers worth teaching is often very great. In passing judgment upon them, one should remember that they represent a conservative agency which absorbs slowly those things society has found of worth. The school must maintain this slow rate of absorption for society's own good. "Isms" of numerous sorts have pounded for admittance at school doors too often for schoolmen not to recognize them for their true worth. In the long run, the good is incorporated, the bad kept out.

Within recent years, there has been a certain amount of conservation teaching in the schools. Instructors with outdoor hobbies have always found time to introduce some conservation teaching into their class rooms, or to their pupils through the activities of extra-curricular clubs. Textbook writers have scattered some mention of it throughout texts in general science, in biology, in botany, in zoology, in geography, and in the social sciences. That the need for a more specialized course has not been recognized is evinced by the incidental nature of the included material. Although this is true, teachers have not been handicapped by a lack of subject matter. The splendid bulletins of the Federal government's conservation agencies culminating in the epoch-making 1938 Yearbook of Agriculture: "SOILS AND MEN," those of State departments interested in local problems of a conservation nature, the publications of nongovernmental organizations concerned with certain phases of conservation activities—all these have offered a wealth of data for teachers to organize for effective conservation instruction. Unfortunately, too few teachers have been trained to do it.

Bulletins dealing with studies of conservation education in the public schools reveal that confusion exists in understanding what constitutes Nature study and what conservation.² Although it is true that a great amount of conservation can be taught as Nature study, it does not follow that all Nature Study is conservation—except in its very broadest sense. Despite the present widespread interest in conservation activities, no schools reported have made any attempt to analyze the subject and correlate the work of its

² CONSERVATION IN THE EDUCATION PROGRAM, Bristow and Cook, Bulletin 1937, No. 4, Office of Education, United States Department of the Interior; QUARTERLY BULLETIN, October 1938, Vol. 1, No. 3, American Nature Association; and TEACHING CONSERVATION IN WISCONSIN SCHOOLS, Curriculum Bulletins, Vol. 1, No. 1, May 1937, Department of Public Instruction.

various fields into a series of ideas fundamental to them all. Until this is done, the discussion of topics pertinent to forestry, wildlife management, soil erosion control, park administration, and the like, will predominate to the exclusion of a course of study in which the great social concepts of land-use planning will be taught.

At the present time, the conservation scene is going through a cycle wherein the predominant influences affecting it arise from the desires of the sportsmen and other recreational pressure groups. An earlier generation was aroused over the prospects of a timber famine and the resultant Arbor Day activities retarded the development and spread of real forestry practices for years. The present threat of a continent-spanning movement of soil erosion is focussing attention upon soil conservation. The next move, and one growing out of the economic aspects of the soil erosion problem, will be a drive to conserve all land values upon a watershed drainage basin basis. When this move comes, correlation of conservation efforts come too—and vociferous minorities will have to learn their place in the land-use scheme. As yet, but few teachers have caught the significance of this development or are trying to teach it.

Conservation education is a thing basic to all plans for social betterment. Programs of social science education touch the matter of conservation lightly or not at all—when, in reality, sound land-use planning would eliminate some of its problems and go far toward alleviating others. Educators, as well as laymen, have been among those who mistake a few trees for the woods. As long as educational emphasis is placed upon physical activity rather than upon thought processes, upon facts as such rather than upon fundamental understandings to which facts contribute, just that long will a real approach to conservation education be delayed.

Conservation instruction must be aimed at the individual. Without his understanding of its principles and what constitute conservation practices of lasting benefit, worthwhile mass action is impossible. A nation-wide fallacy of the inexhaustibility of natural resources, wobbly as it is from the blows dealt it by the present depression, must be combatted and a philosophy of wise land-use be substituted in its stead. On all sides, the narrowing frontiers of individual freedom are seriously conflicting with the broadening ones of the greater social good. The old concept of the Englishman's castle with the world shut

(Continued on Page 13)

What Pennsylvania Forestry Needs

By GEORGE H. WIRT

Chief Forest Fire Warden, Pennsylvania

THE background of forestry developments in Pennsylvania is deep-rooted, substantial and capable of a continuous and effective program. Forestry, inherently, is a long time proposition, therefore, a long time program is the only kind of program consistent with the most important fundamental idea of the subject.

It may be interesting for the sake of the present discussion to review some of the background and to observe, if possible, where we are with respect to a forestry program.

The first chapter of forest history for the territory within the confines of the present state boundaries was, of course, the period of wilderness development. This period ended with the coming of the first settlers and covers an unknown number of years. During this period there was a natural accumulation of forest resources which came to be known as Pennsylvania, or Penn's Woods.

The second chapter covered the attack upon the primeval forest. This period extended approximately from 1700 to 1900 or about 200 years. During that time the forests were cleared away for towns, farms and the development of industries. Truly it may be said that during those two hundred years the wealth of a titan empire was hewed from Penn's Woods. Coincident with the gradual recession of forested areas and the utilization of their material products, there also developed a conglomerate population actuated by religion, devotion to liberty, hunger for education, a disposition to industry, the practice of hospitality and a love for the finer things of life.

In and through all of these splendid outgrowths of Penn's experiment there were perfectly natural human reactions to the abundance of material things. Two centuries of destruction and waste resulted in a common attitude of indifference to the forest as an essential factor either in past or future welfare. The immediate products of the forests were not considered of value for more forest areas were to the westward. The supply of wood was inexhaustible. The indirect values of forests were not known or were forgotten about. Most people were too busy at work, pleasure and refinement to put cause and effect together.

On the other hand, in Europe the people, out of whose homes our citizens had come and continued to come, had developed, before the period of forest destruction in Pennsylvania, a science of forest care which came to be known as forestry. Long before the year 1800, the value of forests in the minds of Europeans was expressed in a statement which had already become a slogan. It was "The care of the forests brings all blessings." Three hundred years of effort to bring back what they had lost, to overcome the difficulties which they had encountered in consequence of forest removal, and to maintain a fundamental natural resource resulted in a permanent general recognition of forest values. This science of forestry recognized the forest as a composite natural resource capable of being reproduced, protected, managed, and used and of fitting into the economic life of a people in many beneficial ways. The practice of forestry proved the scientists to be correct.

The third chapter of Pennsylvania forest history is that of nature's efforts to maintain the denuded forest areas and to rebuild forests. The beginning of this period occurred at different times at different places but for convenience may be made to coincide with the approximate close of the period of primeval forest. We are still writing the record of this chapter and it is with a predominant spirit of optimism.

Contrasting the periods of forest history with the periods of varying public attitudes towards the forest resources of Pennsylvania it is very evident that the chronology is not the same. Roughly, we may take 1875 as about the time when there was a faint beginning of public recognition of the fact that forests were receding with attendant disastrous results and that there was a distinct and definite need to maintain and renew the forest resources. The cry in the wilderness in behalf of the forests continued with increasing spread and intensity until about the close of the period of forest removal. At about the time the last primeval forest was being lumbered and burned the Commonwealth established a Department of Forestry and made forestry a definite part of State Government.

During this time the pioneers in forestry had

(Continued on Page 12)

FOREST LEAVES

Published quarterly by
The PENNSYLVANIA FORESTRY ASSOCIATION
Disseminates information and news on forestry
and related subjects.

PUBLICATION COMMITTEE

E. F. BROUSE, *Chairman*
SAMUEL N. BAXTER
CHARLES B. CADWALADER
DR. RODNEY H. TRUE
PHILIP A. LIVINGSTON

The publication of an article in FOREST LEAVES does not necessarily imply that the views expressed therein are those of The Pennsylvania Forestry Association. Address all correspondence to Wayne, Penna., or to the Editor, 306 Commercial Trust Building, Philadelphia, Pa. Kindly notify us of any change in address.

JANUARY, 1939

A Paid Secretary

A definite step toward making The Pennsylvania Forestry Association a more effective force throughout the State was taken at a meeting of the Executive Board held on January 4, 1939, when a motion to employ a full-time executive secretary was unanimously approved. That there is need for someone to give his full time to the activities and aims of the Association can not be gainsaid. A year ago at the Annual Meeting a Five-Year Forestry Program for Pennsylvania was adopted. Even to have part of this program incorporated in the laws of the State will require much work. The program must have publicity; its advantages and value must be brought to the attention of the public and its representatives in the Legislature; bills must be drafted and assisted through the legislative mill. If this person has additional time on his hands, he should devote it to instilling in the minds of the people that there is urgent need for an active and alert state-wide organization, which is wholeheartedly interested in forestry and its offsprings, recreation, game management, parks and streamflow control.

Fifty-three years ago when The Pennsylvania Forestry Association was born its purpose attracted many persons who recognized that without conserving our forest resources we would be a bankrupt state. Through the fervor and personality of its father, Dr. Joseph T. Rothrock, in a few years it had drawn together three thousand members to fight for conservation and their zeal

Four

brought results. A forestry commission was established. The state forest purchase laws were passed. The Mont Alto Forest School came into being. A forest fire protection organization was set up. And Pennsylvania was pointed out as a leader in conservation and an example to others. May we pause to give due recognition to the earnestness and effort of all those who were responsible for these accomplishments.

Then, as so frequently happens, the Association rested on its oars. The race was not won but that the momentum of supreme effort would carry it over the goal was the unconscious belief. But the goal is still far out of sight. The Pennsylvania Forestry Association has not drifted from its course but it has made only spasmodic progress during recent years. Volunteer effort alone could not keep up the pace that had been set.

With a paid secretary there is no reason why The Pennsylvania Forestry Association should not regain the place and prestige it held for so many years. As a state-wide organization it is the logical clearing house for the conservation activities of local women's clubs, garden clubs, civic associations and other organizations. In its own right it should be recognized as the most important and influential conservation organization in the State. Whether this place is regained will depend largely upon the effort and wisdom of the executive secretary and upon the backing given him by the Executive Board and members of the Association.

New Office for Association

Effective February 1, the office of the Association will be located in room 1733, Commercial Trust Building. The new office is in a modern part of the building which has been the home of the Association for many years, and is larger and lighter. Members are invited to inspect the new quarters after the first of the month.

Farmers Plant Most Trees

American farmers have planted a larger area to forests than any other group, according to the Forest Service of the United States Department of Agriculture. A cumulative tree planting record has been maintained since the passage of the Clarke-McNary law in 1924. About 70 per cent of all planting has been successful.

An area nearly twice as large as Delaware or 3,680 square miles has been successfully planted to trees by all agencies. Of this amount farmers planted 1,290 square miles.

FOREST LEAVES

Let's Look at the Pennsylvania State Game Commission

By MERRITT J. HARDING

Field Assistant, Allegheny Forest Experiment Station

THE 1938 hunting season in Pennsylvania, which was climaxed by a six-day state-wide season on antlerless deer, brought forth a considerable volume of criticism of Pennsylvania sportsmen in general and the Game Commission in particular.

Most of the criticism was based on sentiment and was a result of the prominence given by the newspapers to the worst features of the season. Fuel was added to the fire by those so-called Columnists whose articles apparently were influenced by sentiment or lack of knowledge of the facts, or perhaps by both. They condemned the sportsmen and the Game Commission for killing the doe, which many seem to regard as some sort of a "Sacred Cow." Yet they draw no distinction between the male and female of any other type of game such as bear, rabbit, squirrel or grouse. They condemned the Game Commission and the sportsmen for the number of cripples left in the woods to starve. No true sportsman, and very few of the hunters, will knowingly leave a cripple to starve. The Game Commission has formulated rulings designed to reduce that factor to a minimum.

If the Department of Revenue, with its system of examination and licensing motor vehicle operators, together with the Motor Patrol, can not keep all the fools off of the road, should the Game Commission be condemned because a few of those same fools stray into the woods with a gun? Is it not more humane to have a few cripples left to starve than to have deer by the thousands starve, due to an inadequate food supply? The U. S. Forest Service states that for maximum efficiency in game and forest production each deer should have 66 acres of average woodland, Aldo Leopold estimates 60 acres, the Pennsylvania Game Commission found that in many sections of the state 26 acres would support a deer and keep it in good condition. Yet it was found on a study of a typical mountain range area of 1035 acres, that during the winter season when food supply was at its lowest, the movement or range of the deer herd on the area was restricted to an area not exceeding 110 acres, giving a

density of population for that small area of one deer to every *one and one-half acres*—at the season when the food supply was at low ebb, when food requirements were at their highest and when the doe were getting heavy with fawn. Yet these thoughtless critics would have you believe that Pennsylvania's 13 million acres of forest will support all the deer that can be crowded into it, and that without affecting the other types of game animals and birds.

The deer problem in Pennsylvania is no longer a problem for the Game Commission alone. It is of decided importance to the forester, the farmer, the traveler on the highways, and the general public as well. It is of importance to the forester for in many sections deer are consuming the vegetative reproduction as rapidly as it appears. Frontz and Clepper recognized this problem as far back as 1931. It is of importance to the farmer for he has had to combat crop destruction by deer for a number of years. Over 3,000 deer were killed by farmers during the past year in an effort to protect their crops. It is of importance to the traveler on the highways for deer are present in every county in the state. Over 2,500 deer were killed on Pennsylvania highways by automobiles and busses during 1938. The number of auto accidents in which deer were involved has steadily increased during the past two years. It is of importance to the

(Continued on Page 15)



Five

JANUARY, 1939

G. Albert Stewart to Head State Department

G. Albert Stewart, Clearfield publisher, who has been selected by Governor James for Secretary of the Department of Forests and Waters, was born in Clearfield County 48 years ago. He left school in his early teens, working for a short time in a brickyard and later taking a business course at Lancaster.

For 31 years he has been managing editor or principal owner of the Clearfield *Progress*. He is a Mason, Presbyterian, and a member of the Odd Fellows, Red Men, and Elks. He has been a member of the Executive Committee of the



Pennsylvania Newspaper Publishers' Association, President of the Clearfield Chamber of Commerce, and of the Clearfield Rotary Club. He has been a member of the township school board, the General Assembly, the Republican State Committee, and of the tax committee of the Pennsylvania Chamber of Commerce.

Mr. Stewart has been interested in forestry matters for many years and took an active part in arranging for Summer Meeting of The Pennsylvania Forestry Association at Clearfield, 1933.

Six

Pa. Forestry Association Planning Annual Meeting

The annual meeting of the Pennsylvania Forestry Association will be held in Philadelphia during the latter part of the winter. A committee on arrangements is now engaged in selecting the place and program, details of which will be sent to members in a special notice.

Members of the Council are urged to make a special effort to be present, for at this meeting the enlarged program for the Association will be taken up in detail. Important topics will include methods by which the Association may speed up the ambitious program begun last year; the function of the new Executive Secretary and methods by which the members may cooperate in his work, and a discussion of legislative matters. Speakers have not as yet been announced.

Pamphlet to Be Mailed

Arrangements have been made with Senator Joseph F. Guffey whereby each member of the Pennsylvania Forestry Association will shortly receive a copy of "Little Waters," a combined study of several Government commissions dealing with upstream engineering and stream flow control.

Mattoon Elected by A. F. A.

The American Forestry Association has elected H. Gleason Mattoon, president of the Pennsylvania Forestry Association, to the position of vice-president of the national organization, it was announced early this month.

H. C. Ulmer, executive secretary of the York County Conservation Society, has been appointed representative of the Association on the Council of the Federation for the Merit System.

Director Victor Beede of the Penn State Forest School reports that the new building is nearly completed. The interior now is being painted and the landscaping is well under way. It is expected that dedicatory exercises will be held in early Spring.

FOREST LEAVES

The Perennial Challenge

H. H. CHAPMAN

THE proposal repeatedly made in connection with the government reorganization bill, again to be presented to the U. S. Congress, that the Forest Service be transferred to the Department of the Interior, and the methods used by Secretary Ickes of that department to further this proposal, constitute a definite challenge to the workings of the democratic system of federal administration in the United States.

For reasons quite compelling, as regards the future expansion of the Department of Interior, the Secretary of this department desires the annexation of the 175,000,000 acres of publicly owned lands constituting our whole national forest system, which has been erected since 1897 in the Department of Agriculture. How can such a transfer be most effectively obtained?

This Forest Service, basing its platform on conservation of natural renewable resources through wise economic use, had been the pioneer and spearhead in the entire conservation movement. Out of its successful management of the national forests grew the interest in the conservation of minerals, of water power, of forage, of wildlife, and of the soil itself. From the rugged woodsmen of the West and from a host of young men trained in professional schools of forestry a service was built up that was free from political influences and dominated only by the spirit of efficiency and public welfare. The confidence of the public, both local and national, had been won and the reputation of the organization established on the solid rock of this approval.

The assault on such a citadel required strategy of a high order and long continued effort. The first step must be to find some foothold for regaining the public confidence which had been so sadly undermined by the wasteful policies pursued by the Department of the Interior in disposing of public land to all comers as rapidly as possible. Here fortune played directly into its hands. The national parks, few, scattered and under a loosely organized administration, had been left in that Department! Interest in these national parks rapidly increased with the advent of the automobile. A National Park Service was organized, and began its campaign to enlarge the area of these parks and to add new parks. In practically every instance this involved, not the "saving" of public land from private exploitation, but the transfer of jurisdic-

tion over land which had already been "saved" years before by being incorporated within some national forest.

This situation constituted the first line of attack on the solidarity of the national forests and their administrative service. For the original conception of conservation as the renewal of perishable organic resources through wise and constructive use, was substituted the shibboleth of preservation through prohibition of all economic use whatever. Saving the forests no longer meant forestry, but instead, it sought the preservation of the primitive.

Actually, the general public, and especially the preponderating urban element, had never fully grasped the meaning of forestry practice, but were under the general impression that through "forestry" the forests would be "preserved." That was what they wanted. Preservation by means of scientific cutting or harvesting of mature crops of trees, and their replacement with thrifty young growth by which the forest is kept vigorous for future generations, was comprehended only by a small minority of well-informed persons. Preservation of the pristine beauty of untouched forests primeval, on the other hand, aroused enthusiasm which was instinctive and emotional and did not require thought or study into economic questions such as that of dependence on these natural resources for the means of existence.

Following this strategy successive Secretaries of the Interior, aided by chiefs of the National Park Service, began to emphasize and lay stress on the national parks, to exploit the "resistance" of the Forest Service to unlimited transfers of national forest land for this strictly uneconomic though popular and necessary purpose, and to adopt the slogan "conservation" in its new aspect of preservation or restoration of the primitive, wilderness, and park features.

The way to succeed in one's objective by dictatorial methods does not consist in ignoring the public, but in telling it what to believe, and in reiterating such statements as will create the proper emotional response, paying no attention whatever to the facts.

Perusal of the reports of successive Secretaries of the Interior for the past twenty years gives instances of the use, in pursuit of the objective of recapture of the national forests and

Seven

JANUARY, 1939

their administration, of methods strikingly resembling such a program. These methods have been as follows:

1. While emphasizing the need of "conservation" years after its establishment elsewhere, and in direct contradiction of the record of their own department, no mention whatever was made of the methods or achievements of the Department of Agriculture, or of the Forest Service.

2. When seeking the transfer piecemeal of national forest areas under the guise of new national parks, opposition on sound economic grounds was blanketed by cries of bureaucratic hostility to make it appear as merely an inter-urban fight.

3. When the proper moment came, this situation was capitalized by demanding the transfer and assembling of all "conservation" activities in one department, that of "Conservation" as advertised, in order to put an end to this fight.

4. When the work of the Forest Service could no longer be ignored, statements were circulated by friends of the movement that foresters don't know how to "conserve" timber and always play into the hands of the lumbermen, so should be deprived of jurisdiction or else tree cutting will complete the destruction of the last few remnants of our once noble forests. That the campaign of propaganda has entered this, its last phase, is strikingly shown by a quotation published in *American Forests* for October and originally appearing in the *Seattle Post Intelligencer*, following Secretary Ickes' inspection of certain selective logging operations in the Pacific Northwest. "Leaders of the national administration are confidently predicting that a government reorganization bill, similar to that defeated by the last Congress, will be approved by the next Congress. If this is accomplished, it is a foregone conclusion that Secretary Ickes will be given full jurisdiction also over all national forest lands, now managed by the Department of Agriculture. The Secretary will then be in a position to enforce selective logging in national forest lands, and to plan a program looking toward the establishment of similar methods in private operations."

In this case we have (1) the usual dogmatic assertion that the transfer is a foregone conclusion; (2) laudation of the anticipated effect of such transfer, in saving the forests from the present practices of lumbering; and (3) complete ignoring of the facts in the case, which, as every informed citizen of this region knows, are

that selective logging was the direct product of painstaking investigations by the personnel of the Forest Service, the results of which are embodied in such publications as "Selective Timber Management in the Douglas Fir Region," by Kirkland and Brandstrom of the Forest Service, published in 1936 as the culmination of years of study, and that the operations of such companies as have adopted these conclusions in their practice are wholly due to this pioneer, constructive work of the very agency which now is to be compelled to practice such methods, provided the matter is placed in the hands of Secretary Ickes.

There is no denying the fact that such methods of propaganda may succeed as they have elsewhere. Democratic administration is based, however, not on emotion, but on the ability to arrive at truth through exposition of facts. If there are basic reasons for this transfer they have been badly obscured by the methods cited in advocating it.

To what extent can the public place faith in an individual, as Secretary, who openly ignores pertinent facts bearing on questions requiring the exercise of a high degree of collective technical ability?

How many varieties of "direct orders" can be expected from an autocratic director whose word is law and who may assume a knowledge he does not possess? Shall hobby riding be substituted for experience and sound policies in the management of the national forests? And is there anything to prevent the enforcement of "superior" judgment in these technical matters, through the removal of heads and the proper subjugation of any individual who might undertake to discuss technical procedure on the basis of facts and experience?

The national forests are intended to serve not merely the recreational wants of the people, but as far as possible their physical needs as well. Otherwise, the withdrawal of vast areas from all economic uses except recreation, would go far towards making these regions uninhabitable. Before succumbing to this strategy of annexation the public as a whole, and its representatives in Congress, would do well to consider whether it is wise to abandon a sound and proved policy and administration of these resources in favor of proposals which, if carried out logically, would reduce great areas in the West to a wilderness, and which, if not so intended, have no merit as a substitute for existing established and successful administration.

Hurricane Damage to Connecticut Forests

THE hurricane of September 21 last was the major disaster in Connecticut's history of over 300 years according to *Connecticut Woodlands*, the official publication of the Connecticut Forest and Park Association. The hurricane destroyed in an hour the finest timber growth of a hundred years in the southern and eastern parts of the State, and did terrific damage in all but the younger stands in those regions. An estimated total of 460,000,000 board feet of material is damaged or down. Of this 15 million feet is on State Forests—or 25 per cent of all State owned material. Now that the timber is down or damaged, the question of how much of it can be salvaged arises. The estimated salvage obtainable is 30 per cent; but even this may be high. Unless there is an influx of mills, it is unlikely that more than 20 per cent of the damaged or wind-blown material can be handled. The pine must be salvaged by next July to prevent the insects from damaging it. Sixty-two million board feet of softwoods to be salvaged in 8 months is in itself a big problem. All reports agree that the pine suffered the most and that plantations of 20 years and older were severely damaged. Little damage occurred in the younger plantations, and in the hardwoods little damage was done in stands under 30 years of age, but recently thinned stands suffered heavy loss.

Although Connecticut forests were badly damaged by the hurricane, it was not the only one of the New England States which suffered heavy

timber losses. The latest figures are:

New Hampshire	1,658,000,000	board feet
Massachusetts	1,300,000,000	" "
Vermont	423,000,000	" "
Maine	100,000,000	" "

The effects of the storm will be felt for at least one generation, possibly two, since the most severe damage was done in stands over 30 years of age. These stands are the ones which in the next generation would have produced the bulk of the merchantable material.

Highway and Shade Trees

It has been conservatively estimated that 50,000 highway and 1 million street, shade and park trees were blown down or destroyed. Ten thousand park trees were blown down in Hartford and about 13,000 were felled in New Haven and 7,000 additional badly damaged. The outright loss of trees in some communities reached 40 per cent. Few in the storm area escaped damage of some sort.

The Wildlife

The amount of damage done to wildlife has not been determined accurately but it is apparently small. To bear out this contention it may be pointed out that game is fairly plentiful this fall. The benefits to game of extra cover and protection against gunners and in some cases of food will last only until the first match has been dropped. A fire under existing conditions would





likely result in extermination of wildlife in the affected area.

One portion of the wildlife which suffered very severely was the fish population. The fish which were not stranded by disappearing lakes or destroyed in various ways by the rampaging flood waters will have a small chance for survival due to the destruction of their food supplies. Stream beds, the major source of support for the fish, were scoured down to barren bedrock and much protective cover was washed away. The damage to the flora of the State is terrific and it is obvious. The damage to the fauna, with the exception of the fish, seems to have been comparatively slight.

Forest Fire Protection

The fire hazard reduction program already is underway. It is hoped to accomplish a reduction in the extreme fire hazard before next March, the beginning of the Spring forest fire season. On this work alone two thousand relief men are being used, all available men from 6 CCC camps and the personnel of the State Forestry Department. The work consists of removing hazardous accumulations of down timber from around isolated homes, from about 50 feet along each side of roads and from fire lanes through woodlands. Limbs are chopped from the down trees and inflammable material is piled in places where it can be burned when weather conditions are suitable.

Methods of Salvage

The merchantable timber ruined represents a

loss of about 2 million dollars in capital and 10 million dollars in future employment for labor and industry. Native lumber lost the market years ago because it was badly sawed and not properly sized and graded. That condition must be reversed. A week after the hurricane the marketing committee had worked out a plan for a timber pool. Salvage will be undertaken by the Federal Surplus Commodities Corporation with funds of about 10 million dollars supplied by the Reconstruction Finance Corporation. Supervision will be under the U. S. Forest Service. The first aim of the SCC will be to stabilize the market by purchasing logs delivered at designated ponds or storage yards. Logs will be scaled for size and graded. For white pine the price paid for No. 1 logs will be \$18.00 per thousand bd. ft. Of the announced purchase prices 80 per cent will be paid on delivery, the remaining when the logs have been sold. Low grade timber will have to be handled in another manner if at all. Many oak logs will be too small for anything but cross ties. The New Haven Road has offered to contract for 5 years supply of ties at current prices, a total of a million units.

In an effort to have all of the work carried out as expeditiously as possible the Governor appointed a Rehabilitation Committee and in the field of forestry 3 committees have been formed, namely, Forest Fire Prevention, Timber Salvage and Forest Rehabilitation. Dean Graves of the Yale School of Forestry is general coordinator.

Heat Drying to Trees Often Slow to Appear

C. LUTHER SCHNUR

BECAUSE of no immediate apparent damage to trees located near brush-burning fires, there is a tendency to become careless on fire-break construction, roadside clean-up work and the like where brush is piled and burned in the woods. The following data, though very meagre, indicate the possible damage to trees and the minimum distance necessary between fire and tree to prevent heat injury.

While measuring oak trees on sample plots established on a fire break in southern New Jersey, a number of trees were noticed that had been severely injured by heat from earlier brush-burning fires. At the time the fire break was cleared the brush, consisting mainly of laurel and blueberry bushes, was piled and burned. The fires were started with small piles of brush which were added to as cutting proceeded. Each fire attained the size of 5 to 8 feet in diameter and continued to burn for several hours as fresh brush was applied.

Records obtained from 15 trees within 10 feet



Fig. 1.—(Left) Chestnut oak bark intact two years after heat injury. (Right) Bark removed showing extent of injury.

of the periphery of three such fires indicate that trees closer than 10 feet from the fire are subject to heat injury. These trees varied in size from 3.0 to 7.7 inches d.b.h. The average maximum width of injury for 10 trees within 6 feet of the fires was 0.34 feet or an average percentage of tree circumference of 30 per cent.

Such injury is not readily apparent sometimes for two or three years. Chestnut oak bark was observed to be intact for more than two years after injury (Fig. 1). In this case no charring of the bark occurred because the flames were 4 to 6 feet away from the trees.

Indications are therefore: (1) that brush fires, even though relatively small, if continued for several hours, should be at least 10 feet distant from any tree in order to prevent heat injury, and, (2) that heat injury may not be apparent for two or more years.

New Discoveries On Elm Disease May Slow Up Control Efforts

Plans for the eradication of Dutch elm disease have been changed somewhat to meet a new danger revealed by a new research in the U. S. Dept. of Agriculture.

Plant pathologists of the department find that the fungus that causes the Dutch elm disease may be present for several years in an elm without giving any outward sign of its presence. This means that the annual scouting by present methods, which depends on observations of wilting, dying foliage and branches does not reveal every diseased tree.

These trees, however, may never become a center of infection. As long as the fungus remains within the tree, the danger of the disease spreading to other trees is slight unless broken limbs should bring the infection to the surface. The pathologists find also that Dutch elm disease can live and grow in dead elms.

These new discoveries may prolong the fight to save the American elm from destruction. The need for removing elms of low value throughout the area where the disease occurs is emphasized, an area radiating out about 50 miles from New York into Connecticut, New York, and New Jersey.

Scouting will be continued in all areas where the disease is known to occur and also in section in the vicinity of the rights of way of the railroads over which infected logs were hauled before quarantines prevented their importation and interstate movement.



likely result in extermination of wildlife in the affected area.

One portion of the wildlife which suffered very severely was the fish population. The fish which were not stranded by disappearing lakes or destroyed in various ways by the rampaging flood waters will have a small chance for survival due to the destruction of their food supplies. Stream beds, the major source of support for the fish, were scoured down to barren bedrock and much protective cover was washed away. The damage to the flora of the State is terrific and it is obvious. The damage to the fauna, with the exception of the fish, seems to have been comparatively slight.

Forest Fire Protection

The fire hazard reduction program already is underway. It is hoped to accomplish a reduction in the extreme fire hazard before next March, the beginning of the Spring forest fire season. On this work alone two thousand relief men are being used, all available men from 6 CCC camps and the personnel of the State Forestry Department. The work consists of removing hazardous accumulations of down timber from around isolated homes, from about 50 feet along each side of roads and from fire lanes through woodlands. Limbs are chopped from the down trees and inflammable material is piled in places where it can be burned when weather conditions are suitable.

Methods of Salvage

The merchantable timber ruined represents a

loss of about 2 million dollars in capital and 10 million dollars in future employment for labor and industry. Native lumber lost the market years ago because it was badly sawed and not properly sized and graded. That condition must be reversed. A week after the hurricane the marketing committee had worked out a plan for a timber pool. Salvage will be undertaken by the Federal Surplus Commodities Corporation with funds of about 10 million dollars supplied by the Reconstruction Finance Corporation. Supervision will be under the U. S. Forest Service. The first aim of the SCC will be to stabilize the market by purchasing logs delivered at designated ponds or storage yards. Logs will be scaled for size and graded. For white pine the price paid for No. 1 logs will be \$13.00 per thousand bd. ft. Of the announced purchase prices 30 per cent will be paid on delivery, the remaining when the logs have been sold. Low grade timber will have to be handled in another manner if at all. Many oak logs will be too small for anything but cross ties. The New Haven Road has offered to contract for 5 years supply of ties at current prices, a total of a million units.

In an effort to have all of the work carried out as expeditiously as possible the Governor appointed a Rehabilitation Committee and in the field of forestry 3 committees have been formed, namely, Forest Fire Prevention, Timber Salvage and Forest Rehabilitation. Dean Graves of the Yale School of Forestry is general coordinator.

Heat Drying to Trees Often Slow to Appear

C. LUTHER SCHUR

BECAUSE of no immediate apparent damage to trees located near brush-burning fires, there is a tendency to become careless on fire-break construction, roadside clean-up work and the like where brush is piled and burned in the woods. The following data, though very meagre, indicate the possible damage to trees and the minimum distance necessary between fire and tree to prevent heat injury.

While measuring oak trees on sample plots established on a fire break in southern New Jersey, a number of trees were noticed that had been severely injured by heat from earlier brush-burning fires. At the time the fire break was cleared the brush, consisting mainly of laurel and blueberry bushes, was piled and burned. The fires were started with small piles of brush which were added to as cutting proceeded. Each fire attained the size of 5 to 8 feet in diameter and continued to burn for several hours as fresh brush was applied.

Records obtained from 15 trees within 10 feet

of the periphery of three such fires indicate that trees closer than 10 feet from the fire are subject to heat injury. These trees varied in size from 3.0 to 7.7 inches d.b.h. The average maximum width of injury for 10 trees within 6 feet of the fires was 0.34 feet or an average percentage of tree circumference of 30 per cent.

Such injury is not readily apparent sometimes for two or three years. Chestnut oak bark was observed to be intact for more than two years after injury (Fig. 1). In this case no charring of the bark occurred because the flames were 4 to 6 feet away from the trees.

Indications are therefore: (1) that brush fires, even though relatively small, if continued for several hours, should be at least 10 feet distant from any tree in order to prevent heat injury, and, (2) that heat injury may not be apparent for two or more years.

New Discoveries On Elm Disease May Slow Up Control Efforts

Plans for the eradication of Dutch elm disease have been changed somewhat to meet a new danger revealed by a new research in the U. S. Dept. of Agriculture.

Plant pathologists of the department find that the fungus that causes the Dutch elm disease may be present for several years in an elm without giving any outward sign of its presence. This means that the annual scouting by present methods, which depends on observations of wilting, dying foliage and branches does not reveal every diseased tree.

These trees, however, may never become a center of infection. As long as the fungus remains within the tree, the danger of the disease spreading to other trees is slight unless broken limbs should bring the infection to the surface. The pathologists find also that Dutch elm disease can live and grow in dead elms.

These new discoveries may prolong the fight to save the American elm from destruction. The need for removing elms of low value throughout the area where the disease occurs is emphasized, an area radiating out about 50 miles from New York into Connecticut, New York, and New Jersey.

Scouting will be continued in all areas where the disease is known to occur and also in section in the vicinity of the rights of way of the railroads over which infected logs were hauled before quarantines prevented their importation and interstate movement.



Fig. 1. (Left) Chestnut oak bark intact two years after heat injury. (Right) Bark removed showing extent of injury.

What Pennsylvania Forestry Needs

(Continued from Page 3)

to sell the ideas of forest values and forest care. It was a period of propaganda which was characterized in Pennsylvania by a close adherence to facts and the advocacy of the principles of this foreign science and practice of forestry in accordance with common sense. The picture of forestry that was portrayed was complete and well balanced because a true portrayal of forestry could not be otherwise. Not only that but the role of forestry in the future welfare of the Commonwealth was set forth.

Gradually in certain areas of the public consciousness the idea of indifference to the forest and its value broke down and was replaced by the idea that a vanishing natural resource could and should be placed under systematic care for renewal and perpetual use. It came to be recognized that the individual owner of forest land had certain opportunities for his own good and also certain responsibilities to the public. Also, it became known that society had certain responsibilities with respect to its resources, that beneficial results followed their care and maintenance and far-reaching disastrous results followed their waste and disappearance.

All this and more was crystallized into the Act of Legislature creating a separate Department of State Government in 1901. There were two outstanding mandates in that law which made up the Pennsylvania forestry program. The first was the protection and management of the forest areas previously purchased by the State for State Forest Reserves and other areas to be purchased so that these areas might be demonstration forests to show the way for private land owners. The second was a policy just as strange to our people as forest management. It was an authorization to spread forestry propaganda the length and breadth of the Commonwealth. The important thing to note here is that forestry was recognized as a complete, systematic and profitable system of management for forest areas, as well as an economic factor in government policy.

The last quarter of the century represented seed time. And it is not amiss to add that it took courage, patience, and faith in human nature to cultivate the ground of public opinion, grown hard and indifferent and selfish, and to plant the seed of an idea which was the exact opposite. Most of the work was done in Penn-

Twelve

sylvania by Dr. J. T. Rothrock and his friends in the Pennsylvania Forestry Association and most of the credit belongs to them. He often said that without the support and encouragement of his friends, he could have done little.

Then came a period of approximately twenty years during which time there was a consistent effort to develop the theory and practice of forestry from both the state and private viewpoint. Forest management was begun. Forest tree nurseries and tree plantations were established. Forest use for timber, water, health, wild life, recreation and other benefits was stressed. Protection from grazing, fire, insects and fungi was provided. Forest education both for the training of foresters and for forest land owners was made possible. A state forest organization trained at state expense, imbued with the spirit of loyalty and public service, and rewarded for merit was created and was on its way toward the fruition of a consistent and well balanced forestry program.

Suddenly this program was broken into and from 1920 to date forestry in Pennsylvania has been pretty much like the elephant of the blind men. One time forest protection has been stressed, then land purchase, then nurseries, then roads, then parks, then flood control. Even foresters have been sent out with one track impressions, as for example, timber production only. One forest school made no reference to forest protection in its curriculum. Anybody could form his own opinion as to what forestry is. Prominent leaders in public affairs expressed the most fantastic ideas as to forestry and foresters. The highly efficient State Forest organization was undermined by politics and the Forestry Association, which in the beginning formed the medium for Dr. Rothrock's work, just about faded out of existence. Those who should have been the outstanding supporters of even an expedient program did not desire to enter into a controversy. Many Association members believed that forestry was established and that an active public pressure group was no longer necessary. In the meantime, catch word slogans and distorted ideas and conclusions were used by people in control to the detriment of the whole idea of forestry. Fundamentals were knocked down like ten pins. For example, the idea that protection from fire would accomplish all of the aims of forestry, that the forests were to be conserved rather than cut and perpetuated, that conservation of natural resources means only the saving of wild life for the hunter, also that the only recreation furnished by the forest is hunting and fishing, that a for-

FOREST LEAVES

estry personnel trained at state expense for a life of service was useless and could be replaced at will by untrained and inexperienced men, that a mere change of land ownership will result in reduction of flood damage, and many more such notions. The fact that these foolish notions are more or less common over other parts of the United States has not lessened the disastrous results to a continuous sane forestry policy within Pennsylvania. The fact that forestry work in Pennsylvania was recognized generally as among the outstanding programs in the country makes the existing conditions the more noticeable and deplorable.

This picture is not a pleasant one. There should be some place in it for the outstanding exceptions in which individuals and special activities have helped to keep the spark of life in the forestry program and at times even to make some advances. But it is sufficiently unsatisfactory to give rise to the question "What does Pennsylvania Forestry need?"

Now that we have the general situation before us it is not difficult to suggest at least a few things that are needed.

In the first place, Pennsylvania needs a correct interpretation of forestry as a science and as an art. The proposition must be resold to the people of the State on the basis of what it really is and what may reasonably be expected from it. This must be done by a group of people who not only know the facts but believe in the necessity and possibility of forest management in the economic life of our people.

In the second place, Pennsylvania needs now a well balanced program of forestry both for State Forests and Private Forests. The State Forests must be managed, not merely protected. They must be developed for all the purposes for which they were intended, not the least of which is that of demonstration plots. Forestry education professionally must be put on the plane it deserves and not treated as a minor adjunct of agriculture. Popular education must be made statewide, not only in schools but among all kinds of adult groups. That education must result in cooperative action to meet the community needs. The cooperative relation between forest and community must become common knowledge, as well as the relation between forest land owner and the people making up the community. Forest management must be sold to forest land owners. Forest planting must become a habit in Pennsylvania, as well as an essential part of the flood control program.

In the third place, the Pennsylvania Forestry

Association must become a statewide, active pressure group to guide the forestry program of the State and to keep it moving in the right direction. This Association, in a State such as ours, should have a membership of more than 10,000 with effective points of contact in every county. Its alliances with other groups whose activities are related to various uses of the forest and forest products must be close enough, at all times, to get the benefit of a united front when needed. And, it is foolish to believe that any worthwhile program will not meet opposition of all kinds.

Last but not least the forestry organization, which represents the public in its government policy for the common good, must be an organization of men and women with training and experience. They must know what to do and how to do it. Their allegiance must be only to the Commonwealth and not to any individuals. Divided loyalty spells disaster to a long time program, as we have said every forestry program must be. With this training, experience and loyalty there must be re-established a sense of stability on the part of those who serve the Commonwealth. Forestry and water supply are problems whose solutions run into the years. A vacillating personnel and program means waste beyond computation and procrastination as to satisfactory results. Governmental activities are satisfactory only insofar as they serve the needs of the people governed. Inefficiency and instability serve no one's needs.

We have reason to believe that if these four needs can be met, most of the other necessities of Pennsylvania forestry will be found tagging along.

What Should be Taught as Conservation

(Continued from Page 2)

out must give way to the newer, more common-sense one of the interdependence of human efforts. Conservationally speaking, a man is his brother's keeper. Until such a feeling is engendered in the individual, little real and lasting conservation progress can be expected.

Many modern educators are aghast at anything which smacks of indoctrination. Yet, indoctrinate we must if we are going to have conservation mean anything to the individual. We owe it to him. His kind in the coming generations will be required to pay out more actual

Thirteen

JANUARY, 1939

money to underwrite needful conservation practices than any generation or generations before him. He must know how and why his money is being spent in order to judge the worth of what is being done. Once he realizes that sound conservation practices yield greater immediate and long-time returns for the sums invested than any of the hit-or-miss practices now followed, we shall enlist his support. It is the sum total of individual effort, measured in the aggregate, which counts. Individual and group apathies have wrecked many a promising program, and have hindered many another until conditions it intended to correct ran beyond repair.

The author of this article offers the following fundamental understandings as answers to what ought to be taught as conservation. They are: (1) that a favorable balance between living things and their related natural resources must be maintained if human life is to exist upon a satisfactory basis, (2) that, in all civilizations, the conservation idea develops in a six-fold way, (3) that plant cover must be maintained to renew and protect our renewable natural resources, (4) that scientific management of renewable nat-

ural resources tends to perpetuate a supply of usable materials, (5) that conservation practices restore or set aside areas protected for their biologic, scenic, or historic worth, (6) that land-use planning must be resorted to on a nationwide scale in order to affect a stable economy, (7) that many practical and esthetic benefits accrue from a conservation program, (8) that the layman has a definite part to play in promoting sound conservation practices, and (9) that the conservation of human life must go hand-in-hand with the conservation of other renewable natural resources.

Basic ideas such as these can be used for programming from the grades to the senior high school. Phases of them can be taught as Nature study, they can be used in connection with social science topics, or all of them can be used as bases for a regular, full-time course for the senior year of the high school set-up. They are tentative, although they represent ten years of teaching conservation subjects to some 1600 senior high school students. Despite their tentative nature, the author believes they point to the pathway along which conservation education must travel.

Planted Norway Spruce Bound a Byway in Berks County



Several miles of rural roads in the shadow of Eagle Peak, Berks County, are lined with fine Norway Spruce trees probably planted in the sixties. Cyrus Long, the principal land owner in the countryside in early years, was a great lover of trees, as is indicated by the wide variety of excellent specimens of trees growing on the spacious lawn about the old mansion now owned by C. K. Wiest. The paling fence underneath the trees on the left is an old type made of white pine. It is believed to be nearly as old as the trees.

Let's Look at the Penna. State Game Commission

(Continued from Page 5)

general public for tourists, casual visitors, and vacationists spent \$327,850,000 in Pennsylvania during 1937. A considerable sum, and one which Pennsylvania could not hope to attract without her present forests and wildlife to round out the natural beauty of the state. Since the Game Commission is charged with the direct supervision and management of the wildlife in the state, it is to them the public looks for a solution to the problem. The question arises, can they solve the problem—are they capable? The answer to that lies in an examination of the Game Commission and its record.

The Pennsylvania Game Commission is composed of eight men appointed for terms of eight years each and their terms staggered so that there will be a majority of experienced men on the board at all times. The men selected are outstanding sportsmen and conservationists from widely scattered sections of the state so that the board is state-wide in complexion. While the office is an appointive office and carries considerable distinction, and therefore highly coveted, it is worthy of note that during the 42 years of its existence only 43 men have served on the commission. The Commission has as its active managerial head a man who received his early training under the renowned Dr. Kalbfus—that Grand Old Man of Pennsylvania sportsmen—served a number of years in an executive capacity for the Isaac Walton League of America and finally was prevailed upon to return to Pennsylvania to complete the work that Dr. Kalbfus had started. Supporting him is a research staff headed by a graduate of Dartmouth and Yale who at the present time is doing additional graduate work at the University of Michigan. The research staff also includes trained biologists from the University of Michigan and the University of Pittsburgh. The supporting personnel includes two graduate foresters—one with 30 years experience, the other with 22 years experience. The field men or Wardens are all graduates of the Pennsylvania State Game Warden Training School. A better conception of what this means to Pennsylvania may be gained from knowledge of the fact that this State Game Warden Training School now serves as a model for other states. The state of Michigan, faced with exactly the

same problem as Pennsylvania, recently sent a member of their Commission to attend the Training School.

Pennsylvania has reason to be proud of the record of accomplishments of its Game Commission. The primary purpose of game management is the production of a crop of wildlife. This crop is harvested in two ways: (1) by the hunter or sportsman whose license fee pays all the expenses of the Game Commission, and (2) by the tourist and non-hunting nature lover who derives considerable pleasure from the presence of the wildlife in the forests, and at no cost. Under the management of the Game Commission, Pennsylvania has been brought from a state of utter depletion to one of over abundance. The crop of deer harvested by the hunters in 1915 was 1,287, in 1937 it was 39,347 while estimates of the 1938 crop place it at near ninety thousand or more than twice that of 1937, and that without impairing the volume of breeding stock or "seed" while at the same time showing an indicated decrease in the number of fatal hunting accidents and game law violations.

The Pennsylvania Game Commission can solve the problem—they definitely are capable. Their accomplishments to date so far outweigh their errors as to make those errors seem insignificant by comparison. They are proceeding on the basis of scientific knowledge administered by men of experience and proven sound judgment which will reduce future errors to a minimum. The Game Commission is entitled to and should receive the active support and cooperation of every thinking citizen until it is definitely proven that they are wrong.

Connecticut to Control Timber Cutting

The Connecticut Forest and Park Association and the S. E. Lumber Manufacturers' Association are drafting a clear cutting control law upon which favorable action by the present Legislature is anticipated. Except when additional land is needed for agricultural purposes and on lands where the production of saw timber is economically impractical the clear cutting, removal of more than 50 per cent of the cubic volume merchantable for lumber, is prohibited on any area exceeding 2 acres in size in any one year without a special permit to be issued by the State Forester.



Too Good to be True

A pipe dream that puts Rip Van Winkle's to shame was brought to light recently. The story is told and with proof too that in a storm last summer at "The Horseshoe," the Chester County Scout Camp, a large black locust tree measuring 29 inches across the base was torn apart and thrown to the ground. While working up the tree into easily moved lengths an unaccounted for curl in the wood was noticed. A closer examination revealed an embedded pipe—"a tube with a small bowl commonly used for tobacco smoking"—an old type of pipe made from a single piece of wild black cherry root. Apparently the pipe was placed in the tree between two limbs about 6 inches above the ground many years ago and C. C. Cole, a Pennsylvania Forest Fire Warden, who found it, believes as many as 75 years ago. The tree grew and grew until it had placed 9 inches of solid wood beyond the emitter of vile odors. As it happened the break in the tree followed the line of cleavage between the limbs thereby casting out the Jonah.

Oh, beneficent tree! One wonders are there enough long-lived trees sacrificially inclined to . . . Happily this fouler of the olfactory nerves now is a museum piece.

E. F. BROUSE

150,000,000 Trees and Shrubs in Spring Planting Program

The largest program of tree planting ever undertaken by the Soil Conservation Service of the U. S. Department of Agriculture to control soil erosion is now under way, according to H. H. Bennett, Chief of the Service. Approximately 150,000,000 trees and shrubs—35,000,000 more than last year—will be set out this spring by farmers cooperating with the Service in erosion control demonstration areas, on farms surrounding some 370 C.C.C. camps working under Service supervision, and by publicly owned lands of the West.

More than 3,000 acres have been added to Pennsylvania's forest parks during the past several years; furthermore 509 buildings, of which 47 are overnight cabins, have been erected and 53 recreational dams constructed.

Almost 2,000 fish dams have been constructed and more than 1,200 miles of State Forest streams have been improved the past several years.

IN PHILADELPHIA

*The Complete Camera Store Where
You Will Find the World's Finest
CAMERAS and ACCESSORIES*

KLEIN & GOODMAN

Everything Photographic
18 South 10th Street, Philadelphia

*It's Fun
to Visit*

The Centaur Book & Record Shop
204 South Juniper Street

Where YOUR personal tastes and enthusiasms are OUR real concern.

Pennypacker 7834



Our Program

1.
The adequate protection of all Pennsylvania forests from Fire, Fungi, and Insects.
2.
The personnel of the Department of Forests and Waters to be chosen and retained on a basis of efficient service only, in order to guarantee permanency of policy and continuity of action.
3.
The management of the State forests so that they may supply the permanent needs of the people not only for continuous timber protection but also for recreation, hunting and fishing.
4.
Greater co-operation between the departments of the State Government for protection of the beauty of the public lands.
5.
Adequate biennial appropriations for the purchase, protection, and development of the State forests.
6.
The education of the public, corporations, sportsmen, and forest land owners with respect to the value of our forests and the necessity for their development and proper utilization.
7.
The planting of trees valuable for lumber on all waste and idle lands and the continued distribution of seedlings by the State.
8.
The education of our children in forestry in both public and private schools. A love and appreciation of the forests tend to a better type of citizenship.
9.
The establishment of town and county forests which will bring pure air, pure water, and recreation close to the centers of population.
10.
The preservation of the few remaining areas of virgin timber in Pennsylvania.

THE PENNSYLVANIA FORESTRY ASSOCIATION

Organized in 1886

306 COMMERCIAL TRUST BUILDING

PHILADELPHIA, PA.

I desire to support the activities of The Pennsylvania Forestry Association for the preservation and development of forest lands, and enclose a check for \$..... to cover membership for the ensuing year. One dollar of this amount is to pay for yearly subscription to FOREST LEAVES.

MEMBERSHIP CLASSES	
Annual member	\$3.00
Club membership	5.00
Sustaining member	10.00
*Contributing member ..	20.00
Life member	100.00
Perpetual member	250.00

*If paid for five consecutive years the person automatically becomes a life member.

Name

Address

Date State

FOREST LEAVES, the Association's magazine, is sent to members in all classes. Our program will be found on the inside back cover.

copy

FOREST LEAVES

DEPT. OF FORESTRY
LIBRARY
The Pennsylvania State College



APRIL 1939

LIVINGSTON PUBLISHING COMPANY
NARBERTH, PENNA.

THE PENNSYLVANIA FORESTRY ASSOCIATION

CONTENTS

Pine Creek Gorge, Near Wellsboro, Pa.	Cover
<i>Photo from DEPARTMENT OF FORESTS AND WATERS</i>	
Forest Influences on Climate, Soil and Water	1
<i>M. K. Goddard</i>	
Forestry and the Future of the Anthracite Region	3
<i>Clement Mesavage</i>	
Editorial	4
Arbor Day Bill	5
Forest Recreation	7
<i>H. Gleason Mattoon</i>	
A New American Fire Medal	8
<i>John D. Guthrie</i>	
A Tale of the Open Road	9
<i>Clifton Lisle</i>	
"What About Our Lost Cooperators?"	11
<i>John D. Guthrie</i>	
Book Review	12
<i>John W. Hershey</i>	
Trees Will Live	16

THE PENNSYLVANIA FORESTRY ASSOCIATION

Founded in June, 1886

Labors to disseminate information in regard to the necessity and methods of forest culture and preservation, and to secure the enactment and enforcement of proper forest protective laws, both State and National.

Annual Membership Fee, Three Dollars

One Dollar of which is for subscription to FOREST LEAVES

Neither the membership nor the work of this Association is intended to be limited to the State of Pennsylvania. Persons desiring to become members should send their names to the Chairman of the Membership Committee, 306 Commercial Trust Building, Philadelphia.

President—H. GLEASON MATTOON

Honorary President—SAMUEL L. SMEDLEY

Honorary Vice-President—ROBERT S. CONKLIN

Vice-Presidents

W. B. McCALEB

DR. E. E. WILDMAN

EDWARD C. M. RICHARDS

FRANCIS R. COPE, JR.

EDWARD WOOLMAN

Secretary—W. B. McCALEB

Treasurer—R. A. WRIGHT, C. P. A.

FOREST LEAVES

PUBLISHED QUARTERLY

Entered as second-class matter at the Post-Office at Wayne, Pa., October 22, 1935, under the Act of March 3, 1879
Subscription \$1.00 per Year

VOL. XXIX—No. 2

WAYNE, PA., APRIL, 1939

Whole Number 293

Some Influences of Forests on Climate, Soil, and Water

By M. K. GODDARD

The Pennsylvania State College

IN the United States the progressive interest in the field of forest influences has arisen through four more or less well defined sources. The first interest resulted from the supposed effects of deforestation upon climate. The second stage emphasized the unfavorable effect of deforestation upon the regulation of stream flow and the maintenance of navigation; then the stage when the supposed benefits of forestry were advanced in the movement to "sell" forestry. The fourth and last stage deals with the scientific inquiry going on at the present time in the search for data to show the effect of forests on climate, water, and soil; the main emphasis now being centered on soil erosion, stream flow, and watershed protection.

It was thought at one time that forests had considerable effect upon annual rainfall. However, it has been proven that the influence of forests on the amount of precipitation is practically negligible. The forest does exert a slight influence on precipitation because it acts in the manner of a mountain causing air to rise and thereby being cooled. It is a well known fact that as air cools, the concentration of water increases and may eventually lead to saturation of the atmosphere resulting in precipitation. However, it is obvious that the slight rise caused by even the tallest trees in the United States would be without much effect on cooling of air and condensation of water. The main climatic effect is the increase in atmospheric moisture caused by transpirational losses from the trees. Relative humidities may be as much as eleven per cent higher in forests as compared with non-forested areas. This increased percentage in relative hu-

midity does not mean that there is a greater amount of moisture over forests than over open areas. The difference lies in percentage of saturation usually corresponding to lower air temperatures in the forest as compared with the open. Rain gauges placed in openings in the forest give greater readings than those in open fields. This excess is caused mainly by the protection of the gauge in the forest from deflecting air currents and does not prove that more water is falling in the forest than on an adjacent field. It has been estimated that the effect of the forest may increase local rainfall by not over three per cent in temperate climates. In tropical regions of heavy fogs and misty rains, water which collects on vegetation and then falls to the ground, may increase precipitation considerably. Marloth in South Africa recorded eighty-six inches of precipitation in a clump of reed plants as against four inches in the open. This source of water is relatively unimportant in the United States,—adding rarely more than an inch of water per year to soils.

The effect of vegetation on wind movement is one of current interest because of increased emphasis given to shelterbelt plantings. The influence of trees on wind movement results from friction, and as a result, increases with the area of surface exposed to the wind and decreases with the distance from that surface. Therefore, the degree of influence will vary with size and density of the individual crowns and with the density of the stand. In forests the velocity of the wind is usually twenty to sixty per cent of that in the open. Air currents in most forests are characteristically low, usually ranging from one to two

miles per hour on the average. Velocities may be reduced to leeward of a shelterbelt for a distance equal to twenty times the height of the tree.

Forest cover in general reduces the maximum air temperature throughout the year. It is logical to expect the reduction to be greatest in the summer when the decrease may be eight degrees Fahrenheit. However, exceptions do occur, as for example in the chaparral brush of Southern California during July where temperatures are often five degrees higher than in the open. On the other hand forest cover often raises the minima as much as six degrees throughout the year. As a rule, forest cover reduces the mean temperature because the maximum is lowered more than the minimum is raised. In July under a beech-maple type in New York the range of mean monthly temperature was found to be nearly thirteen degrees lower in the forest than in the open and in January five degrees.

Soil temperatures are influenced similarly to air temperatures. Soil temperatures under most forests are cooler in spring and summer and warmer in fall and winter than in the open. Forests usually reduce the maxima and to a lesser degree increase the minima. The mean daily maxima in the forest floor in summer may be reduced by as much as fifty degrees by forest cover. As a rule, soil temperatures under forests are lower than air temperatures in summer and higher in winter. It is safe to say that forest cover reduces the depth to which soil freezes, more on the south than the north sides of trees, and more under the crowns than in the openings. Diebold found that the acreage of frozen soils during the winter of 1935-36 and later during the flood period of March, 1936, was confined principally to bare fields possessing little forest or snow cover. The date at which frost disappears from the soil may be five weeks earlier under the forest. Forest cover retards the date of snow melting as indicated by the following examples. In Idaho snow disappeared in the forest from three to ten weeks later than in the open; at least ten days later in Nevada; "several weeks" later in Arizona; one to five weeks later in Washington, and nine days later in open Virginia pine stands in Virginia.

Forests definitely decrease the loss by evaporation. Pearson found evaporation in ponderosa pine in Arizona to be seventy per cent of that in the open. Likewise, Jamison in Idaho found evaporation in a white pine-hemlock forest to be only twenty-two per cent of that in the open. There is a decided difference in saving depend-

Two

ing upon species, density of stock, region, and amount of precipitation. It has been proven that evaporation in the open may in some cases be equal to half of the total precipitation. If then by careful management this loss can be reduced by half or more, soil moisture will be increased considerably.

A loss somewhat comparable to that by evaporation is interception. Interception represents the amount of rainfall or snow caught by the crowns and foliage of trees and returned to the atmosphere without even entering the soil layer. It is a generally known fact that foliage decreases the quantity of rainfall reaching the ground—watch people caught out in a shower. The average amount of rainfall intercepted by forest vegetation in the United States would probably be as high as fifteen to twenty per cent of total precipitation. Douglas fir was found by Simpson to intercept forty-three per cent of the summer precipitation. Kittredge has found interception of snow as high as forty-eight per cent of total snow fall in the Sierra Nevada Mountains. The amount of interception is a function of storage of the surface of the vegetation, the evaporation rate during the storm, and the amount of precipitation per shower. With very light showers it is often possible to have one hundred per cent interception, the percentage of interception decreasing as the amount of precipitation per storm increases.

Interception losses must be reduced by a stem flow factor. Stem flow is the amount of water which reaches the forest floor by running down the bole. It is a relatively small part of total precipitation, varying from one to sixteen per cent. The per cent increases as the amount of precipitation per shower increases. Trees with smooth bark, such as beech, have considerably more stem flow than trees of rough bark, as there are no cavities to catch and retain the water. It must be remembered that interception represents a loss of precipitation which would otherwise be available to the soil.

Transpiration from the leaves is in the main an extremely wasteful process and results in considerable loss of water from the soil. It is extremely difficult to measure accurately the loss from a single tree, and infinitely more so to measure transpirational losses from a forest. In Southern California observations of stream flow have been used to determine the water loss by evaporation or consumed by canyon bottom vegetation. In Temescal Canyon during thirty days

(Continued on Page 14)

FOREST LEAVES

Forestry and the Future of the Anthracite Region

CLEMENT MESAVAGE

Secretary Anthracite Region Rehabilitation Committee*

SOMEWHERE between five-eighths and three-quarters of the total land area of the anthracite coal region is in forest or potential forest that for years has remained abused or neglected in the midst of a region where the need for diversified wood products, forest recreation, and watershed protection is as great as in any comparable area in the United States.

This unfortunate situation is not due to lack of recognition by State and other agencies. In fact, it is possible that the problems of the region have been given more specialized thought than many other areas in Pennsylvania, but the forces active in retrogression are so powerful that any solution will require concerted action.

These retrogressive forces may be summarized as follows:

1. *Indifference.* The important natural resource is anthracite coal. Perhaps it is not too strange, therefore, that little attention should be paid to other resources. The finer stands of timber were cut prior to intensive anthracite development; the timber operators then moved out, and the mess left was ignored while attention was being focussed on the new field of exploitation.

2. *Heavy Local Wood Consumption.* Paradoxically, the very characteristics which make this region uniquely suitable to scientific forest management have also made it a lucrative field for exploitation, and thus they are responsible, to a great degree, for the present lack of forest management.

3. *High Forest Fire Hazard.* The region has a heavy urban and industrial development with numerous railroads and highways. Sportsmen have been careless, though decreasingly so, while berry pickers still regard blue berries as more important than a developed forest. The whole business becomes a vicious cycle because fire reduces forest productiveness to the scrubby areas existing over a portion of the anthracite area, and these in turn, by their very nature, intensify the hazard.

* Allegheny Section, Society of American Foresters.

4. *Taxation.* Poor approaches to equitable forest taxation pertain to practically all American forests. This point is of great importance but needs no special emphasis in the anthracite region except as it applies to lands over or adjacent to coal deposits, since these lands are at an additional disadvantage because proximity to coal deposits indirectly inflates their value.

5. *Lack of Tourist Appeal.* Largely the result of too great an emphasis on the security afforded by coal production, the urban developments are just beginning to awaken to the fact that their towns are ill-designed and unattractive. Hideous mine refuse banks, some burning, are associated with every anthracite town. It is too late to worry about placing the blame. Neither towns nor refuse banks can be moved. The immediate task is to make the association more pleasant. In addition, wide areas of some of the most scenic portions of Pennsylvania are all but denuded. The combination of these factors has reduced tourist appeal in an area situated very advantageously to a strong demand for natural attractiveness.

The above factors make plain that the problems within the region are unusual, and because they are unusual, they should be handled in the same manner. It is far too easy at the present time to dismiss all consideration for this phase of anthracite rehabilitation with the excuse that since the anthracite industry itself is sick, every attention should be given to it instead; yet this is exactly the reason why forest development plans should not be excluded.

During the past few years the anthracite industry has been showing commendable progress in expanding its markets by making anthracite more and more convenient as a fuel and by the introduction of more effective merchandizing methods. This program has already reflected in a pronounced decrease in the number of oil-burning installations and a decided increase in the number of modern anthracite-burning units installed. In addition, every effort is being made to decrease the cost of production.

(Continued on Page 13)

APRIL, 1939

Three

FOREST LEAVES

Published quarterly by
The PENNSYLVANIA FORESTRY ASSOCIATION
Disseminates information and news on forestry
and related subjects.

PUBLICATION COMMITTEE

E. F. BROUSE, *Chairman*
SAMUEL N. BAXTER DR. RODNEY H. TRUE
CHARLES B. CADWALADER PHILIP A. LIVINGSTON

The publication of an article in FOREST LEAVES does not necessarily imply that the views expressed therein are those of The Pennsylvania Forestry Association. Address all correspondence to Wayne, Penna., or to the Editor, 306 Commercial Trust Building, Philadelphia, Pa. Kindly notify us of any change in address.

APRIL, 1939

The Association Steps Forward

CONSERVATION today is a problem catching the interest of an increasing number of citizens. This fact gives encouragement to those who have labored for many years to stir up this wider interest; it also poses a problem to the organizations working in this field.

The Pennsylvania Forestry Association, with more than a half-century of activity to its credit, has felt an insistent demand that our good intentions be translated more often into aggressive action, and that the many details confronting the Executive Board be acted upon quickly for the good of the Association and the civic program for which it stands.

For those reasons it was decided in January to employ a full-time Executive Secretary—and for the same reasons the Board chose for the position H. Gleason Mattoon, who has served faithfully and without recompense as President. Mr. Mattoon's willingness to place his wide experience at the command of the Association, and his further willingness to suspend his professional work as an arboriculturist to devote full time to the task, made it possible for the new activity to be started without delay.

The Board has been pleased with the results of the new plan in its first months of operation. Regular and exhaustive reports have been presented by Mr. Mattoon, based on ever-widening contacts with men and women all over the State

Four

who are interested in the program of the Association—or who should be. Opportunities have been unearthed and many weak spots revealed.

It became immediately evident that a larger membership, and a more fully state-wide distribution of members, must be sought at once if the full opportunities in our field are to be taken advantage of. A small group speaks with a small voice, in this day of the calmor of many voices.

A new administration is now taking charge of the affairs of the Association, and the members now have a spokesman. If they stand squarely behind the new Executive Secretary and officers, and if they help with suggestions and influence, the Association will grow. Nothing, after all, succeeds like success.

P. A. L.

LETTER

H. Gleason Mattoon, Executive Secretary,
Pennsylvania Forestry Association,
Philadelphia, Pa.

Dear Mr. Mattoon:

Through FOREST LEAVES I wish to appeal to all of our members for weather instruments which they may have and can contribute for use in some of my experiments.

I plan to build a small weather station this spring, the purpose of which will be to measure forest inflammability and predict and value forest fire hazard. Upon successfully establishing such a station, the information will be very helpful in forest fire control work.

Instruments such as, anemometers, atmometers, duff hygrometer, hygrograph, thermograph, sling psychrometer, rain gauges, and any other mercurial instruments are preferably wanted.

Very truly yours,

CHARLES H. A. SNYDER,
44 Simon Block,
Wilkes-Barre, Pennsylvania.

Ed. Note: Mr. Snyder is a worthy young man, intensely interested in forestry but limited in physical capacity due to a delicate constitution. It is hoped that through this letter he may be aided in securing the necessary equipment.

FOREST LEAVES

Arbor Day Bill

House Bill No. 1145 was introduced in the General Assembly of Pennsylvania on April 4 by Mr. Thomas C. Harbeson at the request of The Pennsylvania Forestry Association. It directs the Governor to proclaim Arbor and Bird Days on April 9, the birthday of Dr. Joseph T. Rothrock, as a memorial to the Father of Forestry and to designate the week on which this day falls as Conservation Week.

Mr. Harbeson, representing Mifflin County, the birthplace of Dr. Rothrock, took particular pride in presenting the bill as "the first forester in the House."

The bill is given in detail below. It is hoped that members of The Pennsylvania Forestry Association and others will urge its passage.

AN ACT

Directing the Governor to proclaim certain days each year as Arbor and Bird Days providing for a Conservation Week directing suitable observance of Arbor and Bird Day in the public schools and imposing certain duties upon superintendents and teachers.

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. From and after the passage of this act the Governor shall appoint appropriate days each year to be designated as Arbor Days and to recommend by proclamation to the people that such days be suitably observed by widespread planting of trees and shrubs and by group and community programs stressing the value and importance of trees and forests.

Section 2. One of the days designated as Arbor Day shall be the ninth day of April the birthday of Dr. J. T. Rothrock, as a memorial to the "Father of Forestry in Pennsylvania" except when such ninth day of April falls on Sunday.

Section 3. The week in which the ninth day of April falls shall be designated by proclamation of the Governor as Conservation Week in Pennsylvania during which week the citizens shall be encouraged to consider through suitable activities the broader subject of the Conservation of all of the natural resources from which the wealth of the Commonwealth is developed.

APRIL, 1939

Section 4. Each day designed as Arbor Day shall be known also as Bird Day in Pennsylvania and all teachers in the public schools of this Commonwealth shall devote together with their pupils at least two hours of such school day either in the classroom or out-of-doors to the study of birds, trees, and general conservation of resources and all school superintendents within the Commonwealth, county, city or otherwise, shall see to it that the requirements of this act are complied with.

Section 5. All acts and parts of acts inconsistent herewith are hereby repealed.

Prize Contest

Association Offers Rewards for Increase in Forest Plantings

TREE Planting Prizes for the year 1939 will be offered by The Pennsylvania Forestry Association to the members who have or intend to carry on forest plantings.

FIRST PRIZE: Five thousand seedlings of any species of tree suitable for reforestation in Pennsylvania.

SECOND PRIZE: Three thousand seedlings of any species of tree suitable for reforestation in Pennsylvania.

THIRD PRIZE: One thousand seedlings of any species of tree suitable for reforestation in Pennsylvania.

In order to compete one must plant at least one thousand trees per acre and must notify The Pennsylvania Forestry Association of his desire to enter the contest, giving his name, address, location of planting, acreage planting up to January 1939 and the species he plans to plant.

The prizes will be awarded on the basis of the largest percentage of increase in forest planting, thereby enabling the small planter to compete on an equal basis with the large planter.

Judges for this competition will be Professor Victor Beede, Head of the Department of Forestry, Pennsylvania State College; R. Lynn Emerick, State Forester, Department of Forests and Waters; and H. Gleason Mattoon, Executive Secretary, The Pennsylvania Forestry Association.

Five



View of bathing beach at Presque Isle State Park, located on a peninsula which extends into Lake Erie in front of the city of Erie. Its 4300 acres contain interesting flora, making it a popular place for botanists and other nature lovers. Bathing and picnic facilities are provided, and good fishing is at hand.



One of the cabins in the Smith-Elliott camping area located in Clearfield County, not far from the village of Penfield. Cabins containing one, two or three rooms may be rented by the week. Excellent fishing, hunting and hiking may be enjoyed in the surrounding wilderness area.

Forest Recreation

H. GLEASON MATTOON

ACCORDING to law the State Forests which belong to the people of Pennsylvania were created "to provide a continuous supply of timber, lumber, wood and other forest products, to protect the water sheds, conserve the waters and regulate the flow of rivers and streams and to furnish opportunities for healthful recreation to the public."

Much has been said and written about the first few objectives, yet for the citizenry the last purpose offers the chance to put the forests to immediate and interesting use. In the State Forests of Pennsylvania there are 83 recreational, historical and wilderness areas set aside for campers, picnickers, swimmers, fishermen, hunters, camera enthusiasts, nature lovers, bird and animal devotees or just citizens to whom civilization is marvelous if they can escape from it every so often to that environment where woods, water and wilderness meet and where the numbing hum of civilization is never heard.

By including historical areas and recreational parks the Department of Forests and Waters Recreation Map covers 42 counties. For diversity of scenery, for beauty, variety and availability, Pennsylvania recreational facilities are seldom

equalled. If you wish to spend more than one day in the tranquility of these forests, various camp or cabin site leases may be arranged for. In all cases, a permit is necessary before camping may be done on public lands. Temporary camp sites may be had for a small rental fee. Seasonal permits extend such privileges from May 1st to October 1st.

On certain areas cabins have been built and may be rented for varying lengths of time, the charge being from \$7.00 a week up. If a certain section of the State Forests appeals particularly and the desire for change each year is not too great, arrangements may be made for a so-called permanent camp lease on a ten-year renewable basis. On this you may build your own cabin or live more primitively in tents. The annual rental is from \$10.00 up.

In the State Forests there are now 1,650,000 acres, a large area but not enough to provide adequate and reasonable recreation for all of the people in the State if certain areas are to be retained for their other numerous uses. It is hoped that the Department of Forests and Waters will follow a long-range and consistent program of land acquisition to add to the area it now has. Careful consideration should be given to providing recreational facilities in the 25 counties which now have none.



A 260-acre lake in the Black Moshannon Forest Park in Centre County, where swimming, fishing and boating are enjoyed. One, two and three-room cabins are available by the week.

A New American Fire Medal

JOHN D. GUTHRIE

ON the afternoon of Saturday, August 21, 1937, a forest fire blew up on Blackwater Creek, Shoshone National Forest, Wyoming. Over 400 men were fighting the fire. Fifteen human lives were snuffed out in less than a half-hour.

Immediately after the tragedy, before the ashes were cold, a few of the federal forest officers there on the ground, talked of the need of some tangible expression of showing public appreciation for the heroism displayed on that fire, and on many another forest fire. Letters of commendation and of condolence were very good in their way, but after all they seemed cold and ineffectual. Why not have a medal, something simple and dignified, which could be presented for outstanding act of heroism on forest fires? Wasn't something like this needed in American forestry, has been needed for many years, to present to the Pulaskis, the Ingrams, the Everetts (or to their families), and other unsung fire heroes now gone and well-nigh forgotten?

That idea stuck, because it had something of real value in it. In spite of much discouragement and some scoffing, that idea born on the Blackwater fire in Wyoming in August, 1937, has now blossomed into a reality.

An American Forest Fire Foundation has been set up, with a Board to handle the business of raising an endowment of not less than \$3,000, to receive and pass on recommendations for the award, and to arrange for the presentation of the medals. A design for a medal has been approved, with appropriate red and green ribbon, for a citation, and a lapel rosette. High standards have been set up to govern the award. The Board is made up of five men.

J. P. Kinney, Cornell Forester, the American Forestry Association, as Chairman; John D. Guthrie, Yale 1906, the Society of American Foresters; Tom Gill, Yale 1911, the Charles Lathrop Pack Forestry Foundation; T. E. Goodyear, Washington State Forester, the Association of State Foresters; and John B. Woods, Biltmore Forester, the National Lumber Manufacturers Association. The American Forestry Association consented to serve as the business manager of the Foundation and designated Fred E. Hornaday as Secretary or Recorder of the Board. Contributions are now being solicited, in any amount, to set up a minimum endowment of



\$3,000; something around \$2,000 has been subscribed to date, but more than \$3,000 is needed.

The Board met in February to consider the twelve cases which had been received up to that time. It held up action on several cases for additional evidence, but acted favorably on three cases, all on the Blackwater fire of August 21, 1937. These were Forest Ranger Urban J. Post, Bighorn National Forest, Bert A. Sullivan, Cody, Wyoming, temporary employee of the Bureau of Public Roads, and Junior Forester Paul E. Tyrrell, a posthumous case.

On March 22, at the annual dinner meeting of the American Forestry Association, awards were made in two of these cases; Paul E. Tyrrell, posthumously, the medal being handed to Congressman Albert E. Carter, California, at the request of the family; and to Ranger Urban J. Post in person. Presentation of the medal to Sullivan will be made in Wyoming during the coming summer. President James B. K. McClure of the Association read a dramatic statement of what took place on the Blackwater Fire, afterwards introducing Chairman J. P. Kinney of the Board, who presented the medals.

A Tale of the Open Road

CLIFTON LISLE*

IT IS a far cry from the bell-heather and bracken of Glen Nevis at sunset with the mist-drenched shadow of the Ben overhead and the burn in spate below to the quiet waters of French Creek in Pennsylvania with oats just headed for cutting in the foreground and hillsides golden with wheat beyond. Yet the first Youth Hostel I ever saw lay in the heart of that highland glen and the lads at supper there were kilted, hungry as badgers and keen from their climb, their bare knees and faces whipped by the wind, that roars, snow-chilled, even in summer, across the upper reaches of Nevis and Ben More.

At my second hostel, by French Creek, on the Horse Shoe Trail in Pennsylvania, a great white heron, foraging for supper in the stream beyond the oat field, touched the twilight magic with a charm that made the scene complete. Two hikers there, in shorts, were as brown from the sun, as ruddy of knee and arm, as their fellows of the distant ling.

Few outdoor movements have spread with such amazing rapidity as this of hosteling. Youth Hostels originated in Germany only a few years ago and were immediately popular. Thence they spread to the British Isles and throughout the continent of Europe. They were brought to America in 1934 with the establishment of our first Youth Hostel in Northfield, Mass. The founders of the American Youth Hostel movement were Isabel and Monroe Smith, who had attended an International Conference of Youth Hostels in 1933. At the Third International Youth Hostel Conference, opened by Ramsay MacDonald in London in 1934, the American Youth Hostels were admitted as the 19th member of the International Youth Hostel Association. There are now twenty countries represented.

The plan of hosteling is simple; the cost negligible. A person under 21 pays \$1 a year dues to the American Youth Hostels. Over 21, he or she pays \$2. In return, such a registered member receives an A. Y. H. pass which admits him to overnight lodgings at over 4,000 Youth Hostels in 20 countries throughout the world, at a cost not exceeding 25 cents a night in the United States or the equivalent of that in foreign cur-

* Reprinted, with omissions, from *Frontiers—A magazine of Natural History*.

rency abroad. Members also receive a year's subscription to the A. Y. H. *Knapsack*, a quarterly publication that brings to all hostellers the latest information of hosteling here and overseas.

Youth Hostels, where chains have been established, are located between 15 and 20 miles apart, usually in loops or convenient networks, so that those hostelizing on foot or by bicycles or horseback may make a convenient swing through interesting and lovely country at little cost. Anyone may use these hostels who is fond of the out-of-doors, likes exercise in wind and weather, knows how to behave himself and does not mind a bit of roughing it. There is no age limit. Hostellers travel on foot, by bicycle, in the saddle, by canoe or flatboat, on snowshoes, or skis. They do not travel, however, by motor, train or bus except to reach their starting point or to return home.

Briefly, a Youth Hostel is an aid to inexpensive travel. It consists of a building, usually on a farm, with separate sleeping quarters for young men and women, girls and boys. It is equipped with bunks, mattresses and blankets; separate wash-rooms, and toilet facilities; a common kitchen and dining room and a common recreation room, whenever possible. There are private quarters for resident house parents, usually the owners of the farm or ranch on which the hostel is located. That is the ideal. In practice, hostels vary, of course.

On a recent hostelizing trek, a-foot, in the United States, I slept most comfortably in three farm-houses, a barn, one springhouse, made over, one specially built hostelizing lodge and one log-cabin. All were clean as wax; fresh water was available and open fireplace or indoor stoves at hand for cooking.

Each hostel enthusiast must be equipped with a white sheet sleeping bag. This is a hard and fast rule and one that is always checked at every hostel. By it the hostel blankets are kept in a clean and sanitary condition and the dangers of disease are largely eliminated.

In the United States, there are eight hostel regions: No. 1, New England; No. 2, New York, New Jersey, Pennsylvania, Delaware and Maryland; No. 3, Michigan, Indiana, Ohio; No. 4, Illinois, Wisconsin, Minnesota, Iowa; No. 5, Missouri, Kansas, South Dakota, North Dakota,



PHOTOGRAPH BY L. CRAIG DICK, JR.

A stone hostel on the Horse Shoe Trail near Ploughville. Here the author spent the night.

Montana, Wyoming and Colorado east of the Rockies; No. 6, Washington, Oregon, Idaho, Wyoming west of the Rockies; No. 7, California Nevada, Utah, Arizona, New Mexico, Colorado west of the Rockies; No. 8, The Southern and Southeastern States.

In Pennsylvania plans are under way to set up a new 500-mile loop connecting the Pennsylvania hostels with the older chains in New England. The Horse Shoe Trail in Pennsylvania is already supplied with them, from historic Valley Forge on the Schuylkill in Chester County to Manada Gap in the Blue Ridge—118 miles. There it joins the Appalachian Trail extending from Mt. Katahdin in Maine all the way south to Georgia. New hostels will soon swing northeast from Manada Gap along the Blue Ridge bases to Stroudsburg and the Delaware Water Gap. Thence another chain will follow the Delaware River to Port Jervis, N. Y., then east to the Hudson at Newburgh, and so north and east to New England.

The Horse Shoe Trail from Valley Forge to Manada Gap in Pennsylvania, although one of the more recent routes to be linked by hostels, is, perhaps, as rich in historic interest and as lovely in its varied play of farmland and forest, highland and valley, as any in the East. Much

of it follows old trackways through storied woodlands where once the charcoal burners had their pits, and where the wheels of Washington's cannon cut bitter slots through the snows of the Encampment Year. It follows leafy farm lanes where the blue wood-asters and the goldenrod were crushed beneath the ragged boots of the Continentals in '77 during the retreat from Brandywine Battle to Warwick. The great Furnace at Warwick still stands in ruins by the Trail and many an A. Y. H. hiker will recall the sweetness of the spring above it. Or mind the blue cloud of forget-me-nots along French Creek below.

Cannon balls were cast at Warwick for the Continental Army and cannon made for them at Cornwell Furnace a day or so's trek further on, where the Trail crosses the highlands of Lebanon and climbs to the summit of Governor Dick to give the trekker a breath-taking reward of far-flung valleys spread below him, ridge on ridge, field on field, green with corn and gold with wheat, plough and pasture and wooded copse, grazing cattle and steeped hamlets, deep hidden by orchards of apple on the slopes—far across the lowland to where the Welsh Mountain

(Continued on Page 13)

“What About Our Lost Cooperators?”

JOHN D. GUTHRIE*

United States Forest Service

TIME was, before the coming of the Civilian Conservation Corps when nearly every national forest and every State forest had a dependable group of local fire cooperators. Included were local settlers, ranchers, stockmen, merchants, dude ranchers, or members of any local organizations. They were organized, knew what they were to do when a forest fire occurred, and in many cases did not wait to be called. When word came of a fire, they went to it. Often they put out a fire, then reported it to the ranger. These fire cooperators were valuable in proportion to their interest and to the degree with which they had been organized, given some training, and were equipped. They were often our third, many times our second, and sometimes our first line of fire defense.

I wonder, if generally speaking, one finds many of these fire cooperators on the fire line these days? Have we been calling on them and using them during the last three or four years as we used to? If they are not found on national forest and state forest fires nowadays, who is fighting our fires? The answer is easy—in many places the Civilian Conservation Corps.

I was on a western forest not long ago which had once built up a fine cooperative spirit in its local people. Dude ranchers used to turn out, with men and pack stock, the local Legion post was organized into eight squads of eight men each to fight forest fires. This was no paper organization; they turned out, they went to fires, and they fought fires. Last summer that forest had a big fire when fire fighters, pack stock, saddle stock, and help were needed, and needed right then. Did the one time fire cooperators turn out? No, they didn't. Nobody refused, but many former willing workers were out of town, or tied up, or pack and saddle stock was over the mountain.

What had happened? Again the answer is easy. Since 1933 this forest had formed the habit of calling up on CCC enrollees to go to fires. They were grouped in camps and could be reached easily. The boys weren't afraid to work, were organized, with chuck, tools and equipment and had experienced foremen with them. It was the most natural thing in the world to call on the

three-C lads. And so the Civilian Conservation Corps has been called and has been fighting our forest fires during the last four years, and somehow we have just about forgotten our good cooperators. The local folks sort of passed out of the picture. We haven't been contacting them, we haven't been calling on them, and they haven't been helping on fires.

The incident referred to on that western forest is not an isolated case. I found much the same situation in the Lake states. I venture to say that it has been going on in every national and every state forest which has had a Civilian Conservation Corps camp.

The original idea or plan was that the Civilian Conservation Corps would be called only in emergencies. That is, if we had exhausted our regular protective force, local help, hired help, and local cooperators, and still needed fire fighters, why we would call on the Civilian Conservation Corps boys. But we long ago got away from that and went further and used the enrollees for detection as well, on patrol, as checkers-in, and almost anywhere and everywhere in the fire game.

Now if we were certain that the Civilian Conservation Corps would be with us permanently, our system might work permanently, but we are not so certain. In fact, on June 28, 1937, the Civilian Conservation Corps had its life extended to 1940 only. No one knows whether it will be continued after that or not; no one knows positively whether it will last until 1940.

All of which leads to the question: Wouldn't it be the part of wisdom and good fire planning to rediscover our lost cooperators?

* The Oregon "Forest Log," November, 1938

Designation of large roadless wilderness areas on Indian Reservations has been ordered by John Collier, Commissioner of Indian Affairs, with the approval of Secretary Ickes. Under the definition of the National Resources Board, a roadless area is one that contains no provision for motorized transportation and comprises at least 100,000 acres in forested country and 500,000 acres in non-forested country. Twelve such areas have been set aside on the Reservations.

Eleven

BOOK REVIEW MEN AND RESOURCES

J. RUSSELL SMITH

Harcourt, Brace Company, \$2.30 postpaid.

A book that can be described best in the following manner:

We, the Nations, or civilization of North America, had been a paying corporation with plenty of raw material, market and labor supply,—hence, a staple social, political, and economic well-being has been enjoyed. We did pretty good under the management of the first several generations but by the time the present one had inherited the mantle of leadership, two vicious factors started to make themselves felt.

First, vicious sins of the preceding generations of making books balance (skimming the cream off resources an example) without considering the troubles they were making for the morrow.

Second, the lack of ability to square with these hard-nosed conditions we inherited in this generation because of softness caused by luxury and idealism associated with an easy life—hence, the red ledger.

A consultant engineer, one thoroughly schooled in the wiles of the world and spiritual wisdom takes us apart just as a GOOD new shop superintendent thoroughly takes the whole works apart, studying every angle before submitting a report on why the shop is in the red. He catalogs every type of climate from the tropical to the frozen wastes of Canada, their peoples, cultures, crops and resources, then cites the competitive eras of the world, giving a beautiful mental chart of what to expect in local and world markets, both present and future. He lists the mineral resources, their history in our national development and influence on social and economic life in given areas and as a whole. Also the influence our economic and social requirements have on these resources and what precautions to take and substitutes to use to conserve them.

Most important of all is his history of soil abuse and wastage and how—if properly husbanded—we can, first, produce many crops on trees that hold the soil and rain runoff, substituting many present day plow crops ruinous in hill farming; second, grow cellulose for the chemical laboratories to use in substituting many products now fabricated from our rapidly diminishing minerals.

Startling clarity is given the error of individual license in exploiting our natural resources. One illustration cited;—a gas field in Penna.

Twelve

had 26 million dollars worth of wells drilled with 2 million of gas being the total supply recovered. He compares this with the English style of government control of production, permitting only enough oil and gas to be pumped to supply demand—knowing that the welfare of the common wealth is more important than protection of individual license. Another is the raping of our forest stands without a co-ordinated plan of maintaining them for posterity.

He hammers home the necessity of our working toward co-ordination of national planning. A case in point is one in Tennessee of National Highway planners who planned their roads and built a bridge. Time revealed that in building a dam to make the river "ship shape" a newly built 3 million dollar bridge would be submerged.

Along with this thought is emphasized the necessity of "we Americans" learning to cooperate in commerce, citing lack of actually knowing the simple secret of primitive trading as one of our greatest weaknesses.

The high percentage of accuracy of statistical nature makes one wonder how the author could ever keep so large a picture in his vision at once. Then, unlike so many writers who work up a head of steam in the reader without suggesting a remedy, he presents concrete solutions.

The outstanding remedy recommended can be summed up as follows: Here is the bin of diminishing supply of resources; this is the status of our social and economic standing. Now then, by following this outlined procedure, we'll have a better future and enough supplies to go round. Only in a very few instances is an admission made of not knowing the solutions to the problem. A world traveler, observer, and student of men and resources, along with an analytical mind and deep spiritual concern for posterity, presents his solutions—logical balanced conclusions well smoked and cured in the brine of personal and historical experience.

Set up as a text book for high schools and colleges in true J. Russell Smith style, it reads like an adventure thriller, and it is so, for it is the story of a strange people ruthlessly exploiting a continent. This, with a touch of history and culture of previous American peoples, keeps one truly entertained. An ample supply of photos, sketches, charts, and maps add to the book's impressiveness.

JOHN W. HERSHEY,
Sec'y. Pa. Nut Growers Asso.

FOREST LEAVES

Trees With a Story

Hundreds of trees scattered throughout Pennsylvania hold a story of interest to the many readers of FOREST LEAVES. Many are not known beyond their own neighborhood yet they may have a significance of State-wide appeal and be important enough for such recognition. The readers are invited to report to Mr. E. F. Brouse, Chairman of the Forest Leaves Publication Committee, Norristown, telling the stories that they know of a tree or groups of trees.

The size and shape of a tree may be of interest; it may be unique or grotesque, may be strange acting or peculiar in some respect; it may mark an incident or an anniversary; it may be a memorial; it may have been of distinct service in some way; it may act as an inspiration. A group of trees or "woods" may have saved a life by providing shelter or funds for needed care and up-building of some individual; and in many other ways might trees be interesting and useful and afford a really worthwhile story.

Whatever it may be and no matter how seemingly trivial, you will be doing a distinct service by passing the word along. We ought to get better acquainted with our trees. This will give us an opportunity to know more of them intimately.

Photographs will be appreciated and will add to the interest of the proposed articles. If your prints are small, send the negatives also; we will have them enlarged and return the negative to you.

FORESTRY AND THE ANTHRACITE REGION

(Continued from Page 3)

Local forest development offers an opportunity to assist the anthracite industry, as well as every other wood-using industry in the region, in decreasing its production costs directly and indirectly by:

1. Creating a new industry capable of absorbing unemployed.
2. Reducing timber costs.
3. Making surface lands productive enough to offset their maintenance.

This is by no means entirely a private problem. Its solution is definitely within public interest because of necessary watershed protection, recreational facilities, and economic security. Although land in private ownership may best be developed by private initiative, every encouragement should be given to this initiative by publicly-instituted action.

APRIL, 1939

A TALE OF THE OPEN ROAD

(Continued from Page 10)

dreams in the blue of summer haze along the Chester Border.

Place names here are lovely as the farmlands, racy of the soil that gave them birth. Nantmeal—the "sweet-meadow" of the Welsh who settled this tiny village over 200 years ago and live there still. Coventry, where the names of Coventry and Warwick lie as closely linked upon their hills as they do in their motherland of an English shire. Honeybrook and the Cockscomb Rock are just off the Trail above the Manor of Brandywine and Brandamore. Then on towards Lancaster with its Caernarvon and Brecknock to prove where the Welsh once crossed their little mountain and so passed our first frontier. Beaver Run, Sixpenny Creek, Hammer Creek, Birch Run tell us of the land as it was in the old days. By Lebanon we find the Pennsylvania Dutch as in Lancaster. Heidelberg and Manheim speak for these thrifty folk who love the furrowed land and tend it well. All this is Steigel country, often bearing the name of the lady of the manor and set up the furnace that brought him fame.

The furnace names themselves are fascinating, coming to us, as they do, from Colonial days and often bearing the name of the lady of the manor that owned them—Elizabeth, Joanna, Hopewell, Cornwall. Their ruins stand silent now, more lovely than ever in a cloak of ivy that keeps them young, half hidden in their glens. The forests that once fed their hungry maws with charcoal and the highlands that supplied them with iron, are still green with oak and ash, walnut and maple, though the chestnuts are gone. Pines grow cool and green on the rock ledges. Laurel shadows the trout streams about Penryn.

From the stone farmhouses below, gray limestone or mellowed brick in Lancaster, red or tawny brown in Lebanon and Berks, floats the scent of woodsmoke and pots a-boil at sundown. No one who has ever broken fast at a Pennsylvania farmhouse can forget it. Words fail. These people go in for rations that both whet the palate and stay well by the ribs. They know how to cook and they take time to enjoy their rations as all good trenchermen should.

The old customs hold. Grace, often in the tongue of their sires, the low German of the Rhinish Palatinate, touched by two centuries of contact in this country with their English-speaking neighbors, is a prelude to the meal. Often the master of the house begins the day with

Thirteen

family prayer at table and the reading of Holy Writ. Grace before meat is usually spoken by one of the children.

The farm buildings by the hostels are a delight to all who can mark beauty in the craft of well-cut, well-laid stone, in the nicety and balance of quoin and lintel, in the play of tracery where the ventilating slits in the brickwork or masonry—the swallow-holes—have been placed high towards the eaves in the barn ends.

To spread a hostel's clean sailcloth over the hay-mow in such a barn—always a Swiss barn in Lancaster, with its threshing-floor on the forebay and an earth ramp sloping up to bring the great four-team hay wagons to the mows, then to crawl contentedly into one's sleeping bag and settle back on the bliss of sweet-scented timothy in the high-piled bay, mindful of a good day's tramp and a glorious supper, while the pigeons practice a twilight's coasting on the pitch of the roof overhead and the Guernseys stir softly in their stanchions below—such a lodging warms us with a thrill that even the most hardened hostler can never forget, bringing a heartease that mellows with time.

SOME INFLUENCES OF FORESTS ON CLIMATE, SOIL, AND WATER

(Continued from Page 2)

in spring loss equaled twelve and nine-tenths inches of water. In Coldwater Canyon transpirational losses during the six summer months of 1931 amounted to forty-five inches of water. Losses such as this certainly warrant the action already adopted by some cities such as San Bernardino, California of piping water out of the stream channel before it can be consumed by the vegetation bordering the stream. It must be remembered that the figures cited would represent maximum losses in the United States. Data on transpiration rates for other regions and types are lacking, but they would be decidedly less, probably ranging from six to eighteen inches.

Interception of precipitation, evaporation from the soil, and transpiration account for most of the difference between the total precipitation over an area and the flow of the stream draining it. This difference between precipitation and stream flow shows that the loss of water by the factors noted above amounts to from twenty to forty inches by the longleaf-loblolly-slash pine type in the South, fifteen to twenty inches by the

beech-birch-maple-hemlock forest so common in Pennsylvania, and twenty-five to sixty inches by Douglas fir forests in the West. Transpirational losses account for the greatest percentage of the losses noted. Therefore in regions where the aim is to secure the greatest flow of water, it is essential that transpirational losses be kept at a minimum, the best all round results being obtained by plants which satisfactorily protect the site, but transpire a small amount of water. At the present time experiments are being carried out in Southern California to determine just such plants, which are adapted to the region, so that stream flow can be increased.

The paper thus far would tend to show that forest areas yield less total volume of water than nonforested areas because precipitation is essentially the same over forests and fields, but interception and transpirational loss much more than offset the saving by evaporation. However, we are mainly interested in usable water well distributed throughout the season. It is when we consider this angle of water supply that forests play a major role.

The porosity of the forest soil is a result of the presence of organic matter. The oven-dry weight of the annual accumulation of forest litter (twigs, leaves, branches which have fallen to ground but have not yet decayed) is a function of the stand and varies from over three tons to less than half a ton per acre. The amount of debris on the forest floor tends to be higher in forests of cool climates of northern latitudes and high altitudes, and lower as the climate becomes warmer. The total oven-dry weight of a forest floor including all organic material varies from over one hundred tons to less than a ton. The direct result of this organic material is to keep soil open and porous. The permeability of soils under forests may be fifty times greater than soils in the open. Forest floors also tend to keep frozen soil porous, when bare soil becomes solid and impermeable. We always find animal life associated with organic material. Dr. A. P. Jacot has determined that there are up to 10,000 individual microarthropods (minute animals such as spiders, springtails, centipedes, etc.) per square foot of forest litter in the Appalachian region. In view of the fact that one worm hole is nearly as effective as 1,000,000 channels between clay particles, one can more readily understand the importance of holes and cavities throughout the soil mass in encouraging the infiltration of water. Root systems eventually decay and form additional channels through-

out the soil mass. This organic layer on the forest floor plays an additional role in preventing water from becoming turbid, thus preventing the sealing of pore spaces by clayey films, and thereby insuring infiltration of water.

It must be remembered that the organic material not only serves in a physical manner as described above, but has a chemical role as well. It returns a great many elements to the forest floor, particularly nitrogen, calcium, potassium, and phosphorus. The addition of forest litter to soils of poor quality increases growth and removal of forest floor or its excessive accumulation may deteriorate the quality and as such decrease growth. Fire which destroys forest floors causes a total loss of nitrogen which volatilizes and converts portions of calcium, potassium, and phosphorus to more soluble forms which are subject to rapid washing and leaching. Fires thus lead to rapid deterioration of the site.

The question might be asked, does the forest floor have any direct effect upon moisture content other than increasing permeability and preventing turbidity? It has been found that the organic layer will retain from one to five times its dry weight of water. However, the maximum retention of precipitation is usually less than one inch of water. The forest floor also increases the percentage of moisture retained by the soil to the extent that it reduces evaporation.

Vegetation reduces surface run-off by increasing the porosity of the soil, by actual retention of part of the water, and by offering mechanical obstruction it retards the movement of water to the drainage channels, thus tending to retard and lower flood crests and prolong increased flow in low water periods.

As we have seen forests conserve snow and reduce evaporation of soil moisture and at the same time intercept precipitation and transpire water from the soil, run-off then is a balance between these influences. The result may be harmful or beneficial depending on the occurrence of precipitation as snow or rain, its distribution throughout the year or part of it, and its arrival in light or heavy storms. Research to date, backed by observations in all parts of the United States, justifies the belief that forests of the country usually benefit stream flow. However, as has been already mentioned, we might find exceptional cases in canyon-bottom vegetation of drier regions. There is no doubt that the forest floor is beneficial, in spite of the fact that it does in-

tercept some moisture which returns to the air by evaporation, as it reduces surface run-off, increases percolation, and reduces the loss of soil moisture by evaporation. However, it must be remembered that man by careful and skillful management of the forest can undoubtedly produce a forest with greater beneficial influence than the original.

Before closing let me cite some outstanding examples illustrating the results of forest removal on erosion and run-off. In 1934 the run-off following fire and rain in the mountains of Los Angeles County, California (near the location of the recent serious fires) resulted in run-off twenty-two times greater than from an adjacent unburned area receiving the same rainfall, but on which the vegetation was unharmed. The 4,000 acres of burned area also yielded 67,000 cubic yards of eroded debris while the unburned area yielded only 56 cubic yards of eroded material. Run-off which resulted from a 1931 burn in Richardson and Mann Creeks of the Idaho National Forest carried enough debris to dam the Salmon River to a depth of 20 to 25 feet for a length of 450 feet, and to cause a new rapid to be formed in the river. The staff of the Appalachian Forest Experiment Station found that by removing the litter under an old growth pine-hardwood forest by fire run-off averaged ten times as great as that from adjacent unburned areas.

It is undoubtedly true that foresters have in many cases overemphasized certain features of the influence of forests on climate, water, and soil. However, it is evident from careful experimentation that forest vegetation and brush demonstrate many striking influences, both favorable and unfavorable. For example, transpiration and interception of water is a desirable feature in humid regions in reducing height of flood crests while in more arid regions, where water is scarce, they are undesirable. The excessive cooling of forest soils by dense forests in northern latitudes may be harmful as soil temperatures are typically too cool for satisfactory growth while in more southern climates cooling of the soil may be beneficial. It is well to remember that the factor under discussion and location must be considered before stressing the value of forest cover as it may have unfavorable influences as well as favorable. In the main, the forest favorably influences climate, soil, and water, although under exceptional cases the reverse may be true.



TREES WILL LIVE

Everyone who has walked in the woods has seen examples of the ability of trees to overcome adverse growing conditions. If the seed happens to fall on a cliff, its roots sometimes traverse several feet of bare rock before finding soil. If insects or disease do not weaken it, it will live.

An excellent example of a tree's tenacity to life is here illustrated. Construction work surrounds this 30 foot tulip tree with stone, cement, and hard surfaced road, while the nearest water is 9 feet below in the mill race, yet the tree lives and thrives. The trunk is now 14 inches in caliper and has grown out over the stone wall 3 inches on either side.

ROSES - SHRUBS - PERENNIALS

Fruit Trees - Small Fruits
Catalog Free - Est. 1884

MALONEY BROS. NURSERY CO.

61 Main Street Dansville, N. Y.

Forest stand improvement was conducted on 55,364 acres of Pennsylvania State Forest land and 4600 acres were cleaned up generally in 1938. Fire hazard reduction treatment was given to 13,327 acres, tree disease control covered 274,944 and insect pest eradication, 3791 acres.

Do you want to grow some post timber?

Here is a bargain in

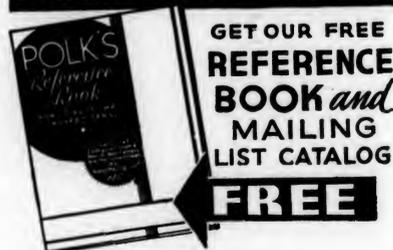
STRICTLY No. 1 SEEDLINGS

- 1,000 Black Locust 12-18"
- 1,000 Russian Mulberry 12-18"
- 1,000 Osage Orange 12-18"
- 1,000 Chinese Elm 12-18"
- 1,000 Silver Maple 12-18"

The above 5,000 trees for **\$25.00 Cash**
One half of the above collection **\$15.00**

Atlantic Nurseries, Inc.
BERLIN, M.D.

MAILING LISTS



Gives counts and prices on accurate guaranteed mailing lists of all classes of business enterprises in the U. S. Wholesalers—Retailers—Manufacturers by classification and state. Also hundreds of selections of individuals such as professional men, auto owners, income lists, etc.
Write today for your copy

R. L. POLK & CO.

Polk Bldg.—Detroit, Mich.
Branches in Principal Cities
World's Largest City Directory Publishers
Mailing List Compilers. Business Statistics. Producers of Direct Mail Advertising.

Our Program

1. The adequate protection of all Pennsylvania forests from Fire, Fungi, and Insects.
2. The personnel of the Department of Forests and Waters to be chosen and retained on a basis of efficient service only, in order to guarantee permanency of policy and continuity of action.
3. The management of the State forests so that they may supply the permanent needs of the people not only for continuous timber protection but also for recreation, hunting and fishing.
4. Greater co-operation between the departments of the State Government for protection of the beauty of the public lands.
5. Adequate biennial appropriations for the purchase, protection, and development of the State forests.
6. The education of the public, corporations, sportsmen, and forest land owners with respect to the value of our forests and the necessity for their development and proper utilization.
7. The planting of trees valuable for lumber on all waste and idle lands and the continued distribution of seedlings by the State.
8. The education of our children in forestry in both public and private schools. A love and appreciation of the forests tend to a better type of citizenship.
9. The establishment of town and county forests which will bring pure air, pure water, and recreation close to the centers of population.
10. The preservation of the few remaining areas of virgin timber in Pennsylvania.

THE PENNSYLVANIA FORESTRY ASSOCIATION

Organized in 1886

306 COMMERCIAL TRUST BUILDING

PHILADELPHIA, PA.

I desire to support the activities of The Pennsylvania Forestry Association for the preservation and development of forest lands, and enclose a check for \$..... to cover membership for the ensuing year. One dollar of this amount is to pay for yearly subscription to FOREST LEAVES.

MEMBERSHIP CLASSES

Annual member	\$3.00
Club membership	5.00
Sustaining member	10.00
*Contributing member ..	20.00
Life member	100.00
Perpetual member	250.00

*If paid for five consecutive years the person automatically becomes a life member.

Name

Address

Date State

FOREST LEAVES, the Association's magazine, is sent to members in all classes. Our program will be found on the inside back cover.

FOREST LEAVES

DEPT. OF FORESTRY

LIBRARY

The Pennsylvania State College



JULY 1939

THE PENNSYLVANIA FORESTRY ASSOCIATION

LIVINGSTON PUBLISHING COMPANY
HARRISBURG, PENNA.

CONTENTS

Bring Business Back to Pennsylvania	1
<i>George H. Wirt</i>	
The Pine Barrens of Centre County, Pennsylvania	3
<i>Walter F. Westerfield</i>	
Editorials	4
The Association's Annual Meeting	5
Forestry and Ethics	7
<i>Dr. Adelbert Ebner</i>	
Lehigh University Sportsman's Club	8
<i>Robert Stoult</i>	
The Forestry Club of Episcopal Academy	9
Westtown School History in Tulip Tree	10
Treasurer's Report	16

THE PENNSYLVANIA FORESTRY ASSOCIATION

Founded in June, 1886

Labors to disseminate information in regard to the necessity and methods of forest culture and preservation, and to secure the enactment and enforcement of proper forest protective laws, both State and National.

Annual Membership Fee, Three Dollars

One Dollar of which is for subscription to FOREST LEAVES

Neither the membership nor the work of this Association is intended to be limited to the State of Pennsylvania. Persons desiring to become members should send their names to the Chairman of the Membership Committee, 1733 Commercial Trust Building, Philadelphia.

President—WILBUR K. THOMAS

Honorary President—SAMUEL L. SMEDLEY Honorary Vice-President—ROBERT S. CONKLIN

Vice-Presidents

<i>WM. S. B. McCALEB</i>	<i>DR. E. E. WILDMAN</i>	<i>EDWARD C. M. RICHARDS</i>
<i>FRANCIS R. COPE, JR.</i>	<i>EDWARD WOOLMAN</i>	<i>DR. RODNEY H. TRUE</i>
<i>Secretary—H. GLEASON MATTOON</i>		<i>Treasurer—R. A. WRIGHT, C.P.A.</i>

FOREST LEAVES

PUBLISHED QUARTERLY

Entered as second-class matter at the Post-Office at Wayne, Pa., October 22, 1935, under the Act of March 3, 1879
Subscription \$1.00 per Year

VOL. XXIX—No. 3

WAYNE, PA., JULY, 1939

Whole Number 294

Bring Business Back to Pennsylvania

GEORGE H. WIRT

Chief Forest Fire Warden, Pennsylvania

EVERYBODY admits that what Pennsylvania needs now is more business. Industries which will furnish labor for the present population are being persuaded to stay in Pennsylvania. Other industries are being induced to locate within this State in order to furnish additional opportunities for labor. It is expected, of course, that business will pay the laborers, that payrolls will not merely remain at existing levels but that they will be materially increased. With increased payrolls, business of all kinds will pick up and prosperity will be back again.

Advertising is being done by the Commonwealth itself with the object of enticing people of other States and Countries just to visit Pennsylvania. Of course, after they are here they will spend an appreciable part of their cash. This will start on its round of making business go and our people will be busy. Why not consider the forest areas within the boundaries of Pennsylvania as a possible aid to business recovery?

Without attempting to cover too much detail let us ask ourselves a few questions and study in brief their answers.

What is the extent of forest-covered areas in Pennsylvania? The latest figures show that there are approximately 13,000,000 acres spoken of as forest land.

What proportion of the total area of the State is this so-called forest area? The total area of Pennsylvania is approximately 28,000,000 acres, therefore the forest area is about one million acres less than half of the total area of the State.

What area is used in Pennsylvania for agricultural crops? There are now approximately 8,000,000 acres being used to raise staple farm crops. The area of forest land therefore is 1.6 times as great as the area of farm crop land.

What is the gross value of Pennsylvania farm crops? The annual value of all farm crops is around \$250,000,000.00.

Is the forest a crop of the soil? Certainly trees grow from the ground and should be considered as a soil crop capable of being managed and improved by proper treatment as any other soil crop may be improved by the kind of treatment required by it. An unlimited supply of wood in this country has not made necessary a careful use of what we have had or a planned protection to meet our needs.

What is the gross value of wood actually being cut annually from this 13,000,000 acres of forest land? Nobody knows because no systematic effort is being made in Pennsylvania to find out, but from fairly good guesses it may be estimated as around \$2,500,000.00. In 1890, however, lumbering was the biggest business in Pennsylvania.

Is there being cut annually as much wood as is produced on the 13,000,000 acres of forest land? Again nobody knows, but we may use certain figures for estimate. A recent stock survey of wood growth on State Forests indicates an average growth of 40 cubic feet per acre in the last year. If we use this figure, it would indicate a growth for the whole forest area of 520,000,000 cubic feet. This, of course, depends upon whether the average growth on the State Forest areas measured might be more or less than the production for the millions of acres of privately owned land.

From the best figures obtainable it is estimated that there is now being cut from Pennsylvania forests about 120,000,000 cubic feet of wood or less than 1/4 of the probable present annual growth.

How much wood is used in Pennsylvania in a year? No one has any recent reliable figures but from the statistics which have been gathered from time to time and for various purposes, it may be safe to estimate the current annual needs at approximately 860,000,000 cubic feet.

It will pay to put these figures close to each other for comparison:

Wood needed and used in one year in Pennsylvania	860,000,000 cu. ft.
Wood growing on 13,000,000 acres in one year	520,000,000 cu. ft.
Wood cut from 13,000,000 acres in one year	120,000,000 cu. ft.

This means that 740,000,000 cubic feet of wood is bought outside of Pennsylvania and hauled into this State.

If the growth in a year is 520 million cubic feet, why couldn't there be more than 120 million cubic feet be cut from our forests? The answer to that question would be very interesting because it would include a number of reasons and many guesses, but the fact remains that possibly for the present it is a good thing for the future of Pennsylvania forests and business that this surplus is accumulating.

Is it possible to grow on 13 million acres of land enough wood to supply the wood needs of Pennsylvania's industry and individuals? By taking a low average production figure from the records of European forests where most of the forests have received some management in addition to protection from fire, 50 cubic feet per acre per year is a safe guess. Using this figure, the annual production on 13 million acres would be 650 million cubic feet.

There are at least 3 million acres of land in Pennsylvania which has been farmed and is not now being used or that should not be used for farm crops but that should be growing trees. If this area were made to produce wood there would be an additional 150 million cubic feet available or a total of at least 800 million cubic feet.

This would leave a shortage of 60 million cubic feet.

If, on the other hand, Pennsylvania forests both State and private, can be protected and developed so as to compare favorably with some of the better sections of Europe and thus be brought to an average production of 70 cubic feet per acre per year, which, I believe, is easily possible, the 16 million acres of land which should be kept in forest growth would yield 1,120,000,000

cubic feet which is considerably in excess of the figure set up as indicating Pennsylvania's present annual wood use. With this production, we could use more wood or have the additional amount available for sale out of the State.

What is necessary now to increase the annual wood production in Pennsylvania?

1st. Reasonable protection from forest fire. It has been the forest fires of the past that have destroyed and wasted the wood growth on millions of acres, and made it impossible for many millions of acres to produce any wood growth for years at a time. After lumbering, fires raged over most of the forest land in Pennsylvania, destroying the growth left by the lumberman and preventing natural recovering of the soil because of the destruction of seeds and roots. Fire burned over millions of acres time after time until as late as fifteen years ago it was estimated modestly that there were at least 5 million acres being kept in a non-producing condition by frequent forest fires.

The State's forest protection organization in the last fifteen years has made it possible for at least three million acres of this burned-over area to become covered again with some kind of forest growth and has given the entire 13 million acres a chance to increase the wood stock very materially. In the last 10 years approximately 1,250,000 acres of forest land burned over. Previous to 1900 that large an area would burn over in one year. Less than half this area was land that was not burned over in 1920 or since then. These figures indicate a considerable improvement in conditions but as long as it is possible for one fire to spread over 1,000 acres no forest property is safe and there is no inducement for the owner to spend much money on it as long as the investment may be wiped out so easily and quickly.

2nd. The second thing necessary for increasing annual production of wood in Pennsylvania is the application of common sense in the care of the forest crop.

Wood is the result of sun, wind and rain being combined and manufactured in the leaves of trees. On the average there is approximately the same amount of sun, wind and rain coming to an acre of ground each year. - If there are no leaves on the acre with which to translate these resources into wood, of course, there is no wood crop.

When trees are just out of the seed, as many as 20,000 might be necessary to cover an acre of ground, but when trees are 100 years old possi-

(Continued on Page 14)

The Pine Barrens of Centre County

WALTER F. WESTERFELD

NO one who has seen the monotonously rolling topography of Centre County's barrens will ever forget the frightening feeling of utter loneliness on the first visit. One can see far from the hills—and yet not see anything. It haunts like a curse from the misused land. Where useful trees once covered hills and valleys, now the eye meets only grass and scrub oak with occasional pines and aspens—a vegetation expressing the struggle of nature to overcome the shortcomings of man. (Fig. 1)

This desolate area which we know as the "Barrens" is mentioned oftener than any other locality in the neighborhood, and rightly so, for the region is one of the most interesting and mysterious places in Central Pennsylvania—mysterious not only in its very nature but also in its history. The area aroused the writer's curiosity some years ago, but his questions were always answered with a shrug of the shoulders because the knowledge of

most people does not go beyond the happenings of the last few years. The literature abounds with accounts of the mining industry, but there is little about the Barrens themselves. This stubbornness of the region in shrouding its past with mystery made the writer all the more determined to tear away the veil and write its story by collecting the scattered information from references her and there in history books and from our older residents and others.

On the one side the Bald Eagle Mountains, on the other the Nittany Mountains and Seven Mountains rim the fertile Nittany Valley. The Barrens, occupying a broad strip in the center, stand 100 to 200 feet above the surrounding farm land. They are underlaid by the slow weathering Gates-

burg Sandstone. This formation is the parent material of the sandy soils classified as the Morrison Series. The area extends from Alto near Bellefonte, Centre County to Birmingham, Huntingdon County and includes some 50,000 acres. Some of this land, in particular the more loamy soils from the limestone and dolomite components of the Gatesburg, has been cleared for agriculture; but most farming in the past has met with poor returns. This marginal land encircles some 4,000 to 5,000 acres of more sandy soil,

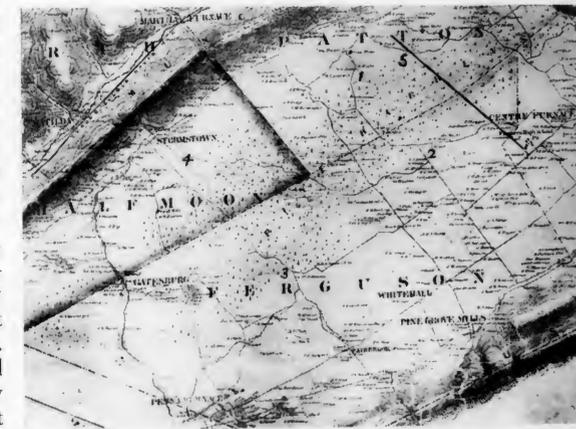
intermixed with deposits of iron ore and pure sand. It is this area, roughly bounded by Scotia, Circleville, Juniata Junction and Tow Hill, which is locally known as the "Barrens." All further mention of the Barrens will be in reference to this area. (Fig. 2)

The first definitely known inhabitants of this section were the Shawanese Indians in 1698. Some authorities believe that, prior to this time, Central Pennsylvania may have

been in the possession of the Muncy tribe, one of the Delawares, before they moved westward in 1728. In any event, part of the Barrens was included in the purchase unit from the Shawanese Indians in 1754; the rest was part of the 1768 purchase. The land was incorporated into Cumberland County where it remained until it became part of the newly created Northumberland County in 1772. Another transfer was made in 1789 when Mifflin County claimed the central section of Pennsylvania. The last change took place in 1800 and since that date the Barrens have been in parts of Ferguson, Patton and Half-Moon townships of Centre County. (Fig. 3)

Abraham Elder chose a home in Half-Moon

(Continued on Page 11)



Reproduced from a map of 1861 by H. F. Walling. 1. Scotia; 2. Circleville; 3. Juniata Junction; 4. Tow Hill; 5. Approximate location of route 322.

FOREST LEAVES

Published quarterly by
The PENNSYLVANIA FORESTRY ASSOCIATION
Disseminates information and news on forestry
and related subjects.

PUBLICATION COMMITTEE

E. F. BROUSE, *Chairman*
SAMUEL N. BAXTER
CHARLES B. CADWALADER
DR. RODNEY H. TRUE
PHILIP A. LIVINGSTON

The publication of an article in FOREST LEAVES does not necessarily imply that the views expressed therein are those of The Pennsylvania Forestry Association. Address all correspondence to Wayne, Penna., or to the Editor, 1733 Commercial Trust Building, Philadelphia, Pa. Kindly notify us of any change in address.

JULY, 1939

The New President

Mr. Wilbur K. Thomas, newly elected President of The Pennsylvania Forestry Association, is a man of considerable distinction in educational and philanthropic work. As Director of the Carl Schurz Memorial Foundation, Inc., since 1930, he has been actively interested in establishing closer cultural relations between this country and Germany. Many foresters have benefited from his activities by being sent with all expenses paid by the Foundation to Germany to study forestry practices and methods. Mr. Thomas was recently elected a Director of the American Forestry Association.

Born on a farm in Indiana, Mr. Thomas after finishing high school went to the Friends University at Wichita, Kansas, later attending Brown University and Yale Divinity School. During the ten years he was a minister of the Boston Friends Meeting, he took post-graduate work at Boston University where he received his Ph. D. degree. In 1912 he founded and was editor of the Friends Bible School Supplies.

From 1918 to 1929 Mr. Thomas was Executive Director of the American Friends Service Committee which carried on war relief work in France, Poland, and Serbia, child feeding work in Germany and Austria and famine relief in Russia. He has travelled extensively throughout Europe supervising and inspecting this work and much of the credit for the success of the relief work following the war was due to his efforts.

Four



He has also been actively interested in the rehabilitation of the soft coal miners in West Virginia and Pennsylvania.

He is actively interested in all conservation matters. During his travels abroad, he visited many of the community forests which have been under successful management for over 100 years. Because of his intimate knowledge of the value, both financially and aesthetically, he feels strongly that municipalities and other corporate units in Pennsylvania should consider establishing such forests.

The Pennsylvania Forestry Association is most fortunate in Mr. Thomas' willingness to serve as President for under his guidance great strides should be made.

As Others See Us

Those members who heard the talk by Dr. Adelbert Ebner at the annual meeting had the rare opportunity of hearing a man exceptionally informed in matters of American forestry who, at the same time, spoke from the detached viewpoint of a foreign country. Germany's enviable forestry policy is a story well heard in itself; it is a story of particular value coming from a man who has gained a sympathetic knowledge of the problems of this younger nation.

FOREST LEAVES

The Association's Annual Meeting

THE Annual Meeting of The Pennsylvania Forestry Association was held on May 4, 1939, at the Hotel Philadelphian, 39th and Chestnut Streets, Philadelphia, with about fifty present.

Following lunch, the meeting was called to order by the retiring President, H. Gleason Mattoon, who submitted the following report for the year 1938:

"A year ago The Pennsylvania Forestry Association undertook an ambitious Five-Year Program. During the intervening year some little progress has been made toward the fulfillment of this program.

"By request of the Association, Representative Thomas C. Harbeson has introduced into the current session of the Legislature House Bill 1145, which directs the Governor to designate as Arbor and Bird Day the 9th of April, the birthday of Joseph T. Rothrock, as a memorial to the "Father of Forestry in Pennsylvania." The week in which the 9th of April falls shall be designated by proclamation of the Governor as Conservation Week in Pennsylvania during which time the citizens are encouraged to consider through suitable activities the broader subject of the conservation of all of the natural resources from which the wealth of the Commonwealth is developed. The study of birds, trees and general conservation in the schools is likewise required.

"This Bill has the approval, I believe, of all foresters and conservationists. Recently, Honorable G. Albert Stewart, Secretary of the Department of Forests and Waters, issued a press release in which he lauded the purposes of the bill and favored its passage.

"I should like to report also that progress is being made in providing funds for the establishment of an annual award to be given to the person making the most substantial contribution to Pennsylvania forestry during the year. I recommend, therefore, that at the next meeting of the Executive Board an Award Committee be set up which shall receive nominations and shall be prepared to choose the recipient.

"It is my belief that such an award may be the means of stimulating greater interest in forestry. In making it, the contributions to forestry by teachers, research men, foresters, botanists, pathologists, and all others who in any

way may contribute to the advancement of forestry in Pennsylvania should be considered.

"Several meetings to consider means of arousing interest in community forests have been held, but we are faced with two problems. First, those counties or municipalities which have land ideally situated for a community forest lack the financial means to establish one. We also found that the present tax delinquent laws are not ideal for facilitating the acquirement of land by the county commissioners for a community forest. There is now a bill in Congress which provides for federal aid in establishing community forests. Should this pass, it may provide the necessary financial and educational stimulus.

"It is becoming increasingly apparent that more research is needed to know how to meet the problems of forestry in the coal regions of the State. To that end, concerted effort is being made to get increased appropriations for the Allegheny Forest Experiment Station which will make it possible to establish a branch station somewhere in the anthracite region. If this undertaking is a success, the studies which will be carried on should result in great changes in the physical aspects of the anthracite area.

"It is logical that The Pennsylvania Forestry Association should be interested in anything that affects the trees of the State. Accordingly, when many of the Oriental plane trees particularly in Philadelphia and suburban areas began to die from an unknown cause, steps were taken to interest the Federal government to carry on research to identify the pathogene and methods of control. Attempts were made to have an amendment added to the present appropriation bill in Congress which would allot \$10,000 for this purpose. While the results are yet unknown I recently learned that the Bureau of Forest Pathology has assigned a pathologist to do preliminary work upon this trouble, and it appears that their efforts are beginning to show results.

"While the predictions of thirty years ago that this country would face a timber famine have not been borne out, the unregulated cutting and ruthless mismanagement of forest resources of Pennsylvania have been an economic waste which has deprived the people of the State of employment and income. Pennsylvania has an area of 28,000,000 acres once completely wooded. From this birthright vast fortunes have

JULY, 1939

Five

been created. We may decry past acts of destruction but it seems more incredible to me that the people of Pennsylvania should permit one-quarter of this great area to remain idle, a wasted, fire-scarred and denuded area of no economic value.

"The legislature is right now wrestling with problems of unemployment and relief while these seven million acres are waiting to be reclothed with trees, for the benefit of future generations and to prevent this land from becoming an eroded desolation. With idle land and idle labor I can think of no more worthy project than the reforestation of these areas. Certainly, the Department of Forests and Waters should take immediate steps to plant trees upon the idle public lands and in a wise paternalism some means should be found whereby lands now in private hands can be prevented from remaining useless. There are thousands of parcels of tax delinquent lands that should be added to the present state forests, while new forests should be established in some of the 34 counties that now have none.

"In this connection I hope and believe that the present administration will give more thought to improving the relations of the Department with the people of the State. More publications are needed to acquaint the public with the possibilities and benefits of the present forest areas. It seems to me, however, that this is one project in which the Association should help. We should publish, I believe, a series of pamphlets suitably illustrated, one for each district forest which shall tell the story of the area and the benefits the people derive from it.

"It is hoped that the Department will increase its equipment and funds to carry on a more intensive fire prevention campaign in the schools of the State. The district foresters are anxious, I believe, to cooperate but are now hampered by a lack of equipment. Prize essay and poster contests should be started and thought should be given to doing everything possible to acquaint the coming generation with the economic loss caused by carelessness or thoughtlessness in the woods.

"Another part of our program has to do with the management of the State forest lands, 1,650,000 acres are now under the jurisdiction of the Department of Forests and Waters. If an individual or a private corporation owned that land it is reasonable to suppose that some plan of managing the acreage for the greatest benefit of the owner would be worked out. Is it not equal-

ly necessary for the Department as manager of this acreage to adopt a long range program of management, which shall be of the greatest benefit to the citizens of the State, who are the actual owners.

"Of course, as long as the jobs of the foresters are subject to the whims of an individual or a political party there can be little hope for such a program. Real progress in working out an intelligent use program will be made only when the men in charge of these lands are chosen and retained on a basis of merit."

The next order of business was the election of Officers, members of the Executive Board and Council. The Nominating Committee, Francis R. Cope, Jr., Chairman, Reginald D. Forbes, and Edward Woolman, submitted the following slate. There being no further nominations the Secretary was instructed to cast a unanimous ballot as follows:

Honorary President, Samuel L. Smedley; President, Wilbur K. Thomas; Honorary Vice-President, R. S. Conklin; Vice-Presidents, Francis R. Cope, Jr., Wm. S. B. McCaleb, Edward C. M. Richards, Dr. Rodney H. True, Dr. Edward E. Wildman, Edward Woolman; Secretary, H. Gleason Mattoon; Assistant Secretary, M. Claire Burlingame; Treasurer, Roy A. Wright, Executive Board, Victor Beede, E. F. Brouse, Reginald D. Forbes, Seth Gordon, Philip A. Livingston, Francis R. Taylor.

County Council Members

Allegheny—Frank J. Lanahan, Thomas Liggett.

Berks—Dr. George B. Wenrick, George Baer Hiester.

Bradford—Miss M. S. Maurice.

Bucks—Mrs. Irvin M. James, David Burpee,

Miss Helen H. Ely.

Cambria—P. L. Carpenter.

Cameron—Josiah Howard.

Carbon—A. C. Neumuller.

Centre—Robert C. Auker, Victor Beede.

Chester—Robert G. Kay, Albert L. Baily, Jr., Frank B. Foster, Edward C. M. Richards, Arthur E. Hutchinson, Robert C. Liggett, Mrs. Paul Lewis.

Clearfield—W. F. Dague.

Clinton—Charles Hogeland.

Cumberland—W. Gard Conklin.

Dauphin—James McCormick, Jr., J. Horace

McFarland, George H. Wirt, R. Lynn Emerick.

Delaware—Prof. Howard K. Henry, Dr. J.

(Continued on Page 15)

Forestry and Ethics

DR. ADELBERT EBNER*

THERE is an old Latin proverb which translated means "A full stomach doesn't work very well"—you have given me such a good luncheon that it is painful for me to talk.

President Thomas asked me to tell you something about Conservation, but, personally, I do not like the word "conservation." It always reminds me of a bunch of sausages preserved in a tin can to be opened later to be eaten.

That word conservation overnight became a by-word with the public. Wherever you went you heard "conservation" here, and "conservation" there; from the banker, the lawyer, the farmer, the forester, or laborer. They all used the word but with varied meanings.

Conservation deals with nature and her laws. It is difficult to understand nature—to develop final laws, for when we make progress toward one point we come upon other points which have not yet been uncovered. Then, too, the subject becomes more complicated because we deal with mankind with its economic needs, and how difficult they are to understand.

One thing is true—the word "conservation" gains in meaning as we become familiar with it, as we carry on research. This research must be always for the truth and to find the truth certainly all men must deal honestly with the subject and are on equal footing with all other scientists. Unfortunately, however, handicaps arise. The chemist or physicist deals with an exact science, a limited science, but in our work, applied natural science, everything is uncertain. We have our experiments and exact terms but our work is affected by economic needs and our experiments take 100 or 150 years before we get the correct answer.

In Germany we have used science for a long time to have what we call conservation, to deal with the idea of regeneration, of preserving things for the next generation and the generations of the future. All of this work revolves around forestry and an American forester coming to investigate conservation in Germany will be confronted with the importance of our forestry work. What is forestry? We cut timber and bring it home, we replant, we see forest

*Talk given at the annual meeting of the Pennsylvania Forestry Association, May 4, 1939.

fires, we see the 4,000 year old Sequoias in California. These are all phenomena of forestry. In the United States enough lumber is cut every year to pave a road 21 feet broad and an inch and half thick all the way to the moon.

Think of the difficulties connected with the word forestry, what it means in one place and in another. We are familiar with the results of forestry. We are born and the first thing we meet is a cradle made of wood; we eat from a wooden table; we sleep on a wooden bed and in a wooden shrine are we buried. We must recognize the relationship between mankind and the forest.

When we go to the tropics we see 500, perhaps 800 different species of trees coming together to make a forest. We go to northern Canada and there we see one or possibly two species, depending upon the wind and moisture. The difference in growth and in species is due entirely to the effect upon trees of nature.

Referring again to Germany, one thing we have is trees for they have become a great natural resource because we build almost all the materials we need for human life out of the lumber. We use the timber for our house, we burn the wood for fire, and we get the power to drive our motor car from wood and artificial wool, and even a form of sugar and of yeast. Today we are able to produce from an average acre of forest land as much food value as from one average acre of farming land. This great natural resource has a special benefit. You have mines but when you take the coal out it is gone but where you have a forest it will regenerate again and so your natural resources will never be depleted.

In Germany we are not rich in natural resources, but due to the pressure of conditions the human mind gets to work and through research discovers new benefits from the forests.

In the beginning a forest was considered a handicap. The German tribes were afraid to traverse the unknown forests. The old Romans were horrified by the German forests. In this country before California was developed and the Mississippi River was the western border of the eastern states, such men as Daniel Webster were afraid to spend a cent to develop the West because they thought that forests were a handi-

cap. In later years these forests proved their value. They finally became a source of much of your timber and other wood products. Today, as you may know, there are over 4,000 uses of wood.

To the lumberman, forests mean so many board feet of lumber at such a price. To another, it may mean game storage; to an artist, it may mean quite a different thing. The musicians Beethoven and Schubert wrote some of their greatest symphonies in the woods. Goethe wrote his most famous poem in the Turenwald and the builders of our great cathedrals went to the forests and saw the domes of branches overhead and were impressed and turned it into architecture, the architecture we so admire today.

So finally, you see, it is the obligation of the forester to understand all these needs. Close to Munich there has lived a family on the same 1200-acre woodlot for over 500 years and it draws its income from the forest. Those people are able to make a living out of it. In Bavaria, one of the most prosperous states of Germany, the financial backbone is the income from the state forests. Even the churches depend upon the forest. Are you familiar with the fact that the Catholic church is the biggest private land owner in Germany with a 2 billion mark land ownership.

Forestry, of course, is a complicated research problem. I feel sorry for people who say, "My God, what have you to do—the trees grow by themselves." I feel sorry for them for they don't know anything. We should develop more of the great research possibilities. First, we raise pure stands of spruce and then we learn of new troubles with fungi, pests, windblow, and soil deterioration.

Train your children to know what a tree is and the pleasure to be obtained from it and you will see that this education develops a philosophical line of thought. This was the great philosophy of Faust; the finding of happiness in the world, in the ground, in your own land. Foresters know the forests and what you know you love and what you love you own.

The answer to forestry is the understanding of the proper procedure, what we call sustained yield forestry. This, technically, is distributing the harvesting of your crop as you do your capital—you put your capital in a bank and you draw interest and this we try to do in forestry work. We seek to draw the interest and distribute the interest over a certain period of time and

over a certain area. Thus it enables us to harvest the same amount of the same type of crop each year.

When in Canada I was speaking of the 4000 different uses of wood and I was told by a man, "You have it easy because you have all your wood to use," and the man said he did not have uses for his wood. Then I looked around his house. In his closet he had wire hangers. He had a wire fence around his yard with steel posts. Then I said, "It is not the possibility of utilizing—it is the desire."

When I heard your President say there is a scholarship to be offered to the man in the next year contributing the best work in forestry, I hoped it would not be along the line of the technical, alone; I hope it will be along the line of love for the idea.

LEHIGH UNIVERSITY HAS ACTIVE SPORTSMAN'S CLUB

A Sportsman's Club was organized at Lehigh University recently. The need for a Sportsman's Club became apparent while I was attending the University, at a considerable distance from home. A student away from home usually does not know where to gun and fish. However, an organized group can more easily secure needed information, arrange hunting and fishing parties and aid considerably in forest up-building.

The Dean and faculty members to the number of 16 are supporting the plan at Lehigh. The Club petitioned for a charter and the University granted it. The Lehigh Outing Club in deference to the newly organized club merged with us.

The first meeting of the new club was held in October, 1938 with over forty students attending. The club now embraces the following activities: Hunting, fishing, forest conservation, hiking, camping, winter-sports, trap and target shooting, archery and general outings. Speakers who are authorities in the various activities to be undertaken by the club are being sought.

The club obtained permission to hunt and fish in certain areas, and in return has aided in feeding game and stocking streams in Bucks, Northampton and Lehigh Counties.

The club has great promise for the future. Next year's membership is expected to be over 150 and in several years it is hoped that Lehigh will have a club rivaling Dartmouth's famous Outing Club.

ROBERT STOUTD,
President

FOREST LEAVES

The Forestry Club of Episcopal Academy

FEW schools in the country take as keen an interest in forestry as that shown at the Episcopal Academy at Overbrook, Pennsylvania. At that institution a club boasting one hundred eighty active members and a sizable roll of associate and life members is dedicated by constitution to the purpose of "learning about plants and trees, understanding their uses, and doing all that each member can for their protection and preservation."

Just as no Arbor Day at Episcopal could pass without fitting tree planting ceremonies, so no annual prize banquet would be complete without the award of the four Forestry Club Prizes to those students who have shown the greatest knowledge of trees, flowers, birds, and general nature.

The Club was first organized in 1921 when the school left the crowded precincts of Philadelphia proper and took residence on an attractive, well-planted estate in the suburbs. Multifarious tasks were necessary to adapt the new grounds to school purposes. As poison ivy and youth do not mix well, the club early undertook to remove the former. Later it carried on by helping to clear the trees from the area on which a new gymnasium was to be erected. Since that

time it has made its duty that of planting trees, shrubs, and flowers and providing funds for the care and preservation of the fine old specimens already on the grounds. Incidentally, one white oak on the premises is over three hundred years old.

The club's most ambitious venture was the planting in 1935 of one hundred fifty trees to celebrate the one hundred and fiftieth anniversary of the founding of the Academy. Among the plantings at that time was University Row, a stand of trees donated by and dedicated to various universities attended by alumni of the School. From Yale, for instance, came three beautiful young elms; from Haverford and Lehigh, oaks; from Princeton, a Norway spruce; and from the Morris Arboretum of University of Pennsylvania (to which the club makes many pilgrimages), trees of various types.

Unique also with this Forestry Club is the annual donation by "Eddie" Collins, Vice-President of the Boston Red Sox, who has often spoken before its members, of a bat to be presented through the Forestry Club to that player on the Varsity baseball team who makes the most base hits during the season.

The club is forever finding something inter-



cap. In later years these forests proved their value. They finally became a source of much of your timber and other wood products. Today, as you may know, there are over 4,000 uses of wood.

To the lumberman, forests mean so many board feet of lumber at such a price. To another, it may mean game storage; to an artist, it may mean quite a different thing. The musicians Beethoven and Schubert wrote some of their greatest symphonies in the woods. Goethe wrote his most famous poem in the Turenwald and the builders of our great cathedrals went to the forests and saw the domes of branches overhead and were impressed and turned it into architecture, the architecture we so admire today.

So finally, you see, it is the obligation of the forester to understand all these needs. Close to Munich there has lived a family on the same 1200-acre woodlot for over 500 years and it draws its income from the forest. Those people are able to make a living out of it. In Bavaria, one of the most prosperous states of Germany, the financial backbone is the income from the state forests. Even the churches depend upon the forest. Are you familiar with the fact that the Catholic church is the biggest private land owner in Germany with a 2 billion mark land ownership.

Forestry, of course, is a complicated research problem. I feel sorry for people who say, "My God, what have you to do—the trees grow by themselves." I feel sorry for them for they don't know anything. We should develop more of the great research possibilities. First, we raise pure stands of spruce and then we learn of new troubles with fungi, pests, windblow, and soil deterioration.

Train your children to know what a tree is and the pleasure to be obtained from it and you will see that this education develops a philosophical line of thought. This was the great philosophy of Faust; the finding of happiness in the world, in the ground, in your own land. Foresters know the forests and what you know you love and what you love you own.

The answer to forestry is the understanding of the proper procedure, what we call sustained yield forestry. This, technically, is distributing the harvesting of your crop as you do your capital—you put your capital in a bank and you draw interest and this we try to do in forestry work. We seek to draw the interest and distribute the interest over a certain period of time and

Eight

over a certain area. Thus it enables us to harvest the same amount of the same type of crop each year.

When in Canada I was speaking of the 4000 different uses of wood and I was told by a man, "You have it easy because you have all your wood to use," and the man said he did not have uses for his wood. Then I looked around his house. In his closet he had wire hangers. He had a wire fence around his yard with steel posts. Then I said, "It is not the possibility of utilizing—it is the desire."

When I heard your President say there is a scholarship to be offered to the man in the next year contributing the best work in forestry, I hoped it would not be along the line of the technical, alone; I hope it will be along the line of love for the idea.

LEHIGH UNIVERSITY HAS ACTIVE SPORTSMAN'S CLUB

A Sportsman's Club was organized at Lehigh University recently. The need for a Sportsman's Club became apparent while I was attending the University, at a considerable distance from home. A student away from home usually does not know where to gun and fish. However, an organized group can more easily secure needed information, arrange hunting and fishing parties and aid considerably in forest up-building.

The Dean and faculty members to the number of 16 are supporting the plan at Lehigh. The Club petitioned for a charter and the University granted it. The Lehigh Outing Club in deference to the newly organized club merged with us.

The first meeting of the new club was held in October, 1938 with over forty students attending. The club now embraces the following activities: Hunting, fishing, forest conservation, hiking, camping, winter-sports, trap and target shooting, archery and general outings. Speakers who are authorities in the various activities to be undertaken by the club are being sought.

The club obtained permission to hunt and fish in certain areas, and in return has aided in feeding game and stocking streams in Bucks, Northampton and Lehigh Counties.

The club has great promise for the future. Next year's membership is expected to be over 150 and in several years it is hoped that Lehigh will have a club rivaling Dartmouth's famous Outing Club.

ROBERT STOUDE,
President

FOREST LEAVES

The Forestry Club of Episcopal Academy

FEW schools in the country take as keen an interest in forestry as that shown at the Episcopal Academy at Overbrook, Pennsylvania. At that institution a club boasting one hundred eighty active members and a sizable roll of associate and life members is dedicated by constitution to the purpose of "learning about plants and trees, understanding their uses, and doing all that each member can for their protection and preservation."

Just as no Arbor Day at Episcopal could pass without fitting tree planting ceremonies, so no annual prize banquet would be complete without the award of the four Forestry Club Prizes to those students who have shown the greatest knowledge of trees, flowers, birds, and general nature.

The Club was first organized in 1921 when the school left the crowded precincts of Philadelphia proper and took residence on an attractive, well-planted estate in the suburbs. Multifarious tasks were necessary to adapt the new grounds to school purposes. As poison ivy and youth do not mix well, the club early undertook to remove the former. Later it carried on by helping to clear the trees from the area on which a new gymnasium was to be erected. Since that

time it has made its duty that of planting trees, shrubs, and flowers and providing funds for the care and preservation of the fine old specimens already on the grounds. Incidentally, one white oak on the premises is over three hundred years old.

The club's most ambitious venture was the planting in 1935 of one hundred fifty trees to celebrate the one hundred and fiftieth anniversary of the founding of the Academy. Among the plantings at that time was University Row, a stand of trees donated by and dedicated to various universities attended by alumni of the School. From Yale, for instance, came three beautiful young elms; from Haverford and Lehigh, oaks; from Princeton, a Norway spruce; and from the Morris Arboretum of University of Pennsylvania (to which the club makes many pilgrimages), trees of various types.

Unique also with this Forestry Club is the annual donation by "Eddie" Collins, Vice-President of the Boston Red Sox, who has often spoken before its members, of a bat to be presented through the Forestry Club to that player on the Varsity baseball team who makes the most base hits during the season.

The club is forever finding something inter-



esting to do. It contributes every year to the Save-the-Redwoods League. On Arbor Day last fall it planted on Academy grounds a seedling from the favorite barberry bush of John Burroughs in order to have close at hand a living reminder of the great naturalist.

The Forestry Club meets fortnightly and sponsors frequent speakers and illustrated talks on subjects of interest to nature lovers. Among the notables who have addressed the group have been Dr. Rodney H. True, Mr. Philip A. Livingston, Mr. H. Gleason Mattoon, Mrs. Albert C. Barnes, Dr. William W. Comfort of Haverford College, Mr. Samuel Scoville, Mr. Joseph C. Lincoln, Dr. William J. Phillips, and many others, equally well known for their interest in and knowledge of nature.

The club counts among its valued possessions a museum of natural objects and specimens, a nature library of a very practical kind, and various pieces of equipment necessary to its work about the grounds.

Some indication of the attitude toward nature taken by the organization is evident in the following poem written by a faculty member on the occasion of the tree planting in 1935:

DEDICATION

*No marble slab we offer here
To men whose lives have passed,
No bronzed urn, no gilded wreath,
No tribute coldly cast.*

*These seeds that into trees have sprung
A living story tell;
These seeds that God himself has sown
And man has tended well.*

*Their planting marks a glorious theme,
One hundred fifty years
Of joy in work, of trust in youth,
Of love and conquered fears.*

*But as they stand they symbolize
The growth that still must be—
Some higher goal, some fuller life—
The Task left you and me.*

The Forestry Building at The Pennsylvania State College is completed with the exception of the interior furnishings. It is expected that the building will be ready for use when the new year begins in September.

WESTTOWN SCHOOL RECORDS HISTORY IN SECTION OF TULIP

A cross-section of a large tulip tree records the history of the Westtown friends school. Several years ago one of the large tulips growing more than 220 years in the school's Southwoods was blown down. A cross-section of the stem about 6 inches in thickness and 4 feet in diameter was taken 30 feet from the base of the tree, kiln dried, polished and shellacked. Red lettering marks the development of the school and black the important historical dates of general interest. This unusual register occupies a prominent place in the school's front hall.



The stock survey of the public forest areas of Pennsylvania is about completed. When this information is assembled, it will be possible for the Department of Forests and Waters to know just what it controls in the way of timber and should form a basis for the development of practical management plans.

The Pine Barrens of Centre County, Penna.

(Continued from Page 3)

township in 1784, and so to him goes the distinction of having been the first settler in the Barrens. The township was so named because of the many half-moon signs blazed on the trees by the Indians to mark trails. The would-be first settler in Patton township was a son of Abraham Elder. He and his father traveled around to find a likely place, but when they had found one, a man from Fillmore, a mile or two away, turned up and told them in no uncertain terms that he did not want such a close neighbor; so Patton township was not settled until the Gray and Hartsock families located there in 1788. The Hartsock home later became a haven for runaway slaves on their way to Canada.

These early pioneers were soon followed by others and small settlements sprang up here and there. But it is impossible to trace the land to the original owner in every instance. Undoubtedly a good many settlers purchased their scattered claims directly from the Commonwealth. Some of these claims are still in possession of the descendants, but the largest part of the area was bought by the Pennsylvania Furnace Company, either directly or through proxies. Then the Roaring Springs Paper Company bought the land for lumbering purposes. They held their ownership until they sold to the Huyett and McNitt Lumber Company of Bellefonte around 1900. The last sale was made in 1923 to Colonel Theodore Boal, of Boalsburg. The colonel had hoped to sell the land to the state as a military reservation for the National Guard, but the deal did not materialize and the property is at the present time still part of the Boal estate.

While the name "Barrens" will, in all probability, always be applied to the region, it is really doing the area an injustice because it gives one the impression of barren and unproductive land. This is true enough of certain parts for agricul-

Top photo: . . . occasional pines . . .

*Second: . . . all that remains . . . the
tumble-down ore washer*

Third: . . . a tangled mass of scrub oak . . .

Bottom: . . . patches of aspens . . .



tural crops, but it is not true as far as forestry is concerned. Accounts of early settlers and travelers tell of the splendid growth of oaks, chestnut and pines which the "barren" land supported. The area northeast of route #322 and southwest as far as Scotia was well stocked with oak and chestnut. The Barrens themselves supported a heavy growth of white pine in a few of the lower places, and fine specimens of pitch pine with some virginia pine were distributed over the rest of the area.

The veil of mystery still clings to the origin of the name "Barrens." It must be assumed that the Indians christened the land thus, in their own language of course, when they found their corn patches relatively unproductive. Thomas Smith, Deputy Surveyor of Bedford County, who was surveying in Patton township in 1770, 14 years before the first settlers came, mentions the area south of Buffalo Run as "The Great Pine Barrens." And again, to quote excerpts from a survey report of July 26, 1784:

"... the leading warrant commenced at the S. E. white oak corner of the George Gabriel warrant in Benner township, where the line ran S 30 E 497 perches to a pine, thence ran S 35 E 191 to the Rock Iron Works land, thence southwestward 6 miles 177 perches, through what is known as the Barrens, to near the Pennsylvania Furnace Company land to a peak definitely ending with the James Newport warrant. The west line of James Newport was north 30 W 265 to a pine . . ."

The Barrens is one of Central Pennsylvania's favorite gunning places for deer, rabbit, grouse, turkey and ringneck pheasant. With the exception of grouse and rabbit, these animals and birds were scarce or absent during the mine working days for the good reasons that they were burned out and shot out. Instead there were more bear, fox, squirrel, raccoon and opossum.

It is impossible to speak of the Barrens without mentioning the iron industry, particularly since it is in part responsible for the present condition of the vegetative cover. Mining began before 1800 and increased steadily for a hundred years. The many furnaces springing up in and around the Barrens caused a steady drain of wood for charcoal. After the best had been taken for miles around many acres were cut a second time and oftener. The College Woodlot is said to be third growth. Expansion of local ore mining brought about an increase in coal consumption in Pittsburgh, where some of the ore was manufactured into iron, and this in turn increased the demand for mine timbers. Along

came increased building, railroad and telephone construction, so that the forests were combed again and again for their best products.

Then in 1885 the Pennsylvania Railroad opened a branch to Scotia Benore (known as River Hill in older days), and with it came annual forest fires. Some were small and some big, but each one did its share of damage. Only a few of the pines were able to persist and scrub oak, with its sprouting ability, took over the fire-cleared land. Man himself was almost wiped out along with Scotia in 1906 when the "Big Fire" threatened the town for over a day.

Scotia was a prosperous town in those mining days. It numbered about 400 people in 1895 and still counted 50 families in 1910, but mining had stopped a year before that because, as Carnegie had anticipated nine years earlier when he sold the property, it could not compete with the cheap ore from the Lake Superior mines. Many of the houses were sold in 1911 and carted away. The railroad was taken up in 1921, but a few of the original families did not leave until about 1924. The last house was torn down in 1937, and all that remains today, besides the ore pits, are some introduced shrubs and trees and the remains of an ore washer. (Fig. 4)

Although Scotia was a quiet and orderly town as mining towns go, it was responsible for the only murder committed in the Barrens. Bert Delige, a colored man, followed an elderly widow, Mrs. John Baudis, into the fields and killed her in October, 1910. He later confessed that he had assaulted her before the murder because her former husband owed him some money for operating a merry-go-round in Williamsport. When she recognized him, he killed her with a razor. He was later hanged in the Bellefonte jail yard.

Essentially the story of Scotia could be repeated to fit all the former mining towns of the region with the possible exception of Tow Hill. The Juniata Mining Company exploited the local ore deposits, but the town was no more than a settlement of a few Negro families, perhaps descendants of escaped slaves, and their main support came from growing flax rather than from mining. The nearest furnace bought what little ore they produced. The Negroes came to be known as Tow Heads in connection with the manufacture of linen from the flax they raised, and, since they lived on a hill, the place was later referred to as Tow Hill. The town is gone now, but the site may some day again teem with activity because there are deposits of fine white sand and fire clay in the vicinity.

It is not so far from there to the only water in the Barrens, outside of that collected in the ore pits and deep wells. It is known, or rather almost unknown, as Chimney Spring because of a tumbled-down chimney, remnant of an old house. The spring of soft water runs only a short distance before it disappears into the ground.

The lumbering industry too has its share of responsibility for the Barrens as they are today. While cutting began with the first settlers and perhaps with the Indians and was later followed by more or less haphazard cutting for mine timbers and charcoal, the first organized lumbering started in Civil War times in the Pennsylvania Furnace section. The Roaring Springs Paper Company cut extensively in the yellow pine area from Scotia to Fairbrook before 1900. Between 1908 and 1918 Huyett and McNitt, of Bellefonte, clearcut all that was left on the entire area. The logs were transported by tram road to the mill at Waddle and there manufactured into lumber, mine timber and staves. Moses Thompson started lumbering in 1898 between Waddle and Scotia, just outside of the Barrens. His grandson, George B. Thompson, who took over the business two years later, told the writer that it was necessary to cut in order to save the trees from the numerous forest fires started by the railroad. The crews were so careless that the Thompson family was forced to have every train followed by a rider to report fires. Mr. Thompson produced mine timbers, telephone poles and lumber at his mill in Altro until 1923 when operations were discontinued. All the rough lumber which was used in the construction of the Carnegie Library and the Schwab Auditorium on the campus of the Pennsylvania State College was cut in this area.

One of the old-timers relates that the loggers were followed by men who killed rattlesnakes. They did this in order to obtain the fat which was highly prized for medicinal purposes. They often killed eight or nine a day and made more money than the loggers did. One enterprising family collected pitch pine knots which were burned to extract the so-called pine tar. The burning process was similar to the one employed in the manufacture of charcoal. They peddled this tar throughout the region for use as either lubricating grease or medicine, as the occasion demanded.

If the first man who crossed the Barrens had written down his impressions we could now read of the splendid growth of pines and oak which covered hills and valleys. Today we have a tan-

gled mass of scrub oak, dogwood, willow and berry bushes, with occasional patches of aspen and pine getting a foothold. Scattered here and there are the stumps of former giants. Who is to blame for the desolate and depressing remains of the once fruitful Barrens? Surely the mining railroad carries its share by starting many of the numerous fires. Ruthless cutting left only the undesirable species and finally exposed the soil to the processes of deterioration. Both carry a large part of the burden, but they alone can not be blamed. The present Barrens are rather the result of the interaction of a number of factors. The more or less barren nature of the sandy soil, its low water-holding capacity and the fast leaching of nutrients should also be considered. Instrumental too, in preventing an early regeneration, may have been the increase of grasses and shrubs which allowed a larger population of rodents, rabbits and deer because of their feeding habits and preferences.

Given proper protection nature will undoubtedly heal the wounds. But without help it will take a long, long time. And even then, should majestic forests once more clothe the hills, they will still be referred to as the "Barrens," the land of mystery.

DEPARTMENT CHANGES

Since the advent of the James administration, there have been several changes in the list of district foresters. T. G. Norris has supplanted W. M. Dunlap, who had charge of Micheaux Forest with headquarters at Fayetteville. W. L. Byers replaced Forrest F. Weight at McConnellsburg. While George M. German now has charge of the Tuscarora Forest in place of B. D. McPherson.

E. C. Pyle is back at Stroudsburg in the position he held previous to 1935, replacing John B. English, while C. E. Zerby is now in charge of the Gallatin Forest with headquarters in Johnstown in place of Thomas Gray. P. H. Mulford who was at Milroy has been transferred to Wellsboro in charge of the Tioga Forest, replacing S. J. Kern. David S. Nace now has Mulford's position at Milroy. R. B. Winter is back at Mifflinburg, replacing S. W. Chubb.

Charles E. Bear, formerly district forester at Emporium, is now Deputy Secretary of the Department of Forests and Waters, while L. G. Barnes has been put in charge of the Elk Forest. George J. Peters, formerly district forester with headquarters in Williamsport, has been supplanted by H. S. Metzger.

Bring Business Back

GEORGE H. WIRT

(Continued from Page 2)

bly 150 would completely cover the acre.

Naturally, common sense would teach one that every square foot should be kept covered with leaves, that only valuable kinds of trees should be on the area, that only sound, straight, thrifty trees should be favored. Everything else becomes a weed and should be removed. It takes no science to see that if an acre is covered with trees of any age, as they grow they will in time crowd each other. They may become so crowded that they use only a small portion of the sun, wind and rain available and therefore produce very little wood. This condition must be changed so that each tree has a chance to do its best and some trees must be cut out. It must be remembered that if the trees are too far apart there will be a decrease in production, so there must be a happy medium maintained between giving the trees a chance to grow as fast as they will and yet not to be retarded by growing into each other.

This is just a matter of knowing what nature does and then helping her to do it in the best way for the benefit of man. Cutting out straight trees and leaving the crooked and defective ones, cutting the live ones and leaving the dead ones, cutting the valuable trees and leaving the weeds is not good common sense and yet it is the way most Pennsylvania forests have been managed.

3rd. The third proposition for increasing wood production in Pennsylvania is that planting forest tree seedlings must be done extensively both in existing forest areas to fill up the gaps and in unused farm lands to increase the forest area. Forest tree planting in Pennsylvania should be at the rate of at least 150,000,000 seedlings a year instead of only nine or ten million trees as now being planted.

What does this deficiency in wood crop mean to Pennsylvania's citizens financially?

1st. Forest land owners in Pennsylvania are not receiving money for wood which might be raised on their land to supply local demands. This loss amounts to approximately \$10,000,000.00 annually.

2nd. Laborers living within reach of the forest areas of Pennsylvania and those who might work in the forest lose the opportunity of harvesting the wood crop which would meet the

State needs. This loss to laborers is approximately \$30,000,000.00 annually.

3rd. The consumers of wood in Pennsylvania are not only sending this \$40,000,000.00 a year out of the State for the use of the people of other states but in addition are spending \$50,000,000.00 annually for freight, most of which, also, goes into other states.

4th. Farmers and business men in Pennsylvania are losing the business that the \$90,000,000.00 expenditure, if made at home, would mean to them. Farms are abandoned and business is closed.

5th. Non-producing areas cannot carry their share of taxes, therefore less than half the area of the State has to carry its own burden and that of the forest area as well.

6th. Industries which depend upon a steady supply of raw wood do not locate in Pennsylvania because of the deficiency in wood supply. This means a lack of opportunity to increase the wage payroll within the State, the opportunity of labor for those citizens already here and of bringing new population into the forest areas.

7th. The closing of one industry in a Pennsylvania forest area resulted in a decreased income to a branch railroad of something like \$50,000.00 a year. This situation has been multiplied many times throughout the State because of the deficiency in forest crop.

It is the province of the State Government of Pennsylvania, through the Department of Forests and Waters, to do everything it can, not only to protect forest areas from fire, fungus diseases, insects and other dangers, but to induce landowners to grow and harvest forest crops. The Legislature has formulated very definite legislation upon this subject and apparently the people have approved the policy.

The problem can be stated simply. Ten million people want more business, that is more labor, more wages and more exchange of commodities. They need and use annually a tremendous quantity of wood which can be grown as a crop on half the area of the State not needed for any other purpose. If this area is covered with trees and protected, nature will produce wood. The growing, harvesting and transportation of this raw product will furnish an opportunity for much labor. There is a home market for from seven to ten times as much wood as is now being provided from local sources. Why must local land lie idle; sun, wind and rain be wasted; this business opportunity overlooked?

The Annual Meeting

(Continued from Page 6)

Russell Smith, Dr. J. C. Starbuck, Edwin A. Hoopes, Grahame Wood.
Erie—Miss Dorothea Conrad.
Franklin—Theo. W. Wood, J. A. Aughbaugh, H. H. Chisman, Jesse H. Thompson.
Huntingdon—Mrs. C. M. Taylor.
Indiana—S. J. Sides.
Jefferson—W. N. Conrad.
Lackawanna—Nicolai H. Hiller, J. C. Platt, Col. L. H. Watres, H. C. Reynolds, John G. Hill.
Lancaster—Miss Mildred M. Jones.
Lebanon—William C. Freeman.
Lehigh—H. S. Snyder, Dr. M. J. Backenstoe.
Luzerne—Cornelius B. Kunkle, Samuel D. Warriner, Mrs. C. M. Young, Col. Thomas H. Atherton, Stanley Mesavage.
Lycoming—Henry E. Kirk.
Mercer—N. G. Brayer.
Mifflin—F. W. Culbertson.
Monroe—J. A. Seguine.
Montgomery—Mrs. A. C. Barnes, Ralph P. Russell, Mrs. Robert C. Wright, Fred J. Doolittle, Philip A. Livingston, Francis R. Taylor.
Northampton—Prof. R. W. Hall.
Northumberland—Charles Steele.
Perry—Benjamin McPherson.
Philadelphia—Samuel N. Baxter, Wm. Clarke Mason, Clement Mesavage, Benjamin Rush, Dr. R. H. True.
Pike—Hon. Gifford Pinchot.
Schuylkill—Samuel L. Kurtz.
Somerset—V. M. Bearer.
Susquehanna—Dr. Frederic Brush.
Union—David Libby.
Warren—Warren W. Beaty.
Wayne—Hon. Alonzo Searle.
York—Edgar P. Kable, H. C. Ulmer.

Greetings from G. Albert Stewart

Since Secretary G. Albert Stewart of the Department of Forests and Waters found it impossible to be present, George H. Wirt, Chief Forest Fire Warden, was designated by him to represent the Department. His message was substantially as follows: "Representing the Secretary of the Department of Forests and Waters, I want to extend to you his greetings and best wishes and to say a few words for him respecting the policy of the Department of Forests and Waters for the next few years. While I would rather be in a position to speak for myself, I am distinctly representing the Secretary of the Department. I am

quite sure that the Secretary means just what he says when he told me I should extend to you his greetings and best wishes for he wants the very closest cooperation that can be developed between The Pennsylvania Forestry Association and the Department of Forests and Waters. With that in mind, I think I am safe in saying that if and when this Association develops a definite idea that you would like carried out in Pennsylvania with respect to forest problems or if you have any criticisms or suggestions, he will be more than glad to have you present them to him. And I know he will receive them with a favorable attitude and will do whatever he possibly can to push forward any beneficial policy which this Association may desire.

"There is no question but that the present administration in Harrisburg has definitely stated that they propose to economize wherever and whenever they possibly can, in order to curtail the expenditure of tax money. It was with that idea that one of the first things the Secretary of our Department did was to make the statement that there would be no additional purchases of forest areas during the present administration. You, of course, remember that the Association was in back of a 10 million dollar bond issue. I feel reasonably sure that if the necessary resolution for the second legislative session had been submitted it would not have been approved by the present administration on the grounds of economy. You, of course, understand that if there is sufficient demand on the part of the public for a change in this policy there is reason to believe that the administration will respond to this plea.

"One of the very important policies of the Department will be the extension of the management plans to which the President referred in his report. During the last six years the CCC foresters with CCC boys have been gathering what we know as stock survey data. That stock survey is just about completed and it is hoped that in the near future the data will be in the hands of the district foresters and their associates when they may begin the formulation of specific forest working plans and a definite policy may be established for the forest areas in the Commonwealth.

"One phase of the policy of the administration is of particular interest to the Association and that is the matter of recreational areas. The Secretary has expressed himself very definitely, stating that because of the necessity for economy the policy of the Department for the next few years

should be maintenance of the present recreational facilities but no developing of additional areas unless there is a very definite need in a particular forest area.

"The Department will do everything it possibly can to advance the forestry interest in the State and to maintain the fine reputation which the Department has had in the past years. The Secretary I know will appreciate your cooperation and your help. I am very glad to be here in this capacity and I extend to you a very kind invitation to come to Harrisburg."

Following these remarks the retiring President called upon Mr. John W. Hershey to report his success in germinating seed which was collected last fall from several Penn's trees. Mr. Hershey reported that about 20,000 acorns from trees that are known to have been living when William Penn landed and which are still in a thriving condition have been planted and show promise of a very high germination percentage. These seedlings are to be offered at cost as pedigreed offspring of known healthy trees, the expectation being that with such verility in the parents the seedlings should be above normal in growth and resistance. The Garden Club of America is deeply interested in this experiment and it is believed as the news spreads that other organizations will be interested in buying and distributing some of these seedlings.

The meeting was then turned over to Mr. Wilbur K. Thomas, the newly elected President of the Association. Mr. Thomas in introducing the speaker of the afternoon, Professor Adelbert Ebner of the University of Munich, Germany, said in part: "I consider it a special honor that has come to me today to introduce to you an old friend with whom I became acquainted in the work of forestry; a man who has been a great assistance to forestry and foresters who have visited central Europe to study the forestry programs of that area. Our friend has been over here about three months revisiting old places which he knew when he came over as a student a few years ago. At that time he got an old Ford car and has seen more of America, I dare say, than we ever hope to. He is deeply interested in developing a true spirit of international cooperation, in sharing information regarding forestry work because of its economic and social aspects. It is therefore a great pleasure to me to introduce to you Dr. Ebner, Professor of Forestry at the University of Munich, Germany."

Following this most interesting talk the meeting adjourned.

Treasurer's Report

At the Annual Meeting of The Pennsylvania Forestry Association, the Treasurer of the Association submitted the following report of finances for the year ending December 31, 1938:

Balance on hand December 31, 1937 ... \$ 17.81

RECEIPTS

Dues	\$1449.00
Forest Leaves	30.65
Interest, Tax Refund and Incidentals	376.02
Repayment of Advance—Mortgage Lien	3500.00
Income from Investments	1395.29

TOTAL

DISBURSEMENTS

Rent	\$ 325.00
Salary	920.00
Forest Leaves	776.31
Treasurer's Bond	11.00
Postage, Stationery and Office Expenses	432.39
Legal Expenses	62.75
Annual Meeting	85.50
Interest	41.39
Loan—Cheltenham National Bank	4000.00

TOTAL

Cash Balance, December 31, 1938

ROY A. WRIGHT, Treasurer.

A NEW DISEASE OF PLANE TREES

No tree seems to be immune from serious attack by insects and diseases. The London plane tree, more commonly called the Oriental plane, a popular shade and park tree in the larger cities of the East has been considered the best for city conditions because of its immunity from disease and its ability to withstand adverse growing conditions. In 1930, however, a disease of these trees appeared in Lower Merion Township. By 1933 it had crossed the boundary into Philadelphia and also appeared in Baltimore. Recently, two cases of the disease were found in Newark, New Jersey.

This fungus is identified as one of the Cere-tostomellas and apparently is as serious as Dutch elm disease on the elms. It has already killed 10,000 plane trees in the infected area and since there is no known control it is quite possible that it will wipe out all of them. This would mean the loss of some of the finest trees in Fairmount Park and since there are over 100,000 plane trees in Philadelphia and environs it is a serious menace.

Our Program

1. The adequate protection of all Pennsylvania forests from Fire, Fungi, and Insects.
2. The personnel of the Department of Forests and Waters to be chosen and retained on a basis of efficient service only, in order to guarantee permanency of policy and continuity of action.
3. The management of the State forests so that they may supply the permanent needs of the people not only for continuous timber protection but also for recreation, hunting and fishing.
4. Greater co-operation between the departments of the State Government for protection of the beauty of the public lands.
5. Adequate biennial appropriations for the purchase, protection, and development of the State forests.
6. The education of the public, corporations, sportsmen, and forest land owners with respect to the value of our forests and the necessity for their development and proper utilization.
7. The planting of trees valuable for lumber on all waste and idle lands and the continued distribution of seedlings by the State.
8. The education of our children in forestry in both public and private schools. A love and appreciation of the forests tend to a better type of citizenship.
9. The establishment of town and county forests which will bring pure air, pure water, and recreation close to the centers of population.
10. The preservation of the few remaining areas of virgin timber in Pennsylvania.

THE PENNSYLVANIA FORESTRY ASSOCIATION

Organized in 1886

1733 COMMERCIAL TRUST BUILDING

PHILADELPHIA, PA.

I desire to support the activities of The Pennsylvania Forestry Association for the preservation and development of forest lands, and enclose a check for \$..... to cover membership for the ensuing year. One dollar of this amount is to pay for yearly subscription to FOREST LEAVES.

MEMBERSHIP CLASSES	
Annual member	\$3.00
Club membership	5.00
Sustaining member	10.00
*Contributing member	20.00
Life member	100.00
Perpetual member	250.00

*If paid for five consecutive years the person automatically becomes a life member.

Name

Address

Date State

FOREST LEAVES, the Association's magazine, is sent to members in all classes. Our program will be found on the inside back cover.

THE SUMMER MEETING
OF
THE PENNSYLVANIA
FORESTRY ASSOCIATION



The subject of the meeting will be Wildlife and Forest Management. We hope you will plan to attend. Detailed information will be sent you shortly.

FOREST LEAVES



DEPT. OF FORESTRY
LIBRARY
The Pennsylvania State College

OCTOBER 1939

THE PENNSYLVANIA FORESTRY ASSOCIATION

CONTENTS

A Community Forests Program	1
<i>T. Noel Stern</i>	
The Forester Must Sell Forestry	3
<i>Louis W. Fuess</i>	
Editorials	4
Summer Meeting in Cook Forest	5
Mammal Populations and the Forest	6
<i>Logan J. Bennett</i>	
The Sportsman Looks at Conservation	7
<i>John C. Youngman</i>	
Forest Management and Wildlife	9
<i>W. E. Montgomery</i>	
The Development of Forest Areas for Wildlife	11
<i>James N. Morton</i>	
Our Forests and Wildlife Crops	13
<i>Seth Gordon</i>	
The Third Responsibility	15
<i>M. A. Mattoon</i>	
Penn Oak and Walnut Seedlings	17
<i>John W. Hershey</i>	

THE PENNSYLVANIA FORESTRY ASSOCIATION

Founded in June, 1886

Labor to disseminate information in regard to the necessity and methods of forest culture and preservation, and to secure the enactment and enforcement of proper forest protective laws, both State and National.

Annual Membership Fee, Three Dollars

One Dollar of which is for subscription to FOREST LEAVES

Neither the membership nor the work of this Association is intended to be limited to the State of Pennsylvania. Persons desiring to become members should send their names to the Chairman of the Membership Committee, 1007 Commercial Trust Building, Philadelphia.

President—WILBUR K. THOMAS

Honorary President—SAMUEL L. SMEDLEY

Honorary Vice-President—ROBERT S. CONKLIN

Vice-Presidents

WM. S. B. McCALEB

DR. E. E. WILDMAN

EDWARD C. M. RICHARDS

FRANCIS R. COPE, JR.

EDWARD WOOLMAN

DR. RODNEY H. TRUE

Secretary—H. GLEASON MATTOON

Treasurer—R. A. WRIGHT, C.P.A.

FOREST LEAVES

PUBLISHED QUARTERLY

Entered as second-class matter at the Post-Office at Wayne, Pa., October 22, 1935, under the Act of March 3, 1879
Subscription \$1.00 per Year

VOL. XXIX—No. 4

WAYNE, PA., OCTOBER, 1939

Whole Number 295

A Community Forests Program

T. NOEL STERN

DURING the past two years the writer has been investigating community forests. In the course of his examination he visited and studied forests in New England, New York State and Pennsylvania. He has worked with leaders in the Federal and State forestry services and with experts in local government who have a concern for an effective program of community forestry in the Commonwealth of Pennsylvania.

The general public and most local officials in our state still remain profoundly ignorant of the purpose of community forests and of their extent and growth. When the average man hears the expression "community forestry," his reaction is likely to be: "It sounds good to me, but just what is a community forest?"

Therefore, at the risk of stating a thing trite to Pennsylvania Forestry Association members, I would like to take this opportunity to define a community forest. It is a woodland tract owned by a township, borough, city, county, or other unit of local government, and used for benefit of its citizens. The benefit may be either social, economic, or financial.

Dr. J. Horace McFarland, who last year organized a community forest association in Eagles Mere, Pennsylvania, says, "Community forests, especially in Pennsylvania, are common sense applied to the community. They tend to restore the forest cover without which rivers dry up, crops fail and desert comes in. They are also profitable in several directions as they protect water supply, add enduring value to the land they cover, and afford recreational opportunity. They aim toward better health and lower taxes." He asks, "Why not community forests in every Pennsylvania county? William Penn left us 62 per cent of forests. We ought, we must, protect the land that feeds us, that we claim we love."

This plea evokes questions pertinent to any plan of action for the development of community

forests, and basic to our discussion. How long have we had community forests in Pennsylvania? how many are there? where are they? and how extensive is their area? Community forests have been in existence in Pennsylvania longer than one might imagine, and there are more than one would expect. In 1812 five acres were acquired on Faire Mount, now the center of present-day Philadelphia. Today Pennsylvania local government forests number 97 at the very least; are located in 42 counties; and have an estimated area of over 75,000 acres.

The following table, based upon those forests of which the date of establishment is reported, shows the slow growth of Pennsylvania's community woodlands up to about 1920 and the accelerated rate since then.

Table I

Establishment of Community Forests	
<i>Period of Establishment</i>	<i>Number of Forests Established</i>
1810 - 1829	1
1830 - 1849	1
1850 - 1869	1
1870 - 1889	0
1890 - 1899	3
1900 - 1909	3
1910 - 1919	7
1920 - 1929	24
1930 - 1939	27

The Pennsylvania community forest movement is among the oldest in the country. New York State official publications record no acquisitions prior to 1909; the strong Massachusetts movement began no earlier than 1914; and Wisconsin started its program in 1928. However Newington, the first New Hampshire forest, was established in 1710 and four others were acquired during the eighteenth century. Indeed thirty New Hampshire forests, or over one third of the state's total, were purchased or received in gift before beginning of the present century.

Pennsylvania is typical of most states in the Union in that the greatest proportion of community forests were acquired in the 1920's and 1930's. The year in which the greatest number of Pennsylvania purchases are recorded is 1932.

Statistics gathered by the state and federal governments, the Pennsylvania Forestry Association, and the writer, show that Pennsylvania ranks fourth among the states in respect to number and area of local forests. New York, California and Massachusetts precede us in number; while Wisconsin, Oregon and New York are ahead in regard to acreage. New York State has almost four times as many forests and over twice as great an area as our state; yet we outdistance all our other neighbors in community forest number and area.

The following table summarizes existing data on number, acreage, and classes of ownership into which Pennsylvania community properties fall.

Table II
Community Forest Number, Acreage, and Classification

Forest Use	No. Forests Reported	No. With Area Reported	Areas Reported (Acres)	% of Total Area	Mean Avg. (Acres)	Median Avg. (Acres)
Watershed	52	50	41,031	57%	821	99
Park, Recreation	41	36	11,868	16%	330	60
Timber	2	2	18,725	25%	—	—
Game	1	1	1,107	2%	—	—
Prison Farm	1	1	90	—	—	—
Total	97	90	71,822	100%	798	90

Estimated total area of 97 forests reported 76,000

Forest holdings of individual Pennsylvania municipalities and counties range in size from one acre to 22,729 acres. The average size, if one takes the "mean" average, is 798 acres, which is not too small an area for successful forest management. However, the commonest or most usual size of Pennsylvania community forests is much below the mean or arithmetic average. The commonest acreage, as expressed by the "median" or the middle point in a scale of sizes, is only 90 acres. This is rather small for forest management. However, the famous New Hampshire town forest of Danville is only 77 acres in size.

It will be noted that ninety of the ninety-seven community forests which report their acreages, give 71,822 acres as the total area of our Pennsylvania community forests. It is estimated that all ninety-seven forests known to exist contain 76,000 acres. This is not a vast area but is one

sixth as large as the national forest area in the state, and one eighth the size of the commonwealth's game lands. As will be shown later, the estimate is more than conservative and errs on the side of understatement.

Community forests of the state are used nearly altogether for the purpose to which they are best adapted, namely for watershed protection, parks and recreational centers, and for growing of timber to serve economic, financial and conservation ends. Nearly half of them (52 forests) were established for watershed purposes; almost one half (42 forests) were acquired as park or recreational grounds. One has been established as a game and wild-life preserve; another serves in part as a prison farm forest; while two others have been turned over to timber production. Of the total acreage 57% is in watershed cover; 25% is being grown as timber; and 16% is serving as park and recreational centers.

The greatest number of community forests and the greatest percentage of community forest acreage is to be found in watersheds of municipal

water companies. Park forests are almost as great in number but are smaller in size, and therefore take third place in reported area. In fact, when grouped together, all Pennsylvania park and recreational forests fill less space than the two great timber forests owned by the Philadelphia Board of City Trusts in Schuylkill and Centre Counties.

Forest management has not made much progress worth noting in the majority of Pennsylvania's community forests. In only one of them, the 4500-acre tract of the City of Reading in Berks County, is there any form of forest management.

The statistical data presented in Table II above does not really give a full picture of the situation, for the forests are classified only according to their primary use. At least twelve of the 97 Pennsylvania forests are known to have

(Continued on Page 19)

The Forester Must Sell Forestry

LOUIS W. FUESS

QUITE frequently it has occurred to me that we, who are actively engaged in Forestry, are exceedingly lax in the matter of advertising our profession and selling ourselves and our services to the public. In other words, we do not take full advantage of all opportunities for publicity when they present themselves, and rarely do we go out of our way to create such opportunities. In making this statement no particular criticism is being directed at any one Forester or group of Foresters, for we are all more or less faulty in this matter. Few persons fully realize that publicity is an important medium toward the advancement of Forestry.

There are many organizations representing or dealing with Forestry, but seldom do any of them make front page news in the paper. Many persons may recall certain items, particularly articles written by the Forest Service, concerning exceptionally large fires raging in Michigan, Idaho, Washington, or California. Notices are also to be found announcing meetings of various Forestry associations and societies, and occasionally there appear items of local interest pertaining to parks, recreational areas, and scenic trips. But how often does Forestry get its just share of publicity when it comes to matters such as the present salvage job being performed in the hurricane area in the New England States; the reforestation program and the soil conservation work being carried on in the TVA? Is there very much said about the millions of forest trees planted annually with seedlings supplied by practically all the states? In all of the present flood control propaganda involving dam construction, flood wall, and dyke building, where does the information appear that forests, protected from fire, young forests growing, or idle areas being reforested are also factors in water conservation and flood control? Or how often is a speaker included in a winter series of educational talks? It is true that all of these things are covered in technical magazines and articles, but Mr. and Mrs. Average Citizen do not read them.

We all use the argument that we are too actively engaged in every day duties to give much time to publicity. There is also a contention that Forestry is not spectacular enough to make the newspapers and that we must reach the public through magazines, articles, and word of mouth.

Others believe that it is only through the membership in organizations interested in Forestry that our gospel can be preached so that the preaching will fall upon interested parties.

If this latter assertion is true, then we in Forestry are failing to take advantage of an opportunity at hand for Pennsylvania has just the organization that is needed to reach persons interested in Forestry. That organization is, of course, the Pennsylvania Forestry Association. The small number of members in this worthwhile group shows plainly we have not been active enough in the Association and have been negligent about securing members from the roll of persons interested.

If we pause to consider the various phases of Forestry in which different groups or persons are interested, it can readily be seen that many people are involved. Since Forestry includes among other things, game production, water conservation, forest recreation, soil erosion, and production of forest products, it seems logical to believe that anyone interested in one or more of these particular items, would be interested in becoming a member of the Pennsylvania Forestry Association.

To analyze the proposition a little more carefully, let us look at it this way. When considering the matter of hunters and fishermen, just who benefits by the forests because of the fact that they support fish and game? In the first place, there is the large army of hunters and fishermen who is most directly benefited because of the fact that it is the recipient of the sport and pleasure derived from the pursuit of the forest fish and game. This large group of people spends thousands of dollars annually on equipment and the construction and maintenance of camps and cabins. Why, therefore, is it not reasonable to expect that many of these hunters and fishermen would become members of the Association if they were properly informed that the Association is endeavoring to aid in supplying their needs and protecting their investments? Then, too, there is a secondary group of people which benefits from the presence of forest fish and game. This second group includes sporting goods stores, food stores, clothing stores, garages, gas stations, restaurants, hotels, boarding houses, etc., in the com-

(Continued on Page 24)

FOREST LEAVES

Published quarterly by
The PENNSYLVANIA FORESTRY ASSOCIATION
Disseminates information and news on forestry
and related subjects.

PUBLICATION COMMITTEE

E. F. BROUSE, *Chairman*
SAMUEL N. BAXTER DR. RODNEY H. TRUE
CHARLES B. CADWALADER PHILIP A. LIVINGSTON

The publication of an article in FOREST LEAVES does not necessarily imply that the views expressed therein are those of The Pennsylvania Forestry Association. Address all correspondence to Wayne, Penna., or to the Editor, 1007 Commercial Trust Building, Philadelphia, Pa. Kindly notify us of any change in address.

OCTOBER, 1939

An Important Forward Step

IN this issue FOREST LEAVES takes great pleasure in presenting a series of articles which may well be regarded as of historic importance.

Last month, at its summer meeting at Cook Forest, the Pennsylvania Forestry Association had as its topic Wild Life and Forest Management. Speakers well qualified by position and experience discussed phases of the problem in a series of talks which were enjoyed by all present.

The addresses embrace material the importance of which extends far beyond the group present at the meeting. The various speakers have prepared broad digests of their chosen topics for inclusion in this issue of FOREST LEAVES, which has been delayed to permit their inclusion.

The following pages will, we are sure, give our readers an insight into a new attitude toward conservation—constructive cooperation between the forester and the sportsman. One goal has been set, and methods will be found to reach it.

The resolution included in the general report of the meeting gives promise of the development wanted by every sincere conservationist—a co-ordinated program of all agencies who deal with forest, recreation and game problems in Pennsylvania.

Four

Penn's Tree Seedlings

EVER since Dr. Edward E. Wildman's book, "Penn's Woods," was published in 1932, listing many of the trees now living which were alive when William Penn landed and telling something of their history, there has been much speculation as to the reasons for their longevity. Obviously, they must possess certain inherent qualities which aid them in warding off attack by insects and diseases and which have brought them through over 250 years of life in a healthy condition. It can not all be laid to fortunate circumstances.

Since geneticists are agreed that certain trees combine qualities of long life, sturdiness, and ability to withstand adverse conditions, and since these trees have demonstrated these qualities, the Pennsylvania Forestry Association a year ago decided to collect seed from them to propagate, feeling sure that these qualities would be transmitted to their offspring. We feel it wise to continue these strains not only because of the historical significance of their parents but also because they should not be allowed to die out.

We now have 1,700 burr oak seedlings and 500 white oak seedlings ready for distribution. They are to be sold at cost of growing in the hope that they will be planted throughout the State. The pedigree of each seedling is known and will be furnished to the purchaser. The prices are:

12 Seedlings	\$ 2.00
50 Seedlings	\$ 6.00
100 Seedlings	\$ 9.00
1,000 Seedlings	\$50.00

It is expected that many clubs and individuals will want some of these seedlings to plant for future memorial groves or as specimens. Unquestionably, many members of The Pennsylvania Forestry Association also will want to buy some of these seedlings. Since the number is limited, it is important that orders be received this fall even though the trees preferably should not be planted until spring. Fall planting is satisfactory but they will have to be guarded against injury by rabbits and mice.

Anyone wishing seedlings should send his order to the Secretary of the Association together with a check for the correct amount.

FOREST LEAVES

Summer Meeting in Cook Forest

Speakers Stress Need for Co-ordination of Forestry and Game Management

OVER one hundred foresters, sportsmen, conservationists, and recreationists attended the 53rd Annual Meeting of The Pennsylvania Forestry Association held at Cook Forest on September 22 and 23. The keynote address on the subject, "Wild Life and Forest Management," was ably presented by Francis R. Cope, Jr., farmer, educator and conservationist of Dimock, Pennsylvania, who pointed out the conflicting and yet not insurmountable differences of opinion which have arisen among the many groups that are interested in developing the forest areas of the State for the benefit of the citizens. He urged greater intercourse and exchange of ideas among these groups.

The meeting was called to order on Friday by President Wilbur K. Thomas of the Association, who greeted the members and urged them to enter it in a spirit of tolerance and fairness. Among those present were Seth Gordon, Executive Director of the Pennsylvania Game Commission; Reginald D. Forbes, Director of the Allegheny Forest Experiment Station; M. A. Mattoon, Assistant Regional Forester of the United States Forest Service; R. Lynn Emerick, Acting Forester of the Pennsylvania Department of Forests and Waters; Professor Victor Beede, Head of the Department of Forestry at Pennsylvania State College; Leo Luttringer, Jr., Editor of the Pennsylvania Game News; and many other foresters and game enthusiasts.

After a trip around Cook Forest Park which comprises 6500 acres and has a beautiful stand of primeval hemlock and white pine, the principle addresses of the evening were given. They all had as the main topic, the integration of the programs for forest development, game production, recreation, streamflow control and parks. Mr. M. A. Mattoon spoke of the place wildlife management has in the administration of the Allegheny National Forest, while W. E. Montgomery brought out forcibly and effectively the fact that the Department of Forests and Waters in its program is giving more and more thought to the value of wildlife to the forests. Mr. Gordon presented some interesting figures on the production of game in the state forests and upon the value of the food and fur which is taken



A scene in part of the 6500 acres of Cook Forest Park, visited by the Association last month

from the forest areas of the State by the hunters each year. Mr. James N. Morton, Chief of the Division of Game Land Management, gave an interesting and instructive talk on game life and habitat and the variety of forest cover needed to provide food, shelter and protection.

Following these talks, John M. Phillips of Pittsburgh, former President and "father" of the Pennsylvania Game Commission, spoke eloquently upon the part Thomas Liggett of Pittsburgh had played in saving the Cook Forest State Park for the citizens of the State. Mr. Liggett ably assisted by Mr. Phillips was responsible for the raising of \$200,000 toward the purchase

(Continued on Page 23)

Five

OCTOBER, 1939

Mammal Populations and the Forest

LOGAN J. BENNETT

ON March 1, 1938 the Pennsylvania Cooperative Wildlife Research Unit was organized by the Pennsylvania Game Commission, The Pennsylvania State College, and the United States Bureau of Biological Survey. The Unit is centered in the Agricultural Experiment Station, The Pennsylvania State College. The work of the research unit is to carry on life history, ecological, and management studies of Pennsylvania wildlife in order that information may be obtained for the proper preservation and increase of the more desirable species.

The research program undertaken by this research organization is more or less evenly divided between projects concerning animals found on agricultural lands and those living in the forests. Although a research project may center on an ecological investigation of a single game mammal of the forest, the actual study in almost all cases has many ramifications that include detailed life history and management studies of a score of birds and mammals as well as associated research on the flora of the forest.

As our forest studies progress we realize more and more the presence of unknown relationship between mammal populations and the forest. Preliminary population studies of mice in various parts of Centre and Huntingdon Counties, Pennsylvania this past spring revealed mouse populations ranging from 75 to 200 per acre. These animals eat vegetable food for the most part and in the course of a year the total food consumption is great. Ruffed grouse, white-tailed deer, wild turkeys, squirrels, cottontails and numerous non-game birds and mammals are found living in the same environment. How do such mouse populations affect the other animals and the forest? Is it possible for high mouse populations to retard the recovery of over-browsed deer range after the deer population has been reduced? Does the over-browsing by deer and the elimination of ground cover force many other animal species to utilize and damage plants of the forest not usually used by them? Dozens of questions of this type are not answerable at present. Perhaps some day these and other questions can be answered.

The value of openings or edges for many species of wildlife of the forest has been demonstrated many times. In many parts of central

Pennsylvania old fields are returning to forest cover. Near State College on many old fields Virginia pine occupies such areas in a relatively short time. The foresters are anxious for those old fields to be planted to more desirable tree species in order that a more profitable crop may be harvested in a shorter period of time. Wildlife and forest researchers at The Pennsylvania State College are cooperating in an effort to develop plantings in such areas to achieve that end. Experimental plantings have been made to determine if desirable plantings can be made to avoid heavy losses by rodents in those old fields. The plantings are being made with respect to existing cover in the fields and adjacent stands of timber. The existing cover forms the homes for many rodents that in numerous cases have damaged ordinary plantings to such an extent that non-productive competitive species have been the survivors. The experimental plantings in the old fields have created edges between existing woody cover and the plantings. In those experimental fields one finds desirable tree species for forestry and wildlife, as well as a distribution and arrangement of plants for maximum protection from invading animals and plants. This is one example of foresters and wildlife men trying to solve a difficult problem to the satisfaction of all interested groups.

The proper management of lands for longleaf pine in Georgia and Florida has proved that the production of longleaf pine and bob-white management go hand in hand. Bob-white studies in Texas have brought out dependent relationships between the proper management of numerous animal and tree species for the benefit of wildlife and forestry. On the prairies in the West and Middle West wild duck production has improved as grazing practices and land utilization have been more wisely carried out. These are merely illustrations to show that cooperation between foresters, wildlife workers, and agriculturists is necessary to achieve the goal of proper forest and land management.

In an attempt to solve many of the forest mammal management problems in Pennsylvania the Pennsylvania Cooperative Wildlife Research Unit is utilizing the knowledge and aid of foresters, wildlife workers, agronomists, agriculturists, and economists.

The Sportsman Looks at Conservation

JOHN C. YOUNGMAN

WHEN a speaker takes the platform at a meeting such as this, the audience must feel like an attorney in court when a strange witness appears on the stand. Three questions immediately arise: who is he, whose side is he on, and what does he propose to prove? For brevity sake, therefore, let me state that I am a practicing lawyer from Williamsport, Pennsylvania, who likes to hunt and fish and all that I propose to prove, regardless of any high-sounding titles given this address, is simply that the forestry men do not have to be afraid of the hunters and fishermen otherwise designated as the sportsmen.

The Pennsylvania Federation of Sportsmen's Clubs, of which I happen to be President, is a federated organization of the organized sportsmen's clubs and associations of the state. We have a membership of 200,000. We are most frequently designated as the "Voice of the Sportsmen," but our activities go much further than merely to express our opinion. Until quite recently the sportsmen have had their fingers crossed with reference to the forestry men and

vice versa, but something has occurred which has changed this picture completely. The proof of it is this meeting, wherein foresters and sportsmen have met each other apparently for the first time without conflict. That something which has caused the change has been Game Management. Until recently the sportsmen had a vague idea concerning food and cover. They knew that these were necessary for game, but how to get them and what to do about them were matters largely unknown. The forestry men knew more about food and cover, but they were little interested in the question from the standpoint of game. Then a forester, Aldo Leopold, wrote a memorable treatise entitled "Game Management." The foresters awakened to the realization that here was something useful which, to put it in a slang term, was "right down their alley." The sportsmen in turn realized that now above all time they must cooperate with the foresters. Hence this meeting, which I believe to be of real historical significance. The foresters and the sportsmen have come to a view that our



—Pennsylvania Department of Forests and Waters

Deer damage to pine seedlings

forests have recreational values as well as economic values and that they should be managed for the greatest good to the greatest number.

I am not a technical man on matters of Game Management, but a phase of that problem is becoming more and more important as time goes on. That question is whether fire has any place in the program of Game Management.

At the present time the Pennsylvania Federation of Sportsmen's Clubs is opposed to fire in the woods in any way, shape or form, experimental or otherwise, but there is a growing sentiment within this body which holds that some competent body should establish the facts concerning fire by experimentation so that we might know without question whether it has any proper use. The reason for this feeling is the well-known fact that if you want to find game you go into areas that recently burned over. We know that burning produces an alkaline soil which is necessary for the growing of certain food-producing plants and bushes. The important thing to remember is that the advocates of controlled burning simply want to know the facts. They do not feel that the accidental burnings have given the technicians sufficient data upon which to base accurate conclusions. We know that there are many areas which have no valuable timber upon them and which it would not pay to cut at all and that the only apparent economic method of improving food and cover conditions is to burn them. Many will argue that there is no such a thing as a controlled fire, yet we know that the Department of Forest and Waters has certainly done an efficient job in controlling forest fires in Pennsylvania for many years. I realize that this is a very controversial subject and I want to stress the fact that I am not advocating that "we burn the woods." I am advocating that we ascertain the facts and then decide what we will do.

No forestry meeting would be complete without something being said about stream pollution. For many years this question has been a particular hobby of this speaker. I have engaged in several injunction proceedings to eliminate pollution, particularly that of mine wastes. I realize that if the issue be stated as Industry against Fishing, we must forget the fishing, but I maintain with absolute sincerity that the issue is not Industry against Fishing. In fighting the pollution we must not mention fishing. The issue is one set of values upon the one hand as against another set of values on the other hand. The values against stream pollution are economic, property and recreational. The values opposed

Eight

to pure streams are largely purely property. I know of no industry which was driven out of Pennsylvania by reason of the fact that it was compelled to stop its pollution. The problem is much more complicated than the average pure stream advocate thinks it is.

In front of the building where we are holding this meeting is the Clarion River and its dark, discolored, polluted water is a disgrace to the people of Pennsylvania and the beautiful Cook Forest through which it flows, yet I say to you that when public opinion wants the Clarion River clean that river will become clean. We have the laws on the books to take care of the situation, but those laws will not enforce themselves. Whenever public opinion demands their enforcement they will be enforced. It is up to the advocates of pure streams to create that proper public opinion and in doing it I warn you against mentioning anything about fishing. If a stream be purified for any reason whatsoever the fish will take care of themselves. The real question is, are there values involved of sufficient importance to warrant the purification of the stream? Stress the property values standpoint, the recreational values involved, the business and income which will come to a community as a result of the purification of its waters. We pure stream advocates have made large gains. It now appears that industry is picking up and we must be on the guard to preserve that which we have and to keep up the progress we are now making.

In closing, I wish to thank the Pennsylvania Forestry Association for this opportunity to present to you the viewpoint of the sportsmen and to impress upon you that you need have no fear of our group. We know and you know that our problems are your problems and that we must continue this conservation work.

WORLD'S TALLEST HARDWOOD UPROOTED

What is believed to have been the tallest hardwood tree in the world stood until January 1939 in the Toorong Forest, north of Noojee, Australia. It was a eucalypt, *Eucalyptus regnans*, which was uprooted by the gales which accompanied the forest fires of January 13, 1939. When measured by F. G. Gerraty, inspector of forests, the bole was found to be 331 feet long. This height was reached at a point three inches in diameter, where the top had been broken off. The tree was not preserved intact because it fell across a forest trail and had to be sawn through to enable the trail to be used.

FOREST LEAVES



—Pennsylvania Department of Forests and Waters

Camping in Caledonia State Park

Forest Management and Wildlife

W. E. MONTGOMERY

Chief, Forest Management Penna. Department of Forests and Waters

FORTY years ago, when the present State Forest system, now embracing more than 1,650,000 acres, was in its infancy, Dr. J. T. Rothrock, in advocating the acquisition of forest lands by the Commonwealth, stressed the point that they were intended not only for the production of wood, but also to control floods, to provide health centers and to assure outdoor recreation to all the citizens of the State. On this broad, far-reaching and sound policy the State Forests of Pennsylvania had their genesis, and today they are being administered in accordance with that selfsame policy.

It would be foolish, as well as untruthful, to claim that the actions and decisions of the Department in attempting to follow this policy, have not been subjected to criticism; and it would be just as futile to aver that many of those criticisms were not justified. The users of the State Forests represent every walk of life, persons of every conceivable taste and inclination. There are those who view the State Forests only as a splendid hunting ground where game

prevails in great abundance; there are those who detest the idea of killing birds or animals of any kind, even the predators who live from the destruction of other forms of life; there are those who would like to have broad thoroughfares, well-paved highways extending throughout the State Forests reaching into every nook and corner in order that they might enjoy the beauties of the forest without the need of stepping out of their cars; there are those, on the other hand, who would prefer to have no roads whatever and only a few footpaths, lovers of the primitive and the primeval, advocates of the so-called wilderness areas untouched by the hand of man; there are those who are intent only upon the aesthetic side of the forest, upon the inspiration which they receive from a visit to the woods, no matter how limited that visit may be; then there are those to whom the beauties of nature mean nothing, who have no interest in hunting or fishing or picnicking, intensely practical people who view a tree merely as so many board feet of lumber.]

OCTOBER, 1939

Nine

That is somewhat exaggerated, yet nevertheless fairly typical, cross-section of those with whom the Department comes in contact in its management of the State Forests; and strangely enough, or maybe it isn't so strange after all, so many people can see the picture only in the light of their own interests, and many of them are somewhat amazed to learn that other persons happen to see things from a directly opposite viewpoint. For the most part, these people are the actual owners of the land, citizens of the State, stockholders of the great corporation, one unit of which is engaged, among other duties, in operating the State Forests, operating them for the use, enjoyment and benefit of the real owners. In representing these owners, the Department, as manager, should be properly responsive to the great diversity of desires that are expressed. Through all these many divergent opinions, the Department, in its management of the State Forests, endeavors to steer its course in a practical common-sense manner whereby the best interests of all the people will be most wisely conserved. In attempting to do this, mistakes are made, of course. Throughout most of its history the Department has been quite conservative, considering thoroughly, and sometimes perhaps at too great length, any proposed changes in policy and procedure. As a result, it sometimes, in the vernacular, "misses the boat." As an example, the Department probably hesitated too long in establishing a definite, forward-looking policy in connection with the use of the State Forests for recreation—and then more recently in its development work became stampeded into certain methods and procedures which were not of the very best.

From the beginning, and particularly in the early days of forestry in Pennsylvania when foresters were closer to the woods than their manifold duties now permit, most of the technical personnel of the Department have been hunters and fishermen. Consequently, aside from their professional standpoint, they have been intensely interested in the protection and propagation of game. It must be admitted, however, that their interest was manifested primarily in the protection of the forests from fire, the enforcement of the game laws, and the occasional liberation of game. It must also be admitted that sometimes the forester looked upon the game official as an interloper in his (the forester's) own personal domain. Usually, however, that feeling resulted from a clash of personalities rather than from any conflict of opposing objec-

tives. The forester, from the outstart of forest activities in this State, has always regarded game as an important product of the forest, but *not* the major product, *not* the one most important product. Until recent years, however, he did little about it, except for the several phases of activity mentioned above.

As a matter of fact, most of his forestry work was concerned with protection and planting, and forestry had not yet progressed to the point where, in the vast majority of cases, cultural operations were justified—or if justified, they were probably out of the question because of lack of funds. To some extent, that day is passed. The establishment of the C.C.C. and the advent of various relief agencies have made possible numerous types of work which could not be accomplished, if the Department were compelled to depend entirely upon State appropriations. And in doing these various kinds of work, the Department is cognizant that their affect upon game as well as other products of the forest must be given due consideration. The Department is not only concerned with the protection and growing of timber but it is interested in maintaining as large a game population as can properly be supported. The Department holds to the belief that it is proper and appropriate to sacrifice a certain amount of forest growth in order that game may be sustained. On the other hand, it also feels that when the game population becomes too great for the food supply which is available, prompt and drastic action should be taken to remedy that condition.

And frankly, it views with considerable distaste the thousands of acres of waste land on the State Forests which cannot be restored to productivity by the means of plantations because the deer destroy the trees as rapidly as they are planted.

Quite a bit has been said, not only in Pennsylvania, but elsewhere, about the antagonism which some foresters exhibit toward game management practices,—and vice-versa. Personally I can see no reason whatever why any conflict of ideas should arise between foresters and game managers which cannot be settled satisfactorily to all parties concerned by negotiation of open-minded representatives of both points of view. During the three and one-half years prior to April 1st when I returned to State service, I was Associate Forester and later Chief Forester of a Federal agency whose principal claim to the right of existence was the fact that it did not follow the course of numerous so-called old-line

(Continued on Page 21)

The Development of Forest Areas for Wildlife

By JAMES N. MORTON

IT wasn't so very many years ago that different groups looked at the forest and they saw different values in it, and each group was prone to think that it alone saw the whole picture, whereas each was seeing only a small part. The group interested in timber looked at the forest and saw so many sawlogs, and their interpretation was apt to be that the area would yield a good crop of lumber. The group interested in wildlife looked at the forest and saw so many hiding, or feeding, places for wildlife, and their interpretation was that it was a good or poor hunting ground. The group interested in recreation looked at the forest and saw only so many picnic spots, and their description was that it would make a good park if some more of the underbrush were cleared out. One group gave no consideration to the interests of the other group. There were, of course, conflicts and differences of opinion.]

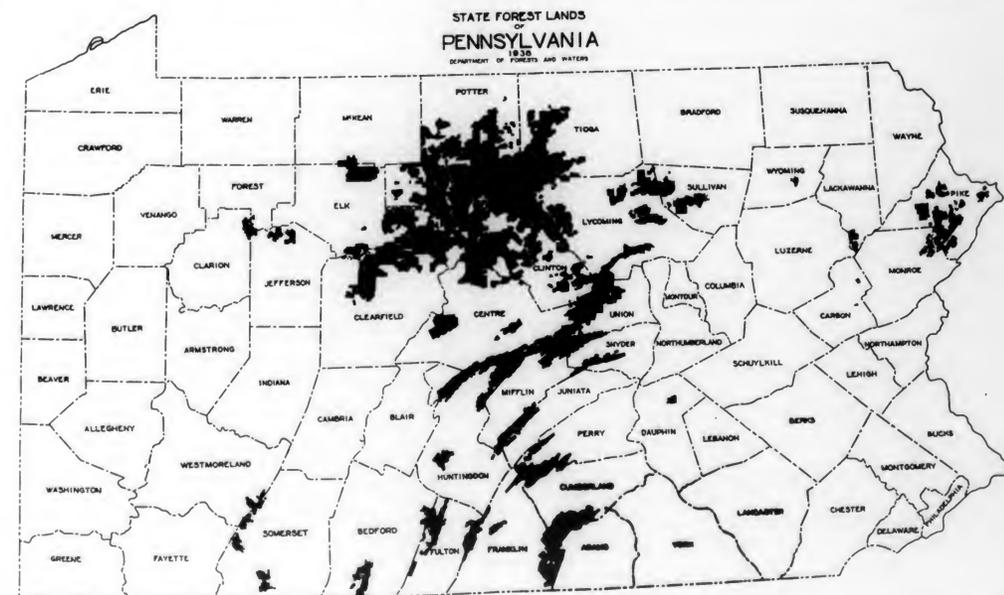
We have gotten away from the narrow restricted view of the forest and we have gotten away from too much difference of opinion. The

various groups now sit down together and discuss the common problems. It gives everybody a chance to get a clear picture of the whole problem.

We have come to recognize the forest as more than stands or groups of trees, and more than just a home for wildlife. We now consider it as a community of plants, animals, and birds, of which trees are the most important members. In other words, forests are now looked upon as areas of land on which various forms of plant, animal and bird life are associated.

Nearly one-third of the United States is forest land. We consider almost one-half of Pennsylvania as forested. A large part of the wildlife in the United States valuable for food, fur and hunting, or for aesthetic purposes, is found in our forests. Its welfare in connection with other resources is therefore, an important part of the management of forest land.

Wildlife directly interests more than 13,000,000 people who hunt and fish. It helps to support many more, and adds to the happiness of



OCTOBER, 1939

Eleven

millions of others who are eager to catch glimpses of wildlife in its home environment.

Because of this public interest in wildlife and because our forests comprise such an important part of the environment, it naturally becomes necessary to recognize it in the plans for management of forest areas.

In order for a forest area to be most attractive to wildlife it must provide a suitable home. Large areas of forest land in central and northern Pennsylvania do not provide satisfactory habitats for wildlife, largely because these areas are covered with trees where the crown canopy has closed, and the understory of tree and shrub growth essential as browse for deer and necessary in furnishing food and cover for other wildlife is shaded out. On such areas cutting operations are vitally necessary, if each section is to maintain the wildlife population which it can and should support.

On the State Game Lands, which now total more than 600,000 acres, cutting operations are conducted in order to make them more suitable for wildlife. At the same time we do not lose sight of their value in producing a timber crop. Wherever the timber is large enough to market for pulp wood, mine ties, chemical wood or lumber, timber sale contracts are made. In other areas it is necessary to carry on thinnings or other cuttings in order to open up the crown canopy of the trees, permit the sunlight to enter, and stimulate the understory of plant life. In this connection, splendid cooperation has been received from the Department of Forests and Waters in their improvement cutting operations at C.C.C. Camps. These improvement cuttings are made in the interests of wildlife and to benefit the remaining trees.

Either from the standpoint of good forest growth or better wildlife habitats, thinnings, as is well known, are one of the most important cultural operations in any dense stands beyond the sapling stage. Thinnings have several beneficial effects for wildlife. The trees in thinned stands produce earlier and larger crops of seed. The openings produced are very valuable in promoting advance growth of hardwoods, shrubs and herbs useful as food by wildlife. They likewise stimulate the growth of the remaining trees.

On other areas we carry on what we call release cutting, which requires the removal of competitive growth from around clumps of hawthorn, grape, dogwood, hazelnut, bittersweet, and other game food producing shrubs and vines in order to stimulate their growth and the produc-

tion of fruit. These cuttings are easy to carry on and they do not require the sacrifice of much valuable timber. They do mean a lot to wildlife. The plots not only insure a food supply, but they insure a variety of food. Millions of game food plants have been released from suppression. As is well known, practically all of these game food producing shrubs and vines require sunlight for growth and for fruiting. Whenever they are overtopped or suppressed by surrounding growth they cease to fruit properly and eventually die out.

On other of our State Game Lands where there is abandoned farm land, and especially in the wild turkey and quail territory, food plots are planted to various kinds of grain in order to supply additional winter food. In other places it is necessary to plant evergreens in clumps or strips to supply cover and, where they cannot be produced naturally, game food producing trees, shrubs, and vines are planted.

During the spring of 1939, one and a quarter million evergreens were planted on State Game Lands to improve cover conditions for wildlife and for timber production. Almost one million game food producing shrubs, vines, and trees, and 175,000 cuttings were planted for the benefit of wildlife.

The area of State Game Lands is small as compared to the total forest area in the State. Even with the improvement work on State Forest land, it means, of course, that the work done for wildlife is only a drop in the bucket. I am certain, however, that with the active cooperation of such organizations as the Pennsylvania Forestry Association we can expect more interest to be taken in developing other forest areas in the interest of wildlife. If the Association is able to do for wildlife what it has done for forestry in the State, our hopes will have been realized.

SHELTERBELT TREES SURVIVE

An average survival of more than 61 per cent was reported for all tree species planted in farm shelterbelts and field windbreaks of the prairie plains during 1938 by the Prairie States Forestry Project. Survival of the nine species most commonly planted was 72 per cent. The count was made on farms in the Dakotas, Nebraska, Kansas, Oklahoma, and the Texas panhandle.

Grasshoppers caused the greatest loss of young trees in 1938. Rabbits and mice also were responsible for some losses of the young seedlings. Drouth has not been a serious cause of tree loss at any time with the new shelterbelt plantings.

Our Forests and Wildlife Crops

SETH GORDON

Executive Director, Penna. Game Commission

THE Pennsylvania Game Commission is pleased to participate in this important meeting of an organization which for over fifty years has done so much to advance Pennsylvania's Conservation Program.

It so happens that our Commission has been in operation for nearly the same period as has the Pennsylvania Forestry Association. During our forty-three years, forty-three different public-spirited Pennsylvanians have served as members of the Pennsylvania Game Commission. By and large they have been sportsmen-naturalists, men who were concerned not only about the species which sportsmen like to hunt but who had a very keen desire to protect other beneficial forms of wildlife, such as our valuable fur-bearers and song and insectivorous birds. The program as a whole has been conducted along lines that would meet with the approval of the most rabid naturalist.

The Commission has always functioned as a policy-making body. Throughout all of its history, it has cooperated with all the agencies directly concerned in the conservation of our natural resources, especially the Department of Forests and Waters, the Fish Commission, and the several Federal agencies.

In the beginning, the Commission's work was financed wholly from public funds, but since June 1, 1915 all of its expenditures have come from contributions made by the sportsmen through hunting license fees.

The early efforts of the Commission were confined primarily to the enforcement of the law, stopping the sale of game, and establishing reasonable seasons and bag limits. Later the Commission adopted a much broader management program. Its refuge and public hunting grounds system is probably the most outstanding single accomplishment, started in 1905.

The early refuges were all established on State Forests. Then in 1920 the Commission began buying State Game Lands. Several years ago it set up a cooperative program with landowners in the thickly populated farming regions. Today the Commission owns over 600,000 acres of State Game Lands, is responsible for managing the wildlife resources on almost 125,000 acres of farm lands and other large leased areas. It now

has a total land management responsibility aggregating 850,000 acres.

The Commission is now maintaining over 300 regular game refuges, and by the time the hunting season opens there will be almost 1,000 small refuges in operation on the cooperative farm-game projects above referred to. The size of the refuges in the forest regions has been reduced so that very few of them now exceed 1,000 acres. There are many such refuges with only 250 to 500 acres. The small refuges on the cooperative farm-game projects average approximately 8 acres each.

Under legislation adopted by the 1939 session, the Pennsylvania Game Commission is now cooperating with organized sportsmen in the establishment of special wildlife refuge projects on private lands, under which program we anticipate that within the next two years upwards of 5,000 small refuges will be established in areas where the Commission can not afford to purchase, lease and manage the lands.

As its refuge system got under way, the Commission began an extensive restocking program, and at present out of its total budget of approximately \$1,500,000 it is spending over \$300,000 annually to raise or purchase game for stocking purposes.

As the number of hunters has increased, the Commission has been compelled to apply the latest known management methods so as to produce maximum annual game crops. As a sound basis for all of its activities it has launched a wildlife research program, part of which is handled as a cooperative undertaking with the United States Biological Survey and Pennsylvania State College, about which Doctor Bennett will tell you more later. Mr. Morton, on the other hand, will give you a look into the management practices which we are applying to our extensive game land holdings. While in all of this management work on our State Game Lands we are giving primary consideration to wildlife needs, yet we are not overlooking their value for the production of forest crops or the protection of watersheds.

We are thoroughly in accord with the feeling of the members of the Pennsylvania Forestry Association that the public land holdings in the Commonwealth should be increased until we

have at least 5,000,000 acres in public ownership. We have almost reached the 3,000,000-acre mark; by proper cooperation with all agencies we should in a reasonably short span of years be able to increase it to the goal above indicated. These public lands are needed not only for wildlife but for many other recreational uses, watershed protection, etc.

Many of us have often labored under the impression that the original mature forests of Pennsylvania harbored a very dense wildlife population. We are now convinced that the mature forests were not conducive to the production of large game crops, except in the case of a limited number of species. We are satisfied that more wildlife can be produced on a proper combination of mature timber, timber in the pole stage, and the several stages of brush land which is always found in the wake of the lumberman.

It so happens that the Commission's present program got its real start at the very period when the most rapid strides could be expected. Much of our vast forest region was then in the brush stage, and certain species of game increased very rapidly. This is true especially of the white-tailed deer, with which we have had plenty of difficulty because these animals were allowed to increase beyond the carrying capacity of the range. The over-abundance of deer has not been detrimental to the deer herd itself but other forest-loving species have fared badly where deer are too abundant.

In 1913 we had 305,000 hunters. Last year we issued 650,000 licenses, with probably another 100,000 who hunted legally on the farms of Pennsylvania without the necessity of securing a license. Notwithstanding the increase in the number of hunters, through the application of sound wildlife management methods the annual game crop has continued to increase. For example, during the past seven years we have bagged more than 86,000,000 pounds, or 43,000 tons, of game, an annual production of more than 12,000,000 pounds, or 6,000 tons. The meat value alone of our game during that period, at 40 cents per pound, aggregates \$35,000,000, an average of \$5,000,000 annually. During the same period we have harvested over \$7,000,000 worth of furs, or approximately \$1,000,000 worth annually. The 1938 crop, with a kill of more than 25,000,000 pounds of game, established a new high record for Pennsylvania.

Six and one-half per cent of Pennsylvania's population are now licensed to hunt and four per cent are licensed to fish annually. This large

army of outdoor-loving people spend over \$30,000,000 in the pursuit of their favorite recreations. This vast expenditure plays an important part in the economic stability of the people of the Commonwealth, especially those residing in the remote hamlets which were left stranded following the days of the lumberman.

In the further development of Pennsylvania's Conservation Program you may rest assured that the Pennsylvania Game Commission will play its part to the best of its ability. The organized sportsmen also stand ready to do their part to assure the success of any conservation program which will benefit all the people of the Commonwealth.

NEW HYBRID VARIETIES OF POPLAR

More than 2,000 new hybrid varieties of poplar trees have been produced within the past two years by the Dominion Forest Service in collaboration with the Department of Agriculture and the National Research Council of Canada. This work is being carried on in the laboratories and greenhouses of the Research Council and the greenhouses at the Central Experimental Farm in Ottawa, and in the nurseries at the Petawawa Forest Experiment Station, Chalk River, Ontario. The object of this extensive forest tree breeding program is to produce rapid-growing and disease resistant varieties of poplars suitable for pulp and match stock, and drought-resisting varieties for shelterbelt planting in the prairie sections of western Canada.

About 1,500 varieties are primarily designed for testing as shelterbelt trees in the Prairie Provinces. Trees for this purpose must be resistant to drought, frost and wind, and to furnish these characteristics the native aspens found in the vicinity of Calgary are used. Branches of these trees are shipped to Ottawa during the winter months when the male flowers are dormant and the pollen is dusted on to flowering branches of the different hybrid and other varieties of poplar available at the Central Experimental Farm. Approximately 200 natural poplar hybrids have already been identified in the vicinity of Ottawa.

A new addition to the steadily growing list of forestry periodicals has just appeared, as the Journal of the recently organized South African Forestry Association—also known as Die Suid-Afrikaanse Bosbouvereniging.

The Third Responsibility

By M. A. MATTOON

THE responsible administrative officer in charge of a National Forest, the Supervisor, or of a Ranger District, the Ranger, has a three-fold job. First comes protection against fire, insect epidemics, disease, etc., for without such protection investments in tangible and intangible values and the wise use of them cannot be safeguarded, developed and enjoyed. Second comes the construction and maintenance of those improvements which are essential to the economical and successful administration of a forest property. These two tasks are services, rather than ends in themselves. They lay the foundation for the third and really the essential part of his job, i. e. resource management.

The responsible administrative officer, Supervisor or Ranger, in these Eastern Forests is almost universally a man technically trained in the profession of forestry. Nevertheless his every day tasks and decisions with respect to the management of all of the resources, each in its proper relationship to the other, require that he know something of the management of each; the soil, the water, the timber, the recreation, the wildlife. He views the unit for which he is responsible objectively and all inclusively. He is guided by the principle of multiple use of forest land which envisions such a balance in management of the resources under his direction that the greatest net public benefit will result; benefit not only to the general public, but to the local folks who live within and immediately adjacent to his forest. He is after a balanced program suited to local needs and his philosophy of administration reflects it.

In any such scheme adjustments are necessary. The management of the timber resource, for example, should take into consideration the needs of wildlife to the extent that the combined services to mankind will be greatest. Wildlife is a product of its environment. The relationship between them is extremely complex and we do not yet know all we need to know about them. However, one cardinal principle the administrative officer recognizes. The relationship should be in reasonable balance. Over-population results in deterioration of the environment and ultimately in the wildlife itself. Under-population deprives mankind of that amount of enjoyment he should expect.

The management of the wildlife resources divides itself also into three principal parts. Its application, of course, is to be guided by the results of research and study, which are available to the administrative officer through consultation, advice and published material secured from State, Federal and private agencies engaged in wildlife research. He may have a technician in his own staff.

1. The first part has to do with improvement of environment. There are many relatively simple things that can be and are being done to improve environmental conditions. Some of these are worthwhile, even on those units or Forests where wildlife populations are very meager and the present carrying capacity is far above present requirements. It's not too much to expect that in States where this combination exists now, it may be rapidly reversed. The administrative officer's planting program may involve mixtures in which the selection of species includes those of value to wildlife. We find him dedicating certain openings, such as selected old fields, abandoned roads and railroad grades, etc., to special treatment which does not necessarily involve the planting of timber tree species. In his timber management plans and sales contracts are found provisions for the retention of stream shade, for the dispersment of cutting areas to provide better distribution of young growth, for the retention of food and den trees in cutting operation. In addition, he considers the pruning of abandoned orchards and fruit trees so they will last longer and produce more, the exclusion of mass recreation from sanctuaries, and many other items. These environmental improvement opportunities are grasped to the extent that available facilities will permit.

2. Adaptation of wildlife to the environment involves the control of numbers. With the exception of a few areas, the game and fish on National Forest land are the property of the citizens of the State and are administered by the constituted State authorities. The environment, on the other hand, is the property of the citizens of the United States and is administered by the U. S. Forest Service. Therefore, to best meet the needs of the wildlife, of the environment and to serve the interests of the sportsman and the general public, it is essential that the closest possible

working relationships between State and Federal authorities and the public be fostered and maintained. The National Forest administrative officer in this Region approaches this matter of divided jurisdiction on the basis of cooperative endeavor in which the facilities of both public agencies may be pooled in the common problem of good population control. Written understanding in the form of a cooperative agreement makes it practicable and essential for the Director of the State Game and Fish Department and the Supervisor of a National Forest to sit down together and work out those methods and practices which will spell good management on the National Forest. This is now being done in the States of New Hampshire, Pennsylvania and Virginia where the wildlife on nearly 2½ million acres of National Forest Land is being cooperatively handled. Here again the administrative officer finds there are many things that he and his organization can do. He can assist in the State's law enforcement job, in fish rearing and planting, game stocking, jointly establish seasons and bag limits to meet special problems, construct, maintain and operate improvements for administrative and managerial purposes, such as fish nurseries, feed-

ing pens, small dams and ponds, checking stations. He can conduct censuses, special studies, trapping operations, and many other items necessary to good management. The point is that both agencies work together toward a common end.

3. Much of wildlife management is human engineering, the gaining of concerted public support, which makes for adequate financing and a satisfactory piece of work. Whether it be the necessity for reduction of numbers, such as you have in the case of deer on the Allegheny National Forest in Pennsylvania, or restoration of adequate numbers and variety in the National Forests elsewhere, the task of education faces the administrative officer. Education as to what needs to be done, why it should be done, and what results may be expected, all based on the findings of sound research, is an important part of wildlife management.

The Allegheny National Forest is a Pennsylvania institution. There are many wildlife and other management problems to be solved within it. Many of you are familiar with them. The Pennsylvania Forestry Association can and will assist in their solution whole-heartedly, I am sure.



—U. S. Forest Service

Thinning a 40-year stand of northern hardwoods. The white paint spots indicate trees to remain

Penn Oak and Walnut Seedlings

For Memorial and Patriotic Park Plantings and for Individuals Who Wish a Really Different Type of Tree for Reforesting Knolls and Ridges

By JOHN W. HERSHEY, Secretary, Penna. Nut Growers Association

FOR nearly twenty years the thought has been in my mind that superior selected trees, trees with picked parents, would have a better chance for greater rapidity of growth and resistance to storm, disease and insects than seedlings of common run stock.

My first interest in this was in testing different strains of seedlings for better understock for our tree crops. This thought was stimulated by observation of the behavior of different old grafted trees that pointed to influence of understock. Then I cast about in other fields and noted that many of our breeds of poultry, hogs, cattle, and horses had their foundation laid in one superior parent or that the breed was developed through selection of parents over a long period of years. The history of the Morgan horse will bring out my point.

In the days of yesteryear it was the custom to let a promising horse stand as a stallion. A horse-lover, one Justin Morgan of Randolph, Vt., took a two-year colt for a debt. Being a superb animal, he was let stand for breeding. Sometime later it was noted the stallion's colts resembled him and retained his fine traits, regardless of the mares bred to. Mr. Morgan being an observant man, quickly caught the importance of this, even though the influence of the genes was then unknown. So he bred the daughters back to his stallion and with a continued careful plan of line breeding developed the grandsires of all the best racing blood in America today.

Tree species, like horses, will, in the kaleidoscope of cross breeding in the wild, have an offspring once in a blue moon where the good genes (the controlling factors of heredity in all living organisms) appear to have combined so strongly in this one plant that they carry their good traits on to the next generation, regardless of what inferior tree they are pollinated with. In this we say they are homogeneous for these traits, meaning they, the parents, have the power to transmit their fine traits on to their children.

Regarding continued selection or line breeding, interesting proof of its value is noted in the annals of German forestry. In 1772 the first steps

were taken to improve Scot pine by parent selection. Such remarkable results have been had that today sources of Scot pine seed are in isolated blocks, protected by law from adjacent land-owners planting inferior types of pine or other species, in order that the strain be kept pure.

At the Pennsylvania Forestry banquet in 1938, Dr. Wildman suggested that the acorns of the Penn trees be distributed among the school children to continue the strains of Penn trees. Knowing the delicateness of the acorn in handling, I feared this would fail, so after thinking it over awhile, I worked up a project for Mr. Mattoon in which I offered to grow seedlings of these fine old trees if he assisted in the collection of seed. I have, with others, been championing the cause of selection of trees in forest planting, which is not taking very rapidly among foresters. I said to myself, "Here's a chance to make it so popular the government services will be forced to recognize it," for we know from observation in other fields that the 300-year-old oak healthily resisting blight, insect and storm, has more "umph" than the offspring of a scrubby parent.

So to end the history of our year's work, the details of which were many, beautifully worked out by our good Executive Secretary, Mr. Mattoon, we have about 1700 Burr Oak seedlings, 8 to 11 inches high, and 500 White Oak seedlings, most of which are 6 to 15 inches, but a few trees didn't produce viable seed. Part of the program is to keep trying new trees each year as Mr. Mattoon finds co-operators to send seed. A careful study will be made of behavior in the seed bed and only the best parents retained in future plantings.

The black walnut is not new, having been used by us for years as the most superior grower ever found in all the United States.

Although we expect a little criticism, we know the progress in other fields is such that tree selection in forest trees has high merit. The distribution of these trees sponsored by all good conservation committees will soon find a place in memorial and patriotic plantings or wherever



the traditions of our nation still thrive in the hearts of men. Of all the times in our national history, today's young people stand out most strongly as needing symbols before them of the trials and tribulations of our forefathers in conquering America. Seedlings of the sturdy oak that actually saw the nation-building Penn growing on our lawns and parks, being pointed to daily by parents as standard bearers of the good of the past, most surely will have a counteracting influence on modern thinking—"of lifting all anchors and away" without thought of whether we're heading for the shoals. They will thrive and grow and in years to come measurements will prove their superior worth.

We have selected the white oak to start with because of its superiority as an ornamental and the value of the acorns as food for wildlife and domestic animals. This also applies to the burr oak, which has a large, sweetish meat. As time goes on probably other species will be grown if the public wishes and seed is available.

These seedlings are grown in our experimental Nut Tree Nursery at Downingtown, Pa., under a method worked out over a number of years, to obtain the best possible root system on tap root species and to have the system in such shape as not to be injured in digging. This system of growing is proving a great success in the federal nurseries since it has been adopted.

The supply of acorns was scarce last year. We hope a bigger crop will be available this year. Anyone who lives near a Penn White Oak and wishes to collaborate in supplying the Forestry Association seed to continue this fine work, write Mr. H. Gleason Mattoon, 1007 Commercial Trust Building, Philadelphia, for instructions in how to pack and ship the seed.

Shipment of seedlings will be made early next spring to suit planting dates, but we suggest you place your order now to prevent having to wait another year for some.

UPPER PHOTO—A seedling of the William Penn Burr Oak of West Chester, Pa. This tree, 8 or 9 years old, is 3 in. in diameter, breast high, 16 to 17 feet in height.

LOWER PHOTO—Results of selection work in nursery understock on per-simmons. The 24-inch common run seedlings held in Supt. Pannebaker's hands are the same age as the 4 to 6 ft. row of selected trees besides him. All are 4 years old from seed.

Book Review

AN OUTLINE OF GENERAL FORESTRY

By JOSEPH S. ILLICK

Third edition, revised and enlarged. 297 pp. Illus. Barnes and Noble, New York. 1939. \$1.

THE newly revised and enlarged book of Dr. Illick's entitled "An Outline of General Forestry" has recently been issued. It is really an encyclopedia or a handbook of up-to-date forestry with a wide perspective. In many instances the descriptions and explanations are most complete and all one would normally expect to find in a textbook. The 31 chapters are in part as follows: telling of Forestry and Human Welfare, the forest resources of the world, the situation in the U. S., the lumber industry; Federal, State and Municipal Forestry; the management of lands, wildlife, watersheds; the utilization and marketing of timber; forest education; research; Forestry in other countries, and lastly, significant trends in forestry.

In recent years forestry has made rapid strides ahead. This book contains pertinent information about the new developments and up-to-date practices. It will be helpful to anyone at all interested in forestry be he a layman, student, forest worker or forester. The book is an excellent one for libraries due to its completeness, its many fine references, profuse illustrations and sketches. Anyone desiring to keep abreast of the times and trends will do well to look to this book for guidance.

E. F. BROUSE

SECHRIST'S FORESTER'S FIELD MANUAL

"Sechrist's Forester's Field Manual," an actual pocket-sized book made especially to be carried in the shirt pocket, is filled with useful information for all who have anything to do with forests.

The author has attempted to set down, in as condensed form as is reasonably possible, the various easily forgotten bits of information which the average forester must use at some time in his work when voluminous reference books are uneconomical and impractical.

There are chapters on: Tables; Forest Mensuration; Concrete; Mortar and Brick; Forest Roads, Trails and Bridges; Telephone Lines; Forest Tree Nurseries; Insects and Insecticides; Explosives; Rope and Chains; Forest Finance; Nails; Some Properties and Uses of More Important U. S. Woods; and Weirs and Water Pipe.

These chapters, though not complete, do give most of the information which the forester commonly needs when in the field.

Three inches, by five and one-half inches, in size, it contains fourteen chapters and one hundred and twenty-eight pages and is bound in flexible red leather.

The book, which sells for \$1.50, is written with the assumption that those using it have a previous knowledge of forestry, but it does contain much information of value to engineers and practical field men who come in contact with the forest and its various products.

H. G. M.

A COMMUNITY FORESTS PROGRAM

(Continued from Page 2)

multiple use. Reading's woodland is primarily a park, but it serves very definite needs in watershed and game protection. Moreover, the city engineer states that one of his objectives is to put the tract under sustained-yield timber management. Lehigh County's 1,107 acres game and wild life protection forest is used as a park and recreational facility as well as a preserve. Only fifty of Delaware County's ninety acres of forest property are on the county prison farm; and these fifty acres, like the other forty, have public recreational use. Part of Delaware County's forest is an outdoor museum, in that it contains some of the remaining hemlock in the county.

All ninety-seven of our community forests are really of multiple use, for they conserve timber, soil, and other natural resources. Since they are generally located near population centers they, too, perform great service in supplying demand for recreational, social, and aesthetic enjoyment. In this respect they are superior to our more inaccessible state and national forests.

Limited as are known data, they show that the state has a local government forest development of great potential value. Pennsylvania's community forest history, as far as it has gone, augurs well for the future. It is of primary importance to citizens and taxpayers to know the facts in order that this useful feature of community life may be promoted. As a matter of fact there is every reason to believe that there are many more community forests in our state than available statistics show. Because there has been no complete census of community forests, I have necessarily made my figures as to their number, area, and community function very conservative. The following facts may make it clear that there

is good reason for assuming that Pennsylvania has many more community forests and a greater acreage than present records would show.

The Pennsylvania Department of Forests and Waters has sold 13,000 seedlings and transplants to 128 local governments. It is estimated that this has resulted in 9,000 acres of successful plantations. Although some nursery stock may have been planted on land not owned by the communities, and although many of the 128 local government units may be among the 97 listed above, tracts planted undoubtedly raise total number and area of community forests. Study of sales figures of larger private nursery firms would increase these totals further yet.

I have listed only 52 forests as watersheds, yet we have over 200 municipal water companies in the state. It is probable that more thorough study would bring to light from twenty to fifty more watershed forests. Survey of Pennsylvania's 2,585 school districts should also reveal several additions to the list, although we now have record of no school forests in this state.

Some reports on acreage of individual community forests were compiled by the Department of Forests and Waters from five to ten years ago, and do not take into account expansion of area since the report was made. Other figures are estimates based upon number of trees planted, and are conservative because they do not include area taken up by natural growth.

A number of authorities would further raise our totals by lumping in tax delinquent land held for sale by county commissioners. While it is true that the counties do not have clear title to these properties, their tenure of them in certain cases is virtually permanent, and they can acquire title without cost through mechanism of the County Forests Law. In 1933 Dr. E. A. Ziegler estimated such forest lands at 412,101 acres.

Collection of statistics by public and private agencies has been concentrated in certain parts of the state, and has given inadequate coverage to others. Present figures would put over half the forests and forest area in a triangle, corners of which are Philadelphia, York and Monroe Counties. More thorough investigation may show concentration to be not so great in southeastern Pennsylvania, or may uncover other zones of high development.

What is being done to promote community forestry in Pennsylvania? A new movement has been launched that may interest readers of **FOREST LEAVES**.

Last Spring a meeting was held in the office

of Dr. Charles C. Rohlfing, Chairman of the University of Pennsylvania Political Science Department. It was decided to form a committee representing the Political Science Department, the Pennsylvania Forestry Association, the Allegheny Forest Experiment Station, and the Department of Forests and Waters. Mr. H. Gleason Mattoon was selected as chairman. Objects of this cooperative committee are to promote community forestry in southeastern Pennsylvania, to do research work, to counsel local government forest owners, and to work toward establishment of a state-wide community forests organization.

Conferences have been held with officials of Delaware County, Media Borough, and the Philadelphia Board of City Trusts; and these officials have requested aid of the state in managing and protecting their properties. During the past half year the University of Pennsylvania has carried on research in community forest economics and administration with aid of the other organizations represented on the cooperative committee; and plans to intensify this work.

It is hoped that funds may be found for a broader program. If funds can be secured, the writer would like to suggest the following ten points as essential to a plan of action:

1. Formation of a Pennsylvania Community Forests Council to include all Pennsylvania agencies interested in conservation, to promote and study local government forestry.

2. Adoption of community forestry as part of the program of state and local chambers of commerce.

3. Establishment of an office by the State Government similar to the community forests office of the national government, to cooperate with interested private and public agencies.

4. Radio talks, speeches, issuance of publicity and conferences with local officials by the proposed Pennsylvania Community Forests Council and other agencies, to encourage new acquisitions, and scientific development of existing tracts.

5. Concentration of initial promotional effort in southeastern Pennsylvania.

6. Establishment of joint commissions by local governments to manage neighboring community forests.

7. A census of all Pennsylvania's 5,000 local government units to determine accurately and completely existing community forest holdings, as has been done in New Hampshire, New York, and Massachusetts.

8. Location, mapping, and study of tax delinquent lands.

9. Forest products market studies, and studies of possibilities of financial profit from municipal recreational enterprise, in typical Pennsylvania communities.

10. Creation of a Community Forests Research Institute at the University of Pennsylvania, or another institution of higher learning.

How can a community establish a community forest? This raises the question of how acquisition of community forests and their maintenance may be financed. Sources of funds are suggested and itemized as follows:

1. Local sources
 - a. Gift by public spirited citizens.
 - b. Appropriation under County Forests Law of tax lands.
 - c. Expenditure of local government revenues.
 - d. Borrowing.
 - e. Labor contributed by school children and citizens.
 - f. Local relief labor.
2. State aid
 - a. Purchase of nursery stock at reduced price from State.
 - b. Counselling in management by District Foresters.
 - c. Advice on management by State College authorities.
 - d. Pierson Act relief labor projects.
3. Federal aid
 - a. Soil Conservation Service contribution of land.
 - b. W.P.A. labor.
 - c. National Youth Administration projects.
 - d. Civilian Conservation Corps labor and materials.
 - e. Public Works Administration grant-loan.
 - f. Reconstruction Finance Corporation loan.
 - g. Counselling in management by Federal Forest Service.
 - h. Advice by National Park Service on recreational management.
 - i. Counselling by County agents.
4. Possible Future Sources of Funds
 - a. Appropriation of funds under the Fulmer Bill.
 - b. Establishment of a National Forest Credit Bank.

- c. Commonwealth donation of free seedlings as in New York.
- d. Commonwealth grants-in-aid and loans to communities.

A program of community forest establishment and development is well under way. Pennsylvania acquired its first community forest over a century and a quarter ago; and now holds a leading place among the states in establishment of new properties. With a little more effort, one of our forests, Reading, can be developed into a demonstration tract for the rest of the state. Officials of many other tracts have told the writer that they want scientific, business management; but need advice on how to finance and administer it.

There are over fifty active organizations in the state working for advancement of conservation, recreation, and local government administration. A nucleus for state-wide federation of organizations to promote and study community forestry has already been formed in the cooperative committee described above.

Our main task at the moment is to coordinate effort, and to take advantage of opportunities for a broadened plan of action.

If this is done, the average citizen will not be bewildered when you mention "community forestry" to him. Instead he will tell you, "Sure, I know what it is. Our town has a community forest in its back yard, and Council has agreed to get some trained help to improve it."

FOREST MANAGEMENT AND WILDLIFE (Continued from Page 10)

agencies with only a single principal objective, but stressed the multiple use of land—forestry, wildlife, grazing, subsistence units, and recreation, and in that work as never before, I found that multiple use is primarily a problem of sensible coordination.

But, you may say, "All these optimistic statements about coordination, cooperation and conciliation are good enough in their place; they sound well, but platitudes are a poor substitute for action. What is your Department actually doing toward the betterment of conditions on the State Forests as they affect the sportsman and the game population?"

That is a fair question and to best answer it, possibly it would be well to cite some of the criticisms that have been directed toward the Department's work and then indicate the attempts which have been made to meet those complaints.

When the C.C.C. camps were first established one of their principal activities was the building of forest roads and trails in order to make the State Forests readily accessible in case of fire, and thereby decrease the acreage and intensity of forest fires. Numerous protests were received, particularly in the central part of the State, that the opening of these areas would augment the number of hunters and increase their opportunity of securing game to such an extent that the latter would soon face extermination. Although the Department in most cases felt that the advantages accruing from such roads and trails in the combatting of forest fires would probably outweigh all other considerations, yet an effort has always been made to work out some adjustments which would be mutually satisfactory. Sometimes work on a particular road or trail was ceased when it was not deemed absolutely essential; sometimes another location was chosen which was not as objectionable to the sportsmen and yet to a considerable degree would serve the same purpose; in other cases arrangements were made to block certain roads in such a way as to exclude ordinary traffic and use them only for protection and administrative purposes. This last procedure is being continued, and this fall numerous roads will be closed—in fact, probably more than usual, since maintenance funds are somewhat limited and some roads will be closed in order to save the cost of repairing them after heavy use in bad weather.

Sportsmen have also complained about the undesirable effects of improvement cuttings, and as a result of such complaints, the instructions governing such operations were revised and submitted to the Game Commission in order to eliminate the features to which justifiable objections had been raised. [Near the beginning of the Regulations for Timber Stand Improvement will be found this statement—"Another point to be considered in forest management is that of a game crop which must depend for its existence on trees, shrubs, vines and forest weeds for food and cover. Although the game crop is of secondary importance to timber, its economic value to the public is so large that it must not be overlooked." This is further recognized under the "Objectives of Timber Stand Improvement," when it is stated, "(b) The maintenance of proper relation between timber management, wild life management, recreation and other uses of the forest." Under specific instructions, appears this—"Every effort will be made to meet the require-

ment of wild life management by not cutting game food species unless it is unavoidable. Whenever they are available, several large-crowned trees, which produce game food or provide homes for game, will be left on each acre, even though they are of inferior species or of poor form from the standpoint of timber production."] Numerous thinnings have multiplied many-fold the deer food producing power of a very substantial acreage. The fact that deer have frequented such areas in large numbers is attested by the tracks and by personal observation. In accordance with this, the instructions, to which I have previously referred, provide further that "as much winter cutting as possible is desired to make the twigs and buds of topped brush available for deer food." Likewise attention should be called to instructions concerning the preservation of specimens and clumps of thorn trees of various kinds which provide a haven of refuge for small birds when hunted by hawks, owls or predatory animals. Although as a general rule, brush resulting from improvement cuttings is lopped and scattered so that it will rot in a comparatively few years and thus minimize the fire hazard, orders have been given for the occasional construction of small game shelters made by piling brush over logs and stumps. Then, too, although the instructions provide for the cutting of grape vines when they interfere with trees of desirable species, the regulations also indicate that here and there small areas may be devoted to the growing of grape vines and that trellises or arbors may be erected of dead chestnut poles. References to operations of the kind which I have been describing are not to be found in the treatises on Forest Management written and published twenty years ago. Methods in all branches of endeavor have been changing during recent years, and so also with forestry. Our profession is endeavoring to keep abreast of the times. The road, over which forestry practice is traveling, has been constantly changing—the grade is different, the alignment has been improved, the curves have been elevated—but the ultimate destination is the same. The vehicle, in which forestry practice is riding, is no longer horse-propelled as it was a quarter of a century ago, its chassis and body are not those of a dozen years ago, but stream-lined in accord with the latest style. The direction in which it is progressing, however, is the same; in the final analysis, its goal remains unaltered.

SUMMER MEETING IN COOK FOREST

(Continued from Page 5)

chase price. Inspired by his talk, the following resolution was unanimously passed:

"RESOLVED, That The Pennsylvania Forestry Association assembled at its Summer Meeting on September 22, 1939, at Cook Forest State Park, having viewed the beauties of the Park and realizing the splendid social service by the Park to the thousands of visitors each year, wishes to express its appreciation of the wisdom, foresight, and years of earnest effort of Mr. Thomas Liggett of Pittsburgh in bringing about the creation of this Park. Furthermore, the Association resolves that this resolution be inscribed on the minutes of this meeting and a copy of it be sent to Mr. Thomas Liggett."

On Saturday morning, Mr. Gordon presided and first called upon Dr. Logan Bennett, Regional Director of the Biological Survey, who told of some interesting research projects the Biological Survey is carrying on in cooperation with the Game Commission and The Pennsylvania State College to determine the relationship among the many game species. This was followed by a well-thought-out paper presented by Mr. John C. Youngman, President of the Pennsylvania Federation of Sportsmen's Clubs. Mr. Youngman presented most effectively the sportsman's viewpoint with regard to the management and population of game. He urged an exchange of ideas among the many agencies who are interested in forest and game production and suggested greater research to understand the complicated shifting balances of nature.

Following his talk the Resolution Committee through its Chairman, Mr. William S. B. McCall, Vice-President of the Pennsylvania Forestry Association and former member of the Game Commission, presented two resolutions. The first which was unanimously adopted is as follows:

"The Pennsylvania Forestry Association assembled at its Summer Meeting at Cook Forest State Park on September 23, 1939, is convinced that the conservation forces within the State can assist each other more effectively by the exchange of ideas, the review of objectives, and the planning of programs.

"The Association therefore asks its Presi-

dent to call informal meetings at appropriate intervals composed of one representative of each of the following conservation agencies and of such additional agencies as it may from time to time designate to consult informally to the interests above designated, — the Pennsylvania Department of Forests and Waters, the Pennsylvania Game Commission, the Pennsylvania Fish Commission, the Department of Forestry at the Pennsylvania State College, the Pennsylvania Federation of Sportsmen's Clubs, Region 7 of the United States Forest Service, the Allegheny Forest Experiment Station, the United States Biological Survey, the United States Soil Conservation Service, and the Forestry Bureau of the Pennsylvania State Highway Department."

The second resolution, also unanimously adopted, is as follows:

"The Pennsylvania Forestry Association assembled at its Summer Meeting at the Cook Forest State Park on September 23, 1939, hereby records itself as believing that the forestry activities of the Federal Forest Service can be more effectively conducted within the United States Department of Agriculture because forestry is the growing of continuous crops from forest soils in the same way that farming is the continuous production of farm and forest crops from agricultural soils. Therefore The Pennsylvania Forestry Association strongly urges the retention of the United States Forest Service in the United States Department of Agriculture."

Following the adoption of the resolutions, Mr. Wilbur Alexander, Superintendent of Cook Forest State Park, discussed the pollution problem with special reference to the Clarion River, which runs through the Park. He mentioned the fact that many children arrive at the park with their families fully expecting to have an opportunity to do some fishing only to find that the nearest water in which fish can live is thirty miles distant. He hoped that the Association would give definite consideration to the pollution problem and would rally its forces behind the new pollution law.

The Conference then moved a vote of thanks be extended to Mr. Alexander for his kindness in conducting us around the Park and putting at our service its facilities and also to the management of the Cook Forest Inn for the manner in

which it had cared for the Conference. The meeting then closed while several members spent the afternoon at the Tionesta tract of virgin timber which the Association was responsible in getting the Federal Government to buy and preserve for all time.

THE FORESTER MUST SELL FORESTRY

(Continued from Page 3)

munities within the region of better hunting and fishing. So again if properly impressed, it is believed that many chambers of commerce, civic organizations, and individuals would realize that becoming members of the Pennsylvania Forestry Association would be an asset to them.

Practically the same thing is true with those interested in flood control, forest recreation, soil erosion, and forest products. By analyzing each, it can be easily perceived that rather large groups are vitally concerned with the well-being of the forests, and along with these, there are analogous groups and individuals who should become Association members. As a matter of fact, the Pennsylvania Forestry Association should have as members every hunter and fisherman, most certainly every person with property interests within the range of floods, all the owners of summer camps and cottages, a large number of recreationalists and nature lovers, most of the thousands of tree planters in the State and absolutely all the lumber and sawmill operators operating in Pennsylvania as well as a large number of persons who benefit in a secondary way from the activities of any of the above groups. For that matter practically anyone who lives within the State of Pennsylvania is in some way affected by or benefited by the forests of the State.

Now then, just what are the benefits which can be expected from a membership in the Pennsylvania Forestry Association? Since the Association is a voluntary organization for the improvement of forests, it is working in behalf of any person affected by the forests. Many of those persons are in some way trying to bring about forest improvements on their own. If these numerous individuals were to realize that many others have the same interests and if they were to join together, much more could be accomplished as a group. Since the interest of all of these groups is a common interest, it is reasonable to expect they would join together. The Association strives through publicity and enactment of favor-

able legislation to accomplish their ends, and it is a fact known to all that in these forms of endeavor the matter of numbers is significant.

So it might be asked, "Why is it that we as Foresters fall down on the job of Forestry Salesmanship?" Here in Pennsylvania we have an active organization working in the interest of Forestry. By consulting the annual statement of the Association, it can be seen that the revenue from membership dues is a little over \$1400.00. It takes very little arithmetic to divide \$1400.00 by the annual membership fee to see that the Association has fewer than 500 annual members. It would be impossible to determine the number of persons who really should belong to the Association, but it seems to me that the number should be well into the thousands, 10,000, 15,000, maybe 20,000, so it seems we have little to be proud of when we stop to think that our Association, the one of most vital importance to us, has but 500 members.

Do not think for a moment that we, who are actively engaged in Forestry in Pennsylvania, cannot remedy the present situation. One needs to look no further than our present protection organization to see what can be accomplished in the way of building up an organization interested in Forestry. Within our protection force we have fire wardens and crew members who receive pay only while actively engaged in extinguishing fires, but who also devote much time and energy in behalf of forest protection on their own time, because of their own interest. All of these wardens and crew members are interested in forest protection for some one of the reasons enumerated above.

Now the point is this,—if we have been able to build up a protection organization of some 4000 wardens, and probably over 40,000 crew members and have had practically nothing more to offer than to encourage the individual's own interest in forest protection, it is reasonable to expect that we could do at least something similar if we devoted part of the same energy toward increasing the membership of the Pennsylvania Forestry Association.

The fact that an increased membership would be to our own individual advantage, that it would contribute toward the betterment of Forestry in Pennsylvania and would aid in the improvement of our forests, should be reason enough why all of us should get behind a membership drive and why all of us should actively support the Pennsylvania Forestry Association.

Our Program

1. The adequate protection of all Pennsylvania forests from Fire, Fungi, and Insects.
2. The personnel of the Department of Forests and Waters to be chosen and retained on a basis of efficient service only, in order to guarantee permanency of policy and continuity of action.
3. The management of the State forests so that they may supply the permanent needs of the people not only for continuous timber protection but also for recreation, hunting and fishing.
4. Greater co-operation between the departments of the State Government for protection of the beauty of the public lands.
5. Adequate biennial appropriations for the purchase, protection, and development of the State forests.
6. The education of the public, corporations, sportsmen, and forest land owners with respect to the value of our forests and the necessity for their development and proper utilization.
7. The planting of trees valuable for lumber on all waste and idle lands and the continued distribution of seedlings by the State.
8. The education of our children in forestry in both public and private schools. A love and appreciation of the forests tend to a better type of citizenship.
9. The establishment of town and county forests which will bring pure air, pure water, and recreation close to the centers of population.
10. The preservation of the few remaining areas of virgin timber in Pennsylvania.

THE PENNSYLVANIA FORESTRY ASSOCIATION

Organized in 1886

1007 COMMERCIAL TRUST BUILDING

PHILADELPHIA, PA.

I desire to support the activities of The Pennsylvania Forestry Association for the preservation and development of forest lands, and enclose a check for \$..... to cover membership for the ensuing year. One dollar of this amount is to pay for yearly subscription to FOREST LEAVES.

MEMBERSHIP CLASSES	
Annual member	\$3.00
Club membership	5.00
Sustaining member	10.00
*Contributing member ..	20.00
Life member	100.00
Perpetual member	250.00

*If paid for five consecutive years the person automatically becomes a life member.

Name

Address

Date State

FOREST LEAVES, the Association's magazine, is sent to members in all classes. Our program will be found on the inside back cover.

**End of
Volume**