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DEPARTMENT OF FORESTRY

STATE OF PENNSYLVANIA

FOREST LEAVES

JANUARY, 1935



WILD TURKEYS ON PENNSYLVANIA GAME LANDS

PUBLISHED BY THE
PENNSYLVANIA FORESTRY ASSOCIATION
PHILADELPHIA, PA.

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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
LIFE MEMBERSHIP, FIFTY DOLLARS

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.

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ANNUAL MEETING

THE annual luncheon meeting of The Pennsylvania Forestry Association was held at the Adelphia Hotel, Philadelphia, on January 21, with an attendance of over sixty. Following a review of the year's activities by Mr. Samuel L. Smedley, President, Mr. Francis R. Cope, Jr., Council member from Susquehanna County, gave an interesting talk on the flora, topography, and beauty of the Tionesta Tract of primeval timber, which was recently purchased by the Federal Government from Central Pennsylvania Lumber Company.

It should not be forgotten that The Pennsylvania Forestry Association instigated the movement for the preservation of this tract of land, and that much of the credit for successful consummation of the deal is due to Mr. Cope, who gave unsparingly of his funds and time in the effort.

Mr. Reginald D. Forbes, Director of the Allegheny Forest Experiment Station, followed with a discussion of the value of this tract of timber from the viewpoint of a Research Forester. During this talk, the meeting was again impressed with the wisdom of preserving this tract as a Forest Laboratory.

Balloting for Officers and Council members for the year 1935 followed. The following were elected:

President—Samuel L. Smedley
President Emeritus—Dr. Henry S. Drinker
Vice-Presidents—Robert S. Conklin
W. B. McCaleb
Edward C. M. Richards
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Eric County—Miss Dorothea K. Conrad
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Franklin County—George S. Perry
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Dr. Edward A. Ziegler
Fulton County—J. C. Middaer
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Huntingdon County—Mrs. J. C. Blair
Indiana County—Hon. Joseph O. Clark
Jefferson County—W. N. Conrad
Lackawanna County—Mrs. J. Benjamin Dimmick
Hon. L. H. Watres
Lancaster County—Miss Mildred M. Jones
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Lehigh County—Mrs. John A. Frick
Luzerne County—J. M. Sloan
Cornelius B. Kunkle
William R. Ricketts
Samuel D. Warriner
Lycoming County—Henry E. Kirk
Mercer County—George Rettig
Mifflin County—F. W. Culbertson
Monroe County—J. A. Seguine
Montgomery County—Louis B. Ambler, Jr.
Mrs. Albert C. Barnes
Ernest Bartlett
E. F. Brouse
Fred J. Doolittle
H. Horace Grigg
H. Gleason Mattoon
Francis R. Taylor
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Northampton County—Prof. R. W. Hall
Northumberland County—Charles Steele
Perry County—Benjamin D. McPherson
Philadelphia County—Dr. J. M. Anders
Samuel N. Baxter
Owen M. Bruner
Grover C. Ladner
Eli Kirk Price, III.
Dr. Rodney H. True
Albert B. Weimer
Dr. Edward E. Wildman
Pike County—Hon. Gifford Pinchot
Potter County—Harry E. Elliott
Schuylkill County—A. C. Sylvius
Somerset County—V. M. Bearer
Susquehanna County—Dr. Frederic C. Brush
Tioga County—Paul H. Mulford

Union County—Raymond B. Winter
 Warren County—Walter W. Beaty
 Wayne County—Hon. Alonzo T. Searle
 Westmoreland County—Hon. D. J. Snyder
 York County—Edgar P. Kable

Forestry as it is viewed today is a broad term, including in addition to the conservation and development of forests areas for timber purposes, also recreational and game features of woodland development. Accordingly, the meeting was very much interested in a talk by Mr. Henry Woolman on the location of the Horse Shoe Trail and its need as a connection to the Appalachian Trail.

We would be remiss, also, if we did not speak of the reading by Dr. Frederic Brush, of one of his poems entitled "Blight".

Dr. Brush, who is a member of the Association, has had a varied and interesting life, which is reflected in the poems he has written, which are now published under the title "Crooked River".

All in all, the meeting was one of the best held in several years and we believe that it presages increased interest in the activities of the Association. With the impetus given to forestry during the last few years, the work of such an Association is more than ever needed. In the battle for any large objective, a point is usually reached when popular interest would suggest that there is no longer need to continue the battle. The inclination is to say, "The public is aroused. There is no longer necessity for our work."

At that time, however, there is greater need than ever for the counsel and aid of those who are whole-heartedly interested in the cause, not only to maintain momentum but also to prevent ill-timed and unwise projects from being undertaken. The Pennsylvania Forestry Association is needed more than ever.

It should have within its membership every person who believes in forest conservation and development. That number, we are sure, is many times the present membership. Will you not endeavor to interest others in this Association?

Since 1919, except for the years 1921 and 1922, Oregon has ranked second in lumber production, its peak year being 1929 with a total cut of 4,784,000,000 ft.

EDITORIAL

Our readers will find much of interest in the annual report of the State Department of Forest and Waters appearing in this issue. The report shows the scope of the work developing on this Department which is little understood by the general public.

One item mentioned is that about three thousand one hundred permanent camp sites in the forests have been leased to individuals for ten year terms upon which the party leasing erects a permanent cabin or house. These houses are occupied during the Summer and Fall by the family of the owner and his guests all of whom are thus enabled to enjoy being out in the forest and derive the benefits which out door life brings. These leased tracts, therefore, are the means of providing out door recreation for thousands of people and to that extent are to be commended.

There are, however, some criticisms of the permanent nature of the occupancy of these leased tracts, especially since the number has become so large. It being claimed that they occupy the most desirable locations in the forests and thereby exclude others who go into the forests from using them.

There would appear, however, to be ample room for all in the forest areas at present but as the demand increases for these permanent camp sites, in all probabilities the Department of Forests will find it advisable to limit the number granted in the future.

Governor Earle has appointed Ralph M. Bashore, of Pottsville, Secretary of the Department of Forest and Waters to succeed Lewis E. Staley, who held the position for the past four years under Governor Pinchot. While Mr. Bashore is not a trained Forester he has always been interested in conservation and outdoor recreation. With his business training and the close application which he proposes to give the affairs of his Department there is every reason to expect that his administration will be a success.

It will be recalled that Governor Fisher appointed Mr. Dorworth of Bellefonte, who also was not a Forester, to the position which he held during Governor Fisher's term.

President Smedley and several members of

the Council met Mr. Bashore recently by appointment, and had an agreeable meeting with him.

Matters pertaining to Forestry affairs in the State were freely discussed and Mr. Bashore expressed his willingness to co-operate with our association. He solicited our suggestions and advice, and President Smedley said that our association had always stood back of the Forestry Department in the past and would continue to do so insofar as it could be helpful in keeping Pennsylvania as the leading state in Forestry development.

WHAT FOREST LEAVES DO YOU PREFER?

At the last meeting of the Council of The Pennsylvania Forestry Association, a discussion arose concerning FOREST LEAVES. It was discovered that a difference of opinion existed as to the kind of magazine desired. We are therefore appealing to the readers for an expression of opinion.

Will you kindly write, telling us what type of article you prefer? Do you wish more technical material? Do you read the long articles? Would you like greater discussion of the recreational phase of forest development? Would you care for more information on forest activities in other states and countries? Do you want more space devoted to private forestry? What type of short article do you like?

The Council of the Association is anxious for a well diversified expression of opinion on the questions. May we have yours?

The auxiliary forest reserve laws, by which the Department of Forests and Waters has attempted to alleviate the burden of tax excesses on owners of private timberlands in Pennsylvania, is declared unconstitutional. In many instances before the passage of these laws, timberland owners paid annual taxes, the aggregate of which exceeded the value of the timber at the end of the rotation. The advantage of the auxiliary forest reserve laws was not in evading taxes, but in deferring payment until the timber crop was harvested. The opinion is by James W. Shull, deputy attorney general.

ACTIVITIES OF THE PENNSYLVANIA DEPARTMENT OF FOREST AND WATERS FOR THE YEAR 1934

By Lewis E. Staley, Secretary

STATE FOREST LAND

The State Forests of Pennsylvania comprise an area of 1,647,986 acres, acquired at an average cost of \$2.46 per acre.

FOREST PROTECTION

The forest area burned in 1934 was 179,827 acres. A total of 4170 fires cost the State \$146,568.00.

In September a three-day training school for fire wardens was held at the abandoned ECW camp at Kato in Centre County. This meeting, the first of its kind in Pennsylvania, consisted of indoor and outdoor sessions, with discussions of forest fire control methods and wardens' duties, and instruction in handling fire fighting tools and equipment.

With funds made available through Federal appropriations and labor of the Civilian Conservation Corps, the number of forest fire observation towers in the State was increased to 144, 138 of which are owned and controlled by the Department of Forests and Waters. From these towers approximately 90 per cent of the 13,000,000 acres of forest land in the State is visible.

White pines on an area of 12,812 acres were protected from white pine blister rust. This required the eradication of 5,735,000 currant and gooseberry plants on 61,385 acres. Much of this work was done with CCC labor, directed by the personnel of the Bureau of Forest Protection.

FOREST EXTENSION

During the year 9,975,761 trees from the State Forest Nurseries were planted in Pennsylvania as follows:

Class of Planters	Number of Trees
Individuals	2,938,877
Mining Companies	139,500
Water and Power Companies	478,500
Other Industrial Organizations	256,500
Schools and Colleges	43,262

Municipalities and Counties..	725,501
Churches, Homes and Private Hospitals	116,500
Associations and Clubs.....	155,500
State Forests	3,147,350
Other State and Federal Lands	1,739,271
State Nurseries (Transplants)	200,000
Transfer Orders (Reshipment)	35,000
	9,975,761

Planting in the State Forests, totaling 3,147,350 trees, was the greatest since 1918, and was made possible through the ECW program.

There was an increase over 1933 in planting by "Municipalities and Counties" and on "Other State and Federal Lands."

The number of private planters in 1934 fell considerably below that of 1933. This was probably occasioned by lack of funds. The greatest falling off was among those classified as "Private Planters," "Other Industrial Organizations," and "Associations and Clubs." With the decrease in trees sold to private planters, receipts from the sale of trees fell to \$12,334.23.

With labor available in the CCC, and from funds of the Civil Works Administration and the Local Works Division great saving has been possible for the Department, in that much of this welfare labor and funds was used in the nurseries and for reforestation and other planting projects. The nursery areas were extended, water supply systems enlarged and renewed, storage dams built, irrigation systems improved, and one sub-surface drainage system installed.

Large amounts of native Pennsylvania seed were secured, particularly that of white pine, 1934 being the first seed year for this species since 1927.

SEED COLLECTION IN 1934

Species	Amount
Walnut	815 bushels
Red oak	14 bushels
White oak	2 bushels
Tulip poplar	180 pounds
White ash	10 pounds
Sugar maple	8 pounds
White pine	772 bushels
Hemlock	105 bushels
Pitch pine	9 bushels

The Auxiliary Forest Reserve Laws, by which the Department has attempted to alleviate the burden of tax excesses on owners of private timberlands in Pennsylvania were declared unconstitutional. Auxiliary Forest Reserves of 48,434 acres consisting of 81 tracts held by 58 owners in 80 townships and boroughs in 28 counties were removed from classification.

RECREATION

It is estimated that more than five million people visited and enjoyed the recreational, historic, and scenic areas of the State Parks, State Forest Parks, State Forest Monuments, and Public Camping Grounds in 1934. An additional number hunted and fished in the State Forests and visited the forest fire observation towers.

The number of permanent camp site leases in the State Forests has reached 3,029. This is the largest number of permanent camp sites ever leased in Pennsylvania. The first leases were granted in 1913. The taxable value of the camps and summer homes erected on State Forest land is almost \$3,000,000 and is approximately 75 per cent of the total cost of the land of the State. With the five cents per acre of State Forest area paid annually in lieu of taxes to the local governments, the camp taxable value goes far to make up the loss of local taxes from State-owned land.

PUBLIC RELATIONS AND CO-OPERATION

More than 275,000 copies of bulletins, circulars and maps were distributed by the Department in 1934.

Bulletin 52, "Hemlock the State Tree of Pennsylvania," by Henry E. Clepper; Circular 23, "Forest Protection Laws of Pennsylvania"; a folder on Washington Crossing Park; and leaflets on the work and control of 37 forest and shade tree insects by Josef N. Knull, were prepared and distributed.

Fifty thousand text book covers, with pictures and slogans stressing fire prevention were distributed to school children in rural districts where fire danger is imminent.

Two 35 millimeter motion pictures were made, "The Story of a Pine Seed," and "The Curse of the Forest." These films are having running lectures and sound effects attached.

The Department has been handling the booking of the educational films for the ECW camps in the State Forests. More than 1100 showings have been made in 83 camps.

Reprints of the films "The Red Enemy," "In Penn's Woods," and "New Forests for Old" were made on 16 millimeter stock for educational use.

From November 15 to November 23, H. N. Wheeler, lecturer for the United States Forest Service, delivered nine lantern slide lectures before CCC and service club audiences. The attendance at these meetings was well over 3,000.

District foresters and rangers delivered addresses on forestry and local history in their respective regions, and the Department motion pictures were shown at schools and civic club meetings.

The Department files of photographs and slides for publication and exhibition work were considerably enlarged with ECW and general forestry material.

News items for press release were prepared each week, and the weekly Service Letter with a 600 copy circulation, and the quarterly Fire Wardens' News with a circulation of 4200 were published regularly.

The Department assisted in planning programs for the annual meetings of the Pennsylvania Forestry Association at Reading and the Pennsylvania Parks Association at Renovo.

The Pennsylvania State Farm Show in January featured a Department of Forests and Waters Exhibition, and the district foresters prepared exhibits for eight county fairs. In addition numerous smaller exhibits were shown at stores, clubs, and civic organizations.

EMERGENCY CONSERVATION WORK

Continuing the impressive work record made during the last six months of 1933, the Civilian Conservation Corps gained considerable favor with the people of Pennsylvania in 1934. Those who were skeptical, at first about the worth of the Emergency Conservation program, are beginning to appreciate the CCC accomplishments.

There are now 83 ECW camps, under the control of the Department of Forests and Waters, in the State. Seventy-one of these are

in the State Forests, five on Game Refuges, and seven on private land.

Although the camps were set up on the basis of 200 enrollees in each, the average number is usually close to 180, of these approximately 140 daily are employed on projects.

Among the 1934 accomplishments worthy of note, were the efforts towards fire prevention and suppression. A total of over 188 miles of telephone lines was completed and 390 miles of telephone lines were maintained. Fire hazards were removed from an area of more than 5383 acres and 508 miles of fire breaks were constructed. Roadside clearing amounting to 1251 miles was accomplished.

The efficiency of Pennsylvania's forest fire fighting forces was increased through the erection of 10 fire towers and eight fire tower cabins, the construction of 1351 miles of truck trails, the maintenance of 2902 more miles of truck trails, and the building of 167 truck bridges. Five hundred and twenty-seven miles of horse trails were completed and 548 additional miles maintained. Man trails were completed to the extent of 431 miles, 874 miles of trail and fire break were maintained and 110 foot bridges erected.

The men spent 9902 man-days in fire pre-suppression work, 3254 man-days in fire prevention, and 32,235 man-days in actual fire fighting.

Planting projects in the State were extended and preparations were made for future planting—13,238 man-days were spent in nursery work, and 3290 acres of trees were planted. Seed collection amounted to 386 bushels.

Tree and plant disease control work was carried on over 42,272 acres and poisonous plants were eradicated from 1933 acres.

Public camp grounds were improved, 130 buildings being erected, and 488 acres of clearings established. Twenty-eight water improvements were made at camp grounds and 663 other facility improvements effected.

Twenty recreational dams and 1130 fish dams were constructed. Two hundred and fifty-nine miles of streams were improved.

In addition 1442 miles of surveys were made and 598,676 acres were surveyed. Forest stand improvement amounting to 19,942 acres and 917 acres of general clean-up were accomplished.

FOREST RESEARCH INSTITUTE—MONT ALTO

In 1933 an outline was prepared to guide the work of an inventory and stock survey of the Pennsylvania State Forests. A thorough trial of the methods was made at the Mont Alto State Forest and the work extended to the other State Forests in 1934. Data were collected in the field by 81 crews of CCC enrollees under the direction of forestry foremen. Eleven crews have completed their territorial assignments and computations are available for 320,000 acres of State Forest land, including the Mont Alto and Lackawanna Forests in their entirety. About 100,000 acres are in process of computation and the field work has been done on an additional estimated area of 175,000 acres. It is proposed to cover about 1,500,000 acres of State Forest land and probably some of the State Game lands.

A statistical report on the use of land in Pennsylvania was prepared including 67 county tables, and 67 county maps showing the extent, location, and present ownership of forest land and 67 maps giving the future recommended ownership of forest land.

Weather observation has been continued at the Research Institute at Mont Alto for fire weather studies and prediction, and to compare the reaction of native and exotic trees species under varying climatic conditions.

Seed testing and germination studies are made in advance of all tree seed purchases. Fifty samples per year are carefully studied.

A detailed and persistent study of methods for reforesting scrub oak lands is under way. Studies have been made of the practicability of different planting tools and under various methods of planting and later assistance. A series of experiments were made on old fields and in brush with soil cultivation of different types. So far cultivation has failed to show sufficient advantages to pay for it.

WATER SUPPLY

Probably one of the most outstanding accomplishments of the Department of Forests and Waters was the completion of the reservoir at Pymatuning in Crawford County. This reservoir has a drainage area of 160 square miles. The finished project cost approximately \$3,750,000, of which amount \$415,000 was subscribed by the steel companies and other

beneficiaries in the Shenango and Beaver Valleys for the purchase of the necessary lands in Ohio.

Water supply for Pennsylvania homes and industries is insured by 870 reservoirs and storage basins, each with a capacity of one million gallons or more. Over 10,900 square miles of drainage areas supply these reservoirs with the 238 billion gallons of water they contain.

The purpose of these dams and reservoirs is to regulate stream flow throughout the year. Without regulation the dependable amount of water which may be supplied by a stream is limited to the minimum flow in drought periods.

CUT FIRE LOSSES

Robert Fehner, director of Emergency Conservation Work, says the Forest Service and the National Park Service report that the presence of the Civilian Conservation Corps in the woods this summer together with the forest protection work completed in past months by the C. C. C. had been of the greatest assistance in holding down fire losses on nationally owned lands during an especially bad first year.

"I am advised," Fehner says, "that fire fighting expense and acreage burned over in the 163,000,000 acres of national forest lands has been held below the record of other comparable years, despite the driest summer in decades.

"Officials of the National Park Service report that damage to national parks this past year has been negligible except for one serious conflagration in the Mesa National Park. Each service attributes its success in holding down fire losses largely to the availability of large numbers of C. C. C. men and to the better communication, transportation and fire detection facilities which have been built into the forest and park fire protection systems."

Reports from the various C. C. C. camps disclose that from April 5, 1933, to July 31, 1934, the C. C. C. had spent 1,086,000 man-days fighting fire. During the first year of the C. C. C., which ended March 31, 1934, a total of 686,000 man-days were spent fighting forest fires.

**SOME OF THE ACCOMPLISHMENTS
OF THE PENNSYLVANIA BOARD
OF GAME COMMISSIONERS WHICH
MAY BE OF INTEREST TO THE
PENNSYLVANIA FORESTRY ASSO-
CIATION**

Submitted by W. Gard Conklin, Director
of Refuges and Lands

FUNDS

ALTHOUGH it is generally known to the Members of the Pennsylvania Forestry Association, there is no harm in calling

attention to the fact that the Game Commission is self-supporting. It is financed entirely from moneys received from the sale of hunting licenses, collection of fines for violations against the game laws, etc. No funds are received from general State revenues. May I also call attention to the fact that 75c out of each \$2.00 resident hunting license is earmarked by law for the purchase of lands, the creation of game refuges, and the maintenance of the system of refuges and public hunting grounds. The last report of the number of hunting licenses sold this year indicates that it had reached 514,427. This will be slightly increased. This means that almost \$386,000



SOMETIMES BRUIN MUST EXTEND HIMSELF TO GET FOOD

will be available for Refugees and Lands for the present fiscal year. The total revenue for Game Commission uses will slightly exceed \$1,000,000.

LAND PURCHASE PROGRAM

During the past year the Game Commission acquired title, in the name of the Commonwealth, to a total of 70,407.4 acres of State Game Lands, bringing the total acquired to date to 395,030 acres. The total amount paid for lands up to this time is \$1,431,819.74. In addition to this, approximately 81,000 acres are under contract for purchase.

State Game Lands are now distributed in forty-two of the sixty-seven counties of the State. It is the Game Commission's desire to purchase game lands in as many counties of the State as possible, and special efforts are put forth to acquire tracts within easy reach of the more thickly populated sections. Sportsmen throughout the State continue their wholehearted support to the policy of public ownership of wild lands.

One additional game farm of 217.3 acres was recently purchased in Lycoming County. Four game farms are now maintained, with a total area of 1,991.7 acres.

PRIMARY STATE GAME REFUGES

Eleven primary state game refuges were created during the year, ten of which are on State Game Lands and one on the Allegheny National Forest. The Game Commission is now maintaining:

	Acres
59 primaries on 46 blocks of State Game Lands, totalling	44,120
20 primaries on State Forests, totalling	45,612.7
1 primary on the Allegheny National Forest	400
Aggregate	90,132.7

AUXILIARY STATE GAME REFUGES

Fifty-three auxiliary state game refuges, totalling 20,343 acres, are now maintained; fifteen of these, with a total area of 6,679 acres, are located on State Forests, and the remainder on privately-owned lands for which the Game Commission, by written agreement, controls the hunting rights. Under the terms of such agreements 42,598 acres surrounding the refuges are open to public hunting.

REFUGE KEEPERS EMPLOYED

Thirty-eight full time and two part time salaried refuge keepers are now employed on primary game refuges.

CIVILIAN CONSERVATION CAMPS

The following Civilian Conservation Camps are located on State Game Lands:

No. 101. State Game Lands Nos. 44 & 54, in Elk and Jefferson Counties, located at Croyland.

No. 102. State Game Lands No. 57, Wyoming County, on Mehoopany Creek.

No. 103. State Game Lands No. 12, Bradford County, at Laquin, an abandoned chemical plant town.

No. 104. State Game Lands No. 13, Sullivan County, located near Elk Grove.

No. 105. State Game Lands No. 61, McKean County, near Port Allegheny.

No. 106. State Game Lands No. 74, Clarion County, near Strattonville.

The principal work being done by the men of these camps is the construction and repair of fire protection roads. In all cases winter quarters have been provided for the men.

CIVIL WORKS ADMINISTRATION

The inauguration of the Civil Works Administration program presented an opportunity for the Game Commission to co-operate with the National Government in providing work for the unemployed. At the same time, it provides an opportunity for making much-needed improvements on State Game Lands and game farms. Sixty-eight approved C. W. A. projects are in operation on State Game Lands, and four on game farms. Work has been provided for 833 men in forty-two counties of the State, involving an expenditure of \$116,170 of C. W. A. funds. Work on State Game Lands to be conducted to February 15, 1934, is mainly the opening up of fire protection trails. A small amount of road repair work is also under way.

FOREST FIRE POSTERS

During each of the past three years the Game Commission published for free distribution vividly colored forest fire posters. This year's posters depicted a badly frightened rabbit fleeing from a forest fire. The posters

have been in great demand, and no doubt have brought to the minds of many persons, not only sportsmen but nature lovers in general, the fact that much wild life is destroyed by forest fires.

RESTOCKING DEPLETED AREAS

Restocking of game on depleted areas was conducted on even a larger scale than heretofore. Ringnecked pheasants, bobwhite quail and wild turkeys were raised on the several game propagation farms. Rabbits and other species were purchased from dealers mainly outside of the State. The following were released for restocking:

	Purchased	Raised on State Game Farms
Cottontail rabbits	62,502	
Varying hares	2,003	
Ringnecked pheasants	3,847	12,223
Bobwhite quail		2,133
Hungarian partridges	1,204	
Wild turkeys		484
Raccoons	447	
Fox squirrels	510	

PREDATORY ANIMAL CONTROL

Predatory animal control is an important function of the Game Commission if the more important and less destructive species are to continue in goodly numbers. Bounties amounting to \$119,715 were paid on claims for 211 wild cats, 9,392 gray foxes, 78,656 weasels and 64 goshawks.

EDUCATIONAL ACTIVITIES

Educational motion pictures of the following subjects are available for distribution to associations interested in wild life:

- The Beaver in Pennsylvania: 1 reel (16 mm. and 35 mm.).
- Trapping Beavers: 1 reel (16 mm. and 35 mm.).
- Raising Game Birds: 1 reel (16 mm. and 35 mm.).
- Wild Life Conservation in Pennsylvania: 3 reels (16 mm. and 35 mm.).
- Something About Bears: 1 reel (16 mm. and 35 mm.).
- Game Protector's Training School: 1 reel (16 mm. and 35 mm.).
- Pennsylvania's Game Refuges: 1 reel (16 mm. and 35 mm.).
- Friends in Feathers: 2 reels (16 mm. and 35 mm.).
- Birds of Prey: 1 reel (16 mm. and 35 mm.).
- Pennsylvania's Mammals: 1 reel (16 mm. and 35 mm.).
- Citizens' Conservation Camp: 1 reel (16 mm. and 35 mm.).
- Game News: 4 reels (16 mm. and 35 mm.).
- Winter Feeding of Game: 1 reel (16 mm. only).

GAME KILL

The extent of the game kill for the year 1933 is not yet available. Following is the kill for the 1932 season:

Kind	Number
Elk	19,724
Deer, legal males	19,890
Deer (antlerless)	216
Bear	3,126,512
Rabbits	19,890
Hares (Snowshoes)	590,128
Squirrels	31,772
Raccoons	2,992
Wild turkeys	134,135
Ruffed grouse	246,551
Ringnecked pheasants	129,564
Bobwhite quail	27,141
Woodcock	12,594
Shorebirds	174,362
Blackbirds	25,431
Wild waterfowl	
Total	4,541,012
Total weight	10,948,304 lbs.
Reduced to tons, equals	5,474 tons

The Charter of the Forests, granted by Henry III in 1217, was founded on Magna Charta, granted by King John, June 15, 1217, and confirmed in 1225 and 1297.

From Magna Charta

31. Neither shall we nor our bailiffs take any man's timber for our castles or other uses, unless by the consent of the owner of the timber.

44. Those men who dwelt without the forest from henceforth shall not come before our justiciaries of the forest, upon common summons, but such as are impeached, or are pledged for any that are attached for something concerning the forest.

47. All forests that have been made forests in our time shall be disforested; and the same shall be done with the river banks that have been fenced in by us in our time.

48. All evil customs concerning forests, warrens, foresters and warréners, sheriffs and their officers, rivers and their keepers, shall forthwith be inquired into in each county, by twelve sworn knights of the same shire, chosen by creditable persons of the same county; and within forty days after the said inquest, shall be utterly abolished, so as never to be restored; so that we are first acquainted therewith, or our justiciar, if we should not be in England.

PRACTICAL FOREST RESEARCH IN PENNSYLVANIA

Edwin A. Ziegler, Director, Pennsylvania
Forest Research Institute

Importance of Forest Research

A PROFESSOR in one of our leading forest schools recently stated in discussing the training of professional foresters, "Forestry as a professional subject is broader than agriculture. It includes, to a more intimate degree, a dependence on utilization and marketing technique and economics. It brings far more extensively the principles of engineering into harvesting and transportation of the product. It is concerned with broader fields of land utilization, involving recreation, game and fish resources, grazing, and the field of forest protection including control of erosion, water supplies, and stream flow.

It deals in a comprehensive way with large scale industry, in manufacturing, involving a field of economics as broad as agriculture, plus business problems on a scale not presented by farms, and including transportation, milling and processing. These are largely excluded in agricultural courses. It deals directly with a land use problem which requires an extensive public program with laws and administration not merely supervisory or inspective, but direct, through public ownership, and with regulation as comprehensive as in agriculture.

"It directly affects the large field of public recreation, and sport, which agriculture does not touch. A true comparison with agriculture would confine forestry largely to silviculture, economics and the woodlot. This unhappily is the attitude of many agricultural colleges. For the number and range of subjects taught, agriculture is overmanned in comparison to forestry by very high ratios, and the willingness of the forestry profession to put up with faculty equipment based on an agricultural or woodlot estimate of its importance is the chief source of weakness in professional training."

In thus summing up the field of professional forestry for education he also summed it up for research. Forest research deals then with land problems of equal size to those of agri-

culture. The forest land in Pennsylvania and the nation is of as large an area as the agricultural land. Its mismanagement will bring on our people as much hardship as the mismanagement of agricultural land.

True agriculture is concerned largely with supplies of human food and clothing. But forestry is concerned with adequate supplies of materials involved in shelter and other structures, with fuel, with implements, tools and machinery, with education through books and magazines and papers, with potable water supplies, with water power supplies, with protection of both forest and adjacent agricultural land from erosion, with recreation, with game and fish resources, and in the aggregate with the height of floods, and probably with climate itself. The forest is also contributing to clothing, such as artificial silk and tanning of leather, and even to human food other than game and fish.

While incorrect agricultural methods show up rather quickly, errors in forest management may not be evident for decades. The responsibility in forest research is much greater therefore from the time element involved.

Agriculture has caught up with human food requirements for its staple products. Forest growth* still replaces but a fraction (55 per cent) of our total diverse forest product consumption and 20 per cent of our saw-timber cut. It is also unequal to the contributory water, erosion control, recreation and other forest cover services which we may expect from a proper forest stand on non-agricultural and submarginal agricultural lands. From this point of view we may say of agricultural research, that it is overmanned in comparison with forest research by very high ratios just as agricultural education is overmanned compared to forestry education.

Yet agriculture seeks continually to control and subordinate both forestry education and forestry research to the detriment of the national and state reforestation programs. It seeks to strip state forestry organizations of all functions save public land administration and fire protection. Forestry education and research will continue to make limping prog-

*P. 222—Vol. 1—"A National Plan For American Forestry," Senate Document No. 12—73d Congress—1st Session. U. S. Govt. Printing Office—1933.

ress until they cut these agricultural apron strings and reach the responsible place in the public mind warranted by the extent and importance of our forestry problems.

The Problem of Land Use

The basic problem in the rebuilding of our economic life is that of *land use*. Normally we have been a large exporter of farm products. These foreign markets have dwindled from a number of causes so that the prices of our excess crops have been so low over the last 13 years that increasingly large areas of cleared land are being abandoned for taxes. The federal government is at present engaged in a further effort to limit the land cultivated for agricultural crops and thus increase the prices of farm products. But at the same time work in other directions must be found for the farm labor released both through farm abandonment and crop reduction.

There are three major uses of land—agriculture, timber growing, and grazing, ranking in that order in the creation of product values and in the support of labor. With over-production in agriculture and grazing the attention of the nation and state is turning to the problems involved in reforestation of the submarginal agricultural lands as well as the cut-over timber lands.

Forest Growth Below Consumption

In marked contrast to the agricultural situation, the best data shows that we are growing but 55 per cent of our total cut and wastage of forest growth in the U. S. Indeed if we consider saw timber alone we are growing only 20 per cent of our normal consumption of the late 1920s. In Pennsylvania the ratio is not precisely known (this is one of our Institute problems) but the situation is little better as to total wood growth to drain, and for saw timber the situation is even worse, than the national situation. It has been estimated that Pennsylvania spends roughly 100 million dollars annually on forest products and 2 million acres of marginal cleared land can in time be made to supply this.

Ability of Forests to Employ Labor

In Europe forest managers employ one worker for approximately each 100 acres of

land in the reforestation stage, and one worker to approximately each 50 acres when cuttings begin. If milling work is included there will be two workers employed for each 50 acres. But accepting for the present one worker to each 100 acres, Pennsylvania forest land should be able to employ 140,000 workers full time in her 13 million acres of forest and cut-over lands, and in reforesting upwards of 1,200,000 acres of already abandoned farm land. All told 4 million acres of cleared and cut over land need reforesting as will be pointed out later.

Forest Land Research

The Department of Forests and Waters realized the importance of the drift from agriculture on the poorer state lands to reforestation. In order to have definite information on the location and value of these idle cleared lands, the State Forest Research Institute was directed to conduct an "Idle Land Survey"* in the state. The purpose of the survey was to show

(a) the location, amount and value of idle land that could be assembled in blocks of 500 acres or more for state reforestation and administration,

(b) the location of smaller areas near enough to existing state forests to be purchased and attached to these forests,

(c) areas too small and scattered for state administration.

The canvass of the 17 county samples, in which all assessors' books were consulted and the counties traversed township by township, revealed 1,200,000 acres of entirely idle cleared land in the state, not even grazed by stock. While only 172,000 acres of entirely clear land appeared suitable for state acquisition and reforestation, woodland attached to these cleared tracts would bring this total to 375,000 acres. A reasonable state program would purchase 35,000 acres of this land each biennium, of which about 21,000 would be planted up, at an estimated cost of \$399,000 or slightly less than \$200,000 per year. This would require less than 22 years to complete the program.

The federal government is at present look-

*See Bul. 51, Pa. State Dept. Forests & Waters "Reforesting Pennsylvania's Idle Land As a Self-Liquidating Public Work."

ing into the problem with the possibility of federal aid. These moves toward reforestation require more than research. After the situation is proven the active support of such public welfare bodies as this Association is needed to translate knowledge into action.

A second piece of forest land research by the Forest Research Institute was a study of the abandonment of forest and cleared lands for taxes; the amount of forest land taxes; the ratio of tax assessments to sale value on (a) business and residence property, (b) on farms, and (c) on forest land; the fairness of the present state payment of 5 cents per acre on state lands to local governments in lieu of taxes; and the effect on local public finances of further state forest land purchases.

The study was carried on in eight counties in co-operation with the State Tax Commission of 1931-32. These counties were selected because of the county tax assessment records separating clear and forest lands. Many county tax records are not in sufficient detail for such a study. Adams, Crawford and Franklin counties were taken from the agricultural counties, and Center, Clinton, Elk, Potter and Sullivan from the more predominantly forest counties.* The study brought out that woodlands in farming areas with saw timber paid annual taxes of from \$.54 to \$7.40 per acre. This is confiscatory and the Tax Commission recommended extending the yield tax system to farm woodlands.

The lowest average annual tax in any county on all forest lands, including "unseated" or mountain tracts was 8.1 cents per acre in Center County.

Clinton had 8.6 cents, Elk 12.5, Sullivan 12.4, Potter 15.6, and Crawford 51.0 cents per acre and year. The Tax Commission recommended therefore that the state should raise its payment on state lands in lieu of local taxes to 4 cents per acre for schools, 2 for road, and 2 for county purposes, dropping the payment for roads as soon as the state maintains all roads. This would give schools 2 cents more and the county 1 cent more than at present, and reduce the hardship caused by the state taking over additional private forest

*These detailed county progress reports are available in mimeographed form from the Research Inst., Mont Alto, Pa. A final report will appear in print.

areas from the tax base for state forests.

The study also showed a higher ratio of tax assessment to sale value for farm and forest land than for residential and business town-property. This results in the shifting of too much county tax on to farm and forest property. There was also great inequality in assessment of individual properties, town and rural. The Tax Commission recommended county assessors, as are now provided in 3rd class counties, to remedy these two evils.

The local detailed county studies were supplemented with a delinquent land tax canvass covering the state. Many county records were very unsatisfactory but the summary showed 139,996 acres of cleared and 412,101 acres of forest land "sold to the county" at tax sales for want of private purchasers; and 264,161 acres of cleared and 326,476 acres of forest land advertised for sale.

23 counties reported tax delinquency to 1931, 18 to 1930 and 10 to 1929 or earlier, with 16 not reporting but estimated. This understatement shows over half a million acres of land sold to the counties and another 691,000 listed for sale. The act permitting the counties to deed county owned land to the State will not achieve the desired results. It will require a state appropriation of \$100,000 per biennium for several years to acquire the land by paying back taxes not to exceed perhaps 30 cents per acre, along with advertising costs and certain small transfer fees. County officers will then clear their records of tax lands, the title of which is good enough for the state to purchase.

Forest Stand and Growth Research

Next to the basic forest lands problems comes a group of problems relating to forest stand and growth. The yields of forest lands with different species of trees must be accurately measured and put in such published form that both the state and private forest owner may be able to reduce timber growing to a business and take it out of the present guessing and speculative field.

Perhaps the most important piece of forest research ever undertaken by any agency in the state is the present "Forest Stock Survey" being conducted by the Department on over a million acres of state land with the assistance

of 60 E.C.W. camp foresters and crews of 8 men each, making a total of 480 men, directed by the District Foresters and Research Institute. This survey will reveal the amount of wood growing in trees 4 inches and over in diameter; the rate of growth in diameter and height of the individual species; the increment per acre, and the wood that should be cut in thinning; the areas that are fully reforesting, partially reforesting, or need planting. It will furnish the data for a large forest product business that represents the next step in the management of our state forests beyond the road and protection work being set forward so effectively now by the President's E. C. W. Camps.

This forest stock taking is carried on by tallying and measuring the trees on 1 chain strips placed 20 chains apart and giving a 5 per cent sample. By comparison with a 10 per cent sample on a trial compartment, the 5 per cent sample will give sufficient accuracy. Each 100th tree is a sample tree and is bored for age, and measured for height, merchantable contents, crown class, etc. The data are computed at the Research Institute.

The Mont Alto Forest is far enough along to show that the present increment of mixed oaks is about 45 cu. ft. solid or one half cord per acre and year; and the diameter growth about 5 years per diameter inch (10 inches at 50 years) and an average height of 60 feet at 50 years.

While this piece of research will show what the state lands are actually growing, it is equally important to know the possibilities of the forest in the shape of fully stocked areas or "normal" stands. For this study fully stocked sample plots are laid out in plantations and in the different natural forest types over the state, covering different species and land site qualities. The main efforts are at the moment directed (1) at the Oak-Hard Pine Type yields, and (2) at the yields shown by different species in pure stand plantations. The oak type is showing yields of 40 to 100 cubic feet per acre and year in fully stocked stands, while coniferous plantations show 75 to 150 cubic feet per acre and year with current growths recorded exceeding 200 cu. ft.

Plantations yield at once these high normal or fully stocked yields, while the natural forest

will require years of management even to approximate normal or full yields.

These yield studies required much preliminary work in the construction of volume tables particularly for 2nd growth hardwoods in Pennsylvania. The plantation yields cannot be properly interpreted without detailed examination of the soils on which they are located, involving hundreds of soil analyses.

Because of the depredations of the white pine weevil and the introduction of the blister rust, white pine is losing some of its popularity for forest planting in favor of red pine (*P. resinosa*). The Institute made a special study of Red Pine and a report on it is now in press. Beside freedom from insect and fungous attack, this species has much to commend it in quality of wood, rate of growth, and modest soil requirements. It was once common in the forests in the northern part of the state.

The chestnut blight swept away one of our most valuable forest species, and destroyed locally as much as 40 per cent of the forest stand. A study through sample plots and marked cankers on individual chestnut sprouts shows no immediate hope of restoration of the chestnut through the development of immunity. However, where isolated sprouts survive to the point of producing nuts (as early as 3 or 4 year sprouts), these nuts are collected and planted. No demonstrated immunity has been found in our native chestnut.

Oriental hardy chestnuts are being experimented with in co-operation with the U. S. Bureau of Plant Industry among the exotic trees being tried out at the Institute.

Perhaps the most important portion of the chestnut study is the discovery that the dominant oaks left after the death of the chestnut on the Mont Alto Forest have increased their diameter growth as much as 100%. The growth of other species on the Mont Alto Forest has already more than replaced in volume of growing timber the blighted chestnut lost. Among the species replacing the chestnut in openings, rock oak and red maple are the most frequent. This raises a question of the utilization of red maple, and an experimental "cook" for paper pulp has been arranged with the Gladfelter Paper Co. of Spring Grove, York Co. The Mont Alto Forest has about 20,000 cords of marketable red maple 4 inches in diameter

and over and other state forests will have increasing quantities as the red maple seedlings and saplings appearing in chestnut openings reach pulp wood diameters. This report on the chestnut is in the files of the Department and is proposed for publication.

Forest Protection Studies

Forest protection studies have been carried on in the fields of forest entomology, deer damage and forest fire hazard and damage.

The Department has published a series of some 36 leaflets on forest insects, their damage, and control, prepared by the Institute Forest Entomologist. These have been listed in a recent Service Letter. A report was prepared on a field "Study of the White Pine Weevil."

A study of deer damage* to forest planting and natural growth was begun in 1927, in cooperation with the State Game Commission. Paired fenced and unfenced plots were established in young forest plantings. Regions were found where the forest planting was doomed to destruction by deer unless fenced at a prohibitive cost. The deer herd in some localities in the state was estimated at its peak as one to each 15 or 20 acres of forest. This was excessive both for the welfare of the deer because of insufficient food, as well as the damage to the young forest and adjacent farms. A series of open doe seasons was declared by the Game Commission and the herd reduced. The plots are being kept up as a measure of the deer damage factor in reforestation.

Forest fire investigation is crystallizing in three directions:

(1) the determination of the hardiness and resistance of trees to fire. These data will be useful in selecting species for planting or retention and encouragement on areas where fires are difficult to prevent;

(2) the immediate earmarks of fire wounds and their permanent effects on merchantable trees of different species and diameters. Information is desirable in selecting growing fire-damaged trees for removal after a fire, as well as in making accurate reports of fire damage;

(3) the relation of weather and other fire factors to the intensity and spread of fires

*See Bul. 50—Pa. Dept. Forest & Waters, "The Deer Problem in the Forests of Pennsylvania."

in order to predict degrees of fire danger or hazard. The U. S. Forest Experiment Station at Missoula, Montana, has broken the path in this line of research work with a device for integrating the principal fire hazard factors into a single figure, which eliminates the varying personal judgment of the fire observer.

Other Experimental Work

It must not be overlooked that forest research studies and experiments were put under way by the Department of Forests and Waters as early as 1902 when the state first began the development of state forest lands. Nursery experiments have been continuous since that time. The Mont Alto Nursery broke ground in developing a clay soil modifying method for coniferous seedlings and in developing the proper soil acidity for reducing the destructive damping-off fungi diseases. The Clearfield Nursery excelled in developing mechanical aids in cheapening forest seedling costs.

The Forest Research Institute performs the required annual forest seed germination tests for all Department nurseries and is continually carrying on tests of exotic forest tree seeds and seedlings in co-operation with other forest research agencies and foreign governments.

The development of an extensive arboretum; the maintenance of a continuous meteorological record with readings twice daily at the Institute; together with much service to the public in identifying tree pests and advising for their control; identifying tree and shrub species; experiment with sterilized and inoculated soils in the production of root mycorrhizas on certain species; the variation in growth produced by seed strains of certain species; the efficiency of planting methods and species mixture; and other forest problems of immediate and practical importance to the state forest administration, and private forest owners equally throughout the state,—all these are actively being advanced.

Every step of progress in handling the state forest properties has been accompanied by careful experiment, much of which at first was empirical. Much of the early research was directed by the state foresters in connection with their State Forest School work on the Mont Alto Forest, which lead to repeated recommendation to the Department by the writer

for making the Mont Alto Forest the State Forest Experiment Station to the extent that state forest research could be localized. This was accomplished under the administrative title of "The State Forest Research Institute" in 1930, which combined the Department's "Office of Research" established in 1920, and the Forest School experimental work localized on the Mont Alto Forest.

It is significant that Great Britain, in her reforestation project of 1919 to 1934 sets aside from her annual expenditure of 3½ million dollars, 60 thousand dollars for research. This research is almost entirely directed by the forest administration.

The United States Forest Service has established ten regional forest experiment stations with a large forest products laboratory, all of which are handled in close correlation with the huge National Forest properties, as well as for the interest of private forest owners. Truly forest research progresses best when associated closely with forest administration. Forest research is "the spearhead" of reforestation progress.

OUR ELM TREES—WE SHALL MISS THEM

By H. Gleason Mattoon

DEPRESSING as it is to visualize, there is a possibility that by 1955 the elm tree, that most beautiful and most American feature of our landscape, will be but a memory. Before cataloguing this as an overstatement, consider.

In June, 1933, in Maplewood, New Jersey, there was found one elm tree which had been attacked by *Graphium ulmi*, more commonly called Dutch elm disease. During the next eighteen months, within fifty miles of that tree, 6500 more elms were dead or dying from the same dread disease. That is, if anything, an understatement of its brief but active history in this country. Consider further.

In Holland, where this fungus was first discovered, its ravages are beyond description. In less than ten years the elm population of Rotterdam has been reduced from 30,000 to less than 12,000 trees. In Baarn, Holland, not an elm remains.

Other facts and figures could be given, but it scarcely seems necessary. If you have considered these facts, you may feel that the word "probability" should have been used in the first sentence rather than "possibility." The correct word hinges upon the immediate action taken by Federal and State authorities. If adequate funds are provided and quarantines are established, if every possible means is used in the attempt to eradicate Dutch elm disease, then there is only a possibility that the elm will become but a memory. If every known measure is not used to its fullest, then the grave probability exists.

Public Works Administration has made available \$527,000 toward the effort, but those who are engaged in Dutch elm disease eradication say this is only half enough. At least \$1,000,000 must be provided by Federal authorities in addition to State support before there is hope for success. In addition, the adjoining states should institute quarantine measures against the importation of elms of any size from localities in the infected area. Experience has shown that the disease carried to trees in the Fall remains in an unrecognizable condition until the flow of sap in the Spring. If dormant elms are shipped to Pennsylvania from an infected area, there is always the potent danger that *Graphium ulmi* will be spread.

This is not written as news, but rather to emphasize the seriousness of the situation and to entreat you who love elms to acquaint those in authority with the necessity for immediate action. When the Mediterranean fruit fly threatened the citrus crop, Floridians dwelt so effectively upon the prospective gastronomic loss to the country that millions of dollars were made available in a short time to fight the pest. Cannot the lovers of elm trees regiment their protest against the possible aesthetic and utilitarian loss of the elm so effectively that those in authority will act with equal rapidity?

On each owner of an elm tree devolves an additional responsibility, to see that his trees are kept in a healthy, thriving condition. Health is insurance against disease, so by subscribing to such a preventive policy one may at least retard the spread of Dutch elm disease.

BIRDS AS PRACTICAL FOREST AIDES

THE famous lines of Joyce Kilmer, which state that "a tree that may in Summer wear a nest of robins in its hair" do not mean literally that the tree, despite the Audubon Society, uses whole nests full of birds for personal adornment.

The tree does not need decoration of any kind, but it does need the birds. They are indispensable to its health and increase, both under the natural conditions which prevailed some centuries ago and still more under the modern conditions which prevail today when man has inadvertently upset the balance of nature.

This balance has been thrown out of adjustment by unintentional importation of foreign pests which have been difficult to control, once established, and apparently are controllable only by fostering and encouraging the natural enemies and destroyers of such immigrants.

One such, which occurs to everybody in these eastern states, is the Japanese beetle, another the gipsy moth.

People living in the areas infested by the Japanese beetle have noticed starlings, robins, grackles and flickers probing the soil for beetle grubs, and have also observed birds feeding on the adult beetles. Even the maligned English sparrow renders this service. Where there are plenty of birds beetle damage is greatly curtailed.

Only by keeping down the insect pests can we expect to maintain our trees, and this statement applies both to the ornamental plantings and forests.

Few people realize what an amazing amount of food is consumed by a bird in its daily life and in the rapid rearing of its brood, provided such food is available—far greater in proportion to its size and weight than is necessary for mammals.

Mr. George Gray, in a recent number of the *Pennsylvania Game News*, published an instructive article entitled "The Value of Birds to Man." In this article he gives some counts of the stomach contents of certain birds. Among these are 217 bag-worms for one

yellow-billed cuckoo, and 250 caterpillars for another; 3500 ants for one flicker and for three nighthawks respectively 60 grasshoppers, 500 mosquitos and 1000 ants. Mr. L. H. Bailey mentions a daily consumption for one bird of more than 5000 eggs of the fall canker-worm moth. He also lists among the food of various birds such destructive insects as wood-boring ants, bark-lice, cut-worms, leaf-hoppers, sawflies and brown-tail, tussock and gipsy moths.

When we stop to think what high rates of reproduction prevail in the insect world, how quickly generation follows generation, and how soon the individual multiplies to hundreds and thousands, we realize what a war we are engaged in, not only for the preservation of our trees but for the saving of all plant life, which, in turn, includes all animal life.

It can scarcely be doubted that if we had no birds, all other land life would be overwhelmed and destroyed by the insect world.

With too few birds there results a lower "life expectancy" for our trees, and probably the total extinction of those species less able to cope with the insect enemies.

The thought may arise whether the requisite proportion of birds does not automatically keep pace with the number of trees to be protected and the number of insects to be destroyed. In other words, "leave it to Nature to adjust."

The answer is that man has dislocated the balance of nature by spreading exotic species, which usually thrive abnormally in a new environment, and with which local conditions are inadequate to cope.

Nature does her best to restore the balance. Each tree produces multitudes of seeds, and plant life generally struggles valiantly to overcome the destructive agencies. Anything which we can do to help by protecting and increasing the supply of insect-eating birds will be invaluable co-operation.

Even the grain-eating birds benefit forestry, especially the young trees, as their diet consists largely of the seeds of noxious weeds which, if not kept down, would choke the seedlings. Then, too, their young are reared on insect diet. Studies made by Prof. Beal convince him in Iowa the tree sparrows consume tons of seeds during a winter season, chiefly of the ragweed; but during the nesting season

in the northern woods the young of these sparrows are fed on caterpillars and grubs injurious to plant life.

Another service performed for certain trees by the bird associates is the dissemination of seeds. Such trees as the cherry, mulberry and sumac, in fact almost any tree which produces a pulpy fruit and a hard seed, depend upon the birds to sow the new crop. These fruits are eaten by the birds and the soft portion is digested without injury to the bony seed which is thus carried and sown on new ground.

Admitting the value of the feathered folk to trees, what can we do to help and protect the former?

Protective legislation has helped, not so much by deterring the mischievous boy or the thoughtless hunter, as by advertising the fact that the birds are a valuable asset.

Birds are industrious, alert and adaptable creatures, always attending to business and ready to thrive and increase, given reasonable conditions and half a chance. Their natural enemies have been greatly reduced by man. Hawks and owls have been diverted, to a considerable extent, from a diet of birds to one of field-mice. The crow finds much of its summer food in our cultivated fields and accounts for its share of insect life during the growing season. The most serious enemy of this class is the stray cat. Mr. Job T. Hedges stated that cats destroy more birds than all other enemies combined. The best remedy against these destructive creatures is a "lead pill between the eyes and no questions answered." Cats are natural bird-hunters and their reformation is impossible, but many of them are forced into predatory life by the ignorance or indifference of "absentee landlords," people who go on a vacation and heartlessly turn their pets loose to maraud or starve. It is unfortunate that the many who thoughtlessly use this cruel practice cannot themselves be forced to feel the discomfort of lack of shelter and inadequate food.

For the summer birds much can be done by providing and maintaining proper nesting sites, by providing bird baths and drinking bowls, constantly filled; by avoiding the careless use of poisonous insecticides; and by teaching at home and in the schools that birds' nests should

not be robbed or disturbed, and that our feathered friends should not be hunted with air-rifles, stones or sling-shots.

The great enemy of our winter birds is hunger. Cold can be endured by the birds, provided their stomachs are fairly well filled, but the combination of hunger and cold destroys them. Help can be given along this line by providing winter food. One of our members, who owns some woodland, plants occasional strips of sun-flowers and millet on the edge of the woods. These plants, when mature, stand above the snow and offer a supply of food for the birds which frequent wooded cover. The adjacent thickets permit a quick dash from the feeding place to safety if a predatory hawk should appear.

Help can be given also by refraining from cutting sheltering undergrowth or the burning over of fields during the inclement season.

In these days of "too much statistics" the author has purposely omitted many references to the consumption of multitudes of harmful insects by birds. Changes of environment and conditions have increased the enemies of our trees, and have also increased the difficulties to be encountered in their propagation and development. A greater burden rests upon the birds. By aiding and caring for them we cannot only assist our homestead and park trees but we can definitely help to "Restore Penn's Woods."

The restoration to forest growth of lands totally unsuited or ill-suited to other productive use is both a present and a future benefit. With the continuing discovery of new uses for wood pulp and fibers, the government expenditure for timber production and perpetuation should prove in the long run a profitable investment even from the business viewpoint. —*New Orleans Times-Picayune*.

The number of trees of average size, cut in the forests of the country in one year would cover an area in growing trees equal to the total acreage of the states of Massachusetts, Connecticut and New Jersey.

FOREST BOUNDARY MARKING

By Walter Leach

DURING the past 25 years the writer has had occasion to hunt for Forest Boundaries along which all signs of survey marks were dim with age. In the year 1931 in particular, miles of old surveys, lost to the knowledge of local employees and inhabitants, were retraced in Clinton County by the use of the original maps and hand compass enabling the finding of some few markings and the remarking with axe blazes, thereby avoiding full resurvey expense.

In the scouting work to find the old survey lines which could not be readily seen or followed by the neighboring owners, note was made of the various methods of marking forest boundary lines and the advantages of each method. Blazes, paint, and metal tags on trees; wood or iron stakes; concrete posts; stones; paths and trails—all commonly used in Pennsylvania—were studied. After a hard day's climb up and down mountains finding forest boundaries nearly completely lost on the ground—it was easy to remember the points of help rendered by any of these ways of marking forest lines.

Finally the conclusion was reached that forest owners have been slow in adopting and using the practice of planting trees along the lines to be marked and held. This thought was emphasized the more in the writer's mind, when some boundaries were explained as lost because there was little or no tree growth at the time of the survey, nothing to blaze, tag or paint! How well would some tree uncommon to the locality—say Norway Spruce—have served the purpose of marking such lines if planted in more or less regular intervals of some 25 feet apart requiring some 211 trees to the mile of line.

The species of trees to be planted to advantage along forest boundaries vary with the sites—but conifers tolerant to shade and fire resistant are suggested as making the lines easiest to follow at all seasons of the year—particularly so in winter. Of the conifers Spruce is quite tolerant of shade and might be planted along the lines favoring places where there are openings between the present

tree growth—or even making the planting in the nature of an underplanting. Scotch Pine, White Spruce, Cedar, Arbor Vitae and Firs—all are uncommon to most forest areas in Pennsylvania and adapted to many sites. Some of these will live in dense shade—for 10 to 20 or more years—staying as stunted seedlings till an opening occurs in the forest canopy above when they can climb upwards—none the worse apparently for their long wait. The only drawback to such trees is their ornamental value—making them somewhat more liable to be pulled up or cut for Christmas trees.

In planting trees to mark forest boundaries it would be well to adopt a uniform distance on your side of the exact line—say three to ten feet. When the planting is made within a few years after the survey, the centre line or exact boundary is plainly followed by the cut stubs of brush and by centre stakes and tree blazes. Keeping somewhat away from this line insures the planted trees as wholly the property of the one land owner making the planting—if both owners do not co-operate—and should safeguard the planted trees from any cutting operations of the adjoining owner.

A planting distance of 15 feet apart requires 352 seedlings to the mile of line to be marked. The 10 to 40 thousand miles of forest boundaries in Pennsylvania would afford valuable use to from 3½ to 14 million trees. If one large land owner would adopt this plan of planting trees along his forest boundaries what an object lesson it would be to all land owners in the state in the care of boundary lines.

The risk of forest fires killing the planted trees is not so serious a drawback to the plan. One forest land owner reports 5 miles of forest boundary lines burned in the year 1930—out of 121 miles of lines—and no other lines so burned for years before or since. The year 1930 was an extreme—and the 5 miles of lines could quickly be replanted using 1,760 seedlings if all the original planted trees were killed. And in many cases it will be found that some of the former trees were unharmed by the fire. This would be true along bottom lands, north slopes and with fire resistant species. Pitch Pine is commonly considered the most forest fire resistant conifer with the added advantage of sprouting ability from the

dead stump, but recently the writer noticed hundreds of Norway Spruce almost entirely unharmed by a raging forest fire which swept over the neighboring forest and around and through this 15 year old plantation at Pine Grove, Cumberland County. Of course, a single row of trees would be more subject to damage from the heat of the burning—dry leaves and litter from adjoining trees—than was the case with this solid plantation of open field Norway Spruce—where the green limbs extended to the ground keeping it shaded and clear of weeds and ferns and grasses and of inflammable materials.

Forest fires are more common to some localities than to others—and tree planting along boundaries might be avoided where the fire hazard is greatest. However, some trees such as Black Locust, sprout readily from the stump or roots following a most destructive forest fire—and if not too common in the forest could easily be used to advantage in marking forest boundaries in even the most forest fire hazardous sections. Besides ability to resist fire the longevity or great age which some tree species will attain before falling in decay is a point well worthy of attention in selecting a tree for planting along boundaries.

It is believed that the advantages of marking forest boundaries by planted trees are many. By planting may the question be settled—and everyone loves to plant a tree.

\$10,000,000 MORE FOR NATIONAL FORESTS

Allocation of \$10,000,000 of Emergency Conservation Work funds to be used for purchase of additional lands for the national forests has been made by executive order of President Roosevelt, Secretary of War Dern, president of the National Forest Reservation Commission, announces. This is the second such allocation of emergency funds, the first having been made by the President July 21, 1933, when \$20,000,000 was provided, making possible the purchase of more than 6,000,000 acres of forest lands by the federal government in the last 18 months.



SOME SEED FELL ON STONY GROUND

FOREST REVERY

By Stanton A. Coblentz

A year has gone, and I again return
Out of a changing world of brick and brass,
To lie cloud-gazing on a couch of fern
And watch the slow waters pass.

Under the same sky-reaching redwood tree,
In the same grove where I would muse
before,
I view the latticed shadows languidly
Ride on the forest floor.

Unchanged! these woods, this light-flecked
stream,
As though not even a leaf had lost its way
While man, amid his spires of smoke and
steam,
Battles, and waxes gray.

Teach me, O hills, that I have found again,
What knowledge brings the troubled soul
release;
So that, returning to the doors of men,
I still may share your peace.

—New York Sun.

COVER SAVES SOIL

Rain Washes Bare and Cultivated Land
4,300 Times Faster Than Forest Areas

Rainfall washes the soil from bare and cultivated lands in the loessial upland belt of northern Mississippi 4,300 times as fast as from forest covered lands in the same section, according to U. S. Forest Service investigations.

A two-year series of tests conducted at Holly Springs, Miss., also show the total run-off of water from grass or forest covered slopes was only a small fraction of that from barren or cultivated fields. It was found that soils having a vegetative cover absorb practically all the rainfall, and the soils of the region possess great water storage capacity. A tree or plant cover, therefore, in addition to preventing abnormal erosion, is shown to be of tremendous value in flood control and streamflow regulation.

Tests were made on a series of plots having several different types of cover, the areas all having a uniform 10 per cent slope. For a plot in a cultivated cotton field in which the rows paralleled the slope, surface run-off of water averaged 58 per cent of the total precipitation, and in heavy rains amounted to as much as 96 per cent. The rate of soil erosion on this plot for two years exceeded 195 tons per acre.

For a cultivated cotton field with contour plowing, run-off totaled 47 per cent of the precipitation, and soft erosion amounted to 69 tons per acre. Run-off from barren plots in an old field amounted to 48 per cent of the rainfall, and erosion totaled nearly 160 tons per acre.

In contrast, the run-off from plots in an oak forest was less than 1 per cent of the total rainfall. Erosion from these plots was negligible, the quantity of soil washed from the forest covered plots being only one forty-three hundredth of that lost from the plot under cultivation.

A black locust and osage orange plantation and scrub oak woodlands showed almost as effective protection as the older forest stands. On comparative plots, it was calculated that

it would take 1,785 inches of rainfall to wash a pound of soil from the forest covered land, compared with only one-half inch of rain to erode a pound of soil from a cultivated field. To erode the top six inches of soil from land cultivated on the slope would require only ten years. From contour plowed land and from barren, idle land it would take 28 and 12 years, respectively. The six-inch layer of topsoil protected by oak forest, on the other hand, was figured to be good for at least 40,000 years.

ECONOMIC SECURITY WILL BE
WIDESPREAD WHEN FORESTS
ARE MADE PERPETUAL

Charles Lathrop Pack, president of the American Tree Association, says, in *The Review of Reviews*, that before long one-fourth of the United States is to be under management of foresters.

The gigantic project will demand more and better foresters, and will provide much employment in forests, Mr. Pack says.

It will be a land utilization plan of enormous value economically and biologically. It will put one of the major natural resources of the nation upon a basis of permanency, as that of Sweden has been for some time.

It will also improve opportunities for profitable agriculture, by giving farmers part-time work in forests.

In the Province of Landes, in France, an area containing virtually no population was put under maritime pine.

Its population is now half as large as that of Kentucky. Its area is about one-thirteenth that of Kentucky.

When timber production all over the country removes a major factor in lumber cost—the long haul—and when game fish, in clear streams, and game, in perpetual forests, protected from fire, provide sport and table supply in every state, the United States will be a better country—and a safer one—in which to live.

Industrialists cannot provide economic security surpassing that of the man who lives upon, and from, the soil in such circumstances that he can do without the city, although the city cannot do without him.—*Louisville (Ky.) Times*.

FAILURE OF BLACK LOCUST—
CONIFEROUS MIXTURE IN
CENTRAL STATES

By L. F. Kellogg, Associate Silviculturist,
Central States Forest Experiment
Station, Columbus, Ohio

Forest planting is certain to occupy a leading place in the rehabilitation of waste lands in the central states. Magnitude of the task of reforestation is indicated by the millions of acres of land involved, including marginal and submarginal areas, abandoned farms, denuded forest lands, washed and gullied fields and pastures, and idle, acres too severely deteriorated to justify expenditures to restore them to productive use for crops or pasture. Many critical areas demand an immediate forest cover for erosion control and watershed protection.

Black locust is being used very extensively in present planting operations, especially those for erosion control. The extensive root system which develops with the establishment of the tree is capable of holding and stabilizing the soil surface, sprouts vigorously and prolifically, and contributes to increased soil fertility through the formation of root nodules with fixation of nitrogen.

It is generally recognized that mixed plantations of two or more species are better in many ways than pure stands of one species. Planted black locust has been found to be most thrifty (all factors considered) when growing in mixture with other species.

The locust appears healthier; a better litter is formed which is more protective to the soil; and last but not least, the investigation of the locust borer by R. C. Hall has shown that the amount of attack and damage may be considerably reduced, even to the point of minor importance, by growing locust in mixed stands.

Such mixtures more nearly approach natural stands in composition, with material safeguards against pathological and entomological attacks, which are the heritage of pure stands.

Before large amounts of time, labor, trees and money are spent in following this plan, it is desirable to establish its likelihood of success. Several indicators are now at hand, thanks to the earlier plantings and experiments of several organizations.

RAILROADS PRIME USER OF
TREATED TIMBER

During 1933 a total of 125,922,475 cubic feet of timber was given preservative treatment, of which 73,519,973 cubic feet or 58.3 per cent went for cross ties and switch ties.

The railway industry maintained its status during the year as the principal consumer of treated timber, approximately 75 per cent of the total amount being for the use of the carriers. The preservation of railway cross ties and switch ties is an established practice which contributes substantially to economical operation.

The report, which was prepared by R. K. Helpenstine, Jr., Forest Service, United States Department of Agriculture, in co-operation with the American Wood-Preservers' Association, points out that 54.1 per cent of all cross ties treated in 1933 were impregnated with creosote; 32.9 per cent were given treatment with creosote-petroleum mixtures; 8.7 per cent with zinc chloride; 3.1 per cent with creosote in mixture with zinc chloride, and 1.2 per cent with miscellaneous preservatives.

For the first time in the history of the forest conservation movement it is possible to give the exact area of woodlands in Pennsylvania. According to Secretary Lewis E. Staley, of the Department of Forests and Waters, they comprise exactly 13,053,682 acres. Figures about the forests of Pennsylvania have recently been compiled and verified by the Forest Research Institute at Mont Alto, of which Dr. E. A. Ziegler is director.

Governmentally owned woodlands total nearly two and one-half million acres and include state forests, state game lands, national forests, and municipal forests.

Privately owned woodlands total 10,740,000 acres, of which farm woodlots comprise 3,363,000 acres.

Since 1904 Washington has held first place, except in 1914, among the lumber producing states; in 1926, it produced one-fifth of the entire cut of the United States.

SECTIONS MAKE TRIP

Pa. and N. Y. Groups Join in Program But the Rain Stops Them on Last Day

The thirteenth annual summer field meeting of the Allegheny Section of the Society of American Foresters, despite the weather, was the most successful ever held. With the Allegheny Section acting as hosts to the New York Section, some 144, with their guests, which included 27 women, met at the Rock View House, in Montague, N. J., on September 6.

The afternoon was spent at Milford, Pa., visiting the country estate of Gov. Gifford Pinchot. Thursday evening was devoted to a general social get-together.

Friday evening was devoted to a banquet, held in the Casino of the Rock View House, which was decorated for the occasion. Chairman J. M. Sloan, of the Allegheny Section, as toastmaster, called on the following, who responded with short talks: Chairman H. P. Brown of the New York Section, F. W. Besley, R. S. Hosmer, S. S. Hunt, Clyde Leavitt, C. P. Wilber, J. S. Illick, P. S. Herbert, G. H. Wirt, J. A. Ferguson, W. S. Taber, R. D. Forbes, J. W. Keller, W. H. Rankin, G. T. Backus, W. H. Harlow, A. C. McIntyre, and H. F. Round.

Arrangements for the meeting were in charge of the joint committee, which included W. I. Quick, J. E. Mausteller, H. E. Clepper, J. M. Sloan, A. C. McIntyre, H. F. Round, and E. A. Ziegler, of the Allegheny Section; and E. W. Littlefield, J. S. Davis, S. Heiberg, H. P. Brown, and W. L. Harlow, of the New York Section.

MORE BACK SEAT DRIVERS?

Since the 100 boys of Company 1278, Jenny Jump State Forest, New Jersey, came out of the woods and started special flood-control work on Peququet River, they have come upon some new and queer aspects of nature. After pulling the body of an old "T"-model Ford from the stream, an eel, a sunfish, and a bass were found in the back seat.

LEAVES LAND TO STATE

A 4-acre tract of land, leased to the Commonwealth of Pennsylvania for the past 10 years as a forest fire observation station, has been bequeathed to the Department of Forest and Waters by the will of the late Col. Henry C. Trexler. This area, in Carbon County, is the site of the 60-foot all-steel Stony Point fire tower, overlooking and affording protection to 100,000 acres of forest land.

SAVING PENN'S WOODS

Inclusion in the national forest system of 4,000 acres of virgin forest in Western Pennsylvania crowns with success efforts which have been in progress for years to get this Tionesta tract permanently secured from obliteration. Extensive stretches of original forest are not so many in the United States, especially in the East, that the country can afford to have them fall before the axe and the saw.—*Evening Bulletin.*

In the *Journal* of the New England Water Works Association for September, 1934, Mr. John P. Miller, Commissioner of Public Works for North Adams, Mass., contributes a paper on Reforestation of the North Adams Watersheds. After relating of the planting, during 13 years, of 340,000 evergreens and 7,000 locusts (for future fence posts), Mr. Miller concludes with this statement:

"The reforestation work carried on at North Adams serves several useful purposes. It tends to prevent soil erosion and turbid water. Silting of the reservoirs is reduced. The maturer trees retard the melting of the snow in the spring and prolong the run-off from that source. The forested areas check the run-off in flood periods by storing in the soil part of the waters from rain and melting snow. Replacement of deciduous trees and brush with evergreens tends to reduce the color of the water, due to the smaller quantity of leaf carpet from evergreens. Furthermore, the fact that the supply is derived from a well kept, beautifully forested area produces a sense of pride in all citizens, whose good will and co-operation are so important."

DEPARTMENT OF FORESTRY
STATE COLLEGE

FOREST LEAVES

APRIL, 1935

In 1936 The Pennsylvania Forestry Association will celebrate its fiftieth anniversary. As a fitting tribute to the foresight, courage and energy of those who founded this Association, the membership should be doubled this year. Will you help?

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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

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.

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Fifty Years of Conservation

By RALPH S. HOSMER

Professor of Forestry, Cornell University

THE State of New York is celebrating this year a significant anniversary. Fifty years ago, on May 15, 1885, Governor David B. Hill signed a bill which created a State forest commission. That act also made possible the setting apart of the great area of forest land known as the New York State Forest Preserve. This fact gives New York the distinction of having a longer record of continuous activity in State forestry than that of any other state. Because in various ways New York has been a leader in forestry and in conservation, it is felt to be appropriate this year to recall some of the accomplishments of the past half century.

During its session a year ago the Legislature authorized the Governor to appoint a committee to determine how this birthday, as it were, of the New York State forests could best be observed. Soon thereafter Governor Lehman appointed as such a committee 100 persons representative of all branches of conservation, with the Hon. Lithgow Osborne, Conservation Commissioner, as chairman. A small Executive Committee is charged with arranging the details of the program.

The story of the Adirondack Forest Preserve really begins much further back than fifty years ago. It starts, indeed, with the American Revolution when the State of New York came into possession of large areas in the "Great North Woods," which had previously been held under Royal Grants from the King of England. Some of these lands were set aside by the State for the Soldiers in the Revolutionary armies. Others were sold, often for only a few cents an acre, in great tracts of many thousand acres. About a

century ago Governor DeWitt Clinton,—he who put through the Erie Canal,—recommended that the remaining public lands in the Adirondacks be reserved from sale and held for the future use of all the people. It would have been a wise move had this been done, but nothing came of his recommendation.

Then, along in the late '70s, and early '80s, interest in the Adirondack forest grew to a point where tangible action began to be taken. Public interest was aroused. In 1884 a commission was set up to establish a Forest Preserve and to frame a law for its administration. The bill submitted by the Commission became the Act of 1885. From that time on New York State has continuously had State Forests and a State Department to administer them. This department has had various names. For over fifteen years now it has been called the Conservation Department.

The Adirondack Forest Preserve is the state owned land within the Adirondack Park. In 1885 the State owned only about 720,000 acres of forest land in the North Woods. Today the area of the Adirondack Forest Preserve is 2,145,733 acres; of the Catskill Forest Preserve 223,491 acres; a total of 2,369,224 acres of forest land open to the free use and enjoyment of all the people for recreation; camping, hunting and fishing, and all other forms of legitimate out-of-door enjoyment that can best be had in a forest. The total area of the Adirondack Park is something over four million acres. The Preserve constitutes about one-half of it. The remainder is made up of towns and villages and large and small private estates, plus the holdings of the pulp and paper and lumber companies.

The Act of 1885 was the first comprehensive forest administration law in the United States. It antedated by six years the establishment of the Federal forest reserves, now our National Forests, and by twelve years the administration act for those forests. In the framing of the original act of 1885, the late Dr. Bernhard E. Fernow, then Chief Forester of the United States, had a hand. Dr. Fernow was later, from 1898 to 1903, Dean of the first college of forestry in America, at Cornell University. As drafted and passed the law contemplated a rounded use of the public forests of New York, in accordance with the best forestry usage. But doubt in the minds of many that the then State officials could be trusted, led to the insertion in the State Constitution in 1894 of Section 7 of Article VII, which declares that the lands of the Preserve shall be forever kept as wild forest lands on which no trees shall be cut, sold or removed, nor shall the lands be leased. The essential parts of this section have never been changed. The use of the New York State Forest Preserve, both in the Adirondacks and the Catskills, is thus restricted to its value as a protection forest, to safeguard the streams within its boundaries, and to its use for recreation. That the Adirondack and Catskill Forest Preserves have served the people of the State well there can be no question, especially in recent years since good roads have made these forests easily accessible and since the Conservation Department has provided camps and shelters for those who wish to use them.

The additions to the Forest Preserves have been made through purchase, under appropriations and bond issues. Two of the most notable were the bond issues of 1916 and 1924 which provided, respectively, \$7,500,000 and \$5,000,000 for the purchase of lands to be added to the Preserves. The care and management of the Forest Preserves is entrusted to the Division of Lands and Forests of the N. Y. State Conservation Department, which carries on its work through a number of sections.

Many other significant things have happened in forestry in New York during the past fifty years. Beginning about 1905 the continued state-wide interest in forest planting is one of the most noteworthy. Then in 1929 the inauguration of the great State Reforestation Program whereby provision has been made for the expenditure by

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the State of \$20,000,000, over a period of years, to acquire and reforest one billion acres of land, sub-marginal for productive agriculture.

As the beginning of New York's system of seventy local state parks, most of which are forested areas, it is of interest to note that this year is also the semi-centennial of the taking over by the State of the banks of the Niagara River which control the approaches to Niagara Falls. A special celebration to mark this event is to be held at the Niagara Falls State Park on July 15, 1935.

The committee on New York's Fifty Years of Conservation has arranged for a number of interesting local celebrations during the coming summer. But for the State as a whole the outstanding events are these: First, a commemorative dinner to be held at the Hotel Ten Eyck, Albany, on May 15, when distinguished speakers will recall the passage of the Law of 1885 and what it has accomplished. And second, a three-day celebration at Lake Placid, in the Adirondacks, on September 12, 13, 14, 1935.

It is planned to devote the first day to meetings of a large number of associations and clubs which are concerned with the many and varying aspects of conservation. The second day will feature out-of-door events especially of interest to sportsmen, such as field trials with hunting dogs, trap shooting, exhibitions of fly casting and the like. Those who prefer mountain climbing will have that opportunity. Less strenuous walks may be taken to the many points of interest in that particularly attractive section of the Adirondacks.

On the third day will come a meeting in the great auditorium, in which all the groups join, when it is confidently expected that the chief speaker will be the President of the United States. Because of Mr. Roosevelt's sincere interest in all forestry matters, shown repeatedly when he was Governor of New York and since he has been in the White House, it is felt to be especially appropriate that at the Lake Placid meeting he should bring the Fifty Year Celebration to its climax.

It is hoped that this occasion will attract many visitors from other states. There is no better season to visit the Adirondacks than in September, and no more fitting occasion than on the fifty year birthday of the New York State Forest Preserves.

FOREST LEAVES

The Shade Tree Commission

By LOUIS B. AMBLER, JR., Landscape Architect
Tree Warden of Lower Merion Township

A SHADE tree commission is a local governmental unit which is authorized to have custody and control of the shade trees, and is authorized to plant, remove, maintain, and protect the shade trees along the public highways. Although perhaps the term, shade tree commission, is aesthetic in its conception, it is a utilitarian body as well.

In May, 1907, the government of the Commonwealth of Pennsylvania, realizing the importance of the shade trees along our highways, passed laws which permitted the formation of shade tree commissions. Since that time many commissions have been formed, and although some are still functioning, many have gone out of existence, owing probably to poor management and lack of available funds. As the importance of the work of a shade tree commission cannot justifiably be denied, it is unfortunate that all the commissions are not functioning properly in order to preserve our roadside trees. The conditions under which these trees are growing are anything but ideal, and as a result the trees require special attention for their preservation. In addition to the preservation of the existing trees consideration should be given to the future development of the highways in relation to the shade trees and general roadside development.

In order to understand more clearly the value of a body which is formed for the protection and care of the existing and future shade trees along our highways, we must realize the value of such trees to a community. They form the largest growing landscape unit and provide the most outstanding natural features in the usual suburban community. The economic value and desirability of a residential district depends materially on the existing trees, or at least on the potential trees. They provide not only shade, but a certain restfulness which cannot be obtained elsewhere. In the humdrum existence that we are leading this restfulness is essential to our physical as well as our spiritual well-being. Even the most insensitive person cannot deny the comfort he has

gained by obtaining refuge from the blazing hot sun in the shade of a tree.

Aside from the shade the trees retain a balance of nature which we are speedily destroying by our so-called modern civilization. It has been our policy in the past to take too much for granted and casually say that the trees have always been here and probably will remain. This might be true if we had not already interfered with them by construction and the unintentional importation of foreign diseases and insect pests. Trees cannot survive this treatment without our

Continued on Page Seventy-nine



Byway lined with Lombardy poplars
Impressive, formal effect

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APRIL, 1935

Forty Years Ago

Forty years ago this country was recuperating from a depression, which, according to some economists, compared favorably or unfavorably (depending upon one's viewpoint), with the one from which we are emerging now. Forty years ago The Pennsylvania Forestry Association had just held its ninth annual meeting. Some of the members who attended that meeting have since passed on but their names and deeds are still remembered. Others have lived to go through the present trying times and yet to maintain their interest in forestry matters and their membership in the Association.

At that meeting Mr. John Birkinbine presided. Dr. Joseph T. Rothrock was Secretary. Also present, to name but a few, were: Dr. Henry M. Fisher, Lucius L. Landreth, Herbert Welsh, Mrs. Brinton Coxe, Eli Kirk Price, and General Isaac R. Wistar. The then Senator Boise Penrose was one of the guest speakers.

In reading over the minutes of that meeting and of previous Council meetings, one finds no reference to depression. The thought was never expressed that because of hard times the membership could not be increased. In truth the membership at that time was considerably larger than now, a condition which we should diligently endeavor to change.

One of the most noticeable characteristics of the Association then was the general activity of the membership. Each person grasped every

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opportunity to interest others in the Association. The responsibility for increasing the membership did not rest upon a few. Frequently reference was made in those old minutes to the duty each member of the Association had in securing one new membership during the year.

Can we not emulate a practice which was so successful? Will not each reader of this issue of FOREST LEAVES take it upon himself to be responsible for the securing of one new member? You may use the membership blank on the inside back cover for this purpose. In that way the load will be light, but the goal will be reached.

Forests and Waters Fund

At the present time all moneys received by the Treasury Department of Pennsylvania and derived in any way from State Forests and Parks under the jurisdiction of the Department of Forests and Waters together with all water powers and water rights belonging to the Commonwealth have been credited to the State School Fund, the income of which, invested in government bonds, has been available to the Department of Public Instruction. This arrangement has decidedly hampered the Department of Forests and Waters in the development and upkeep of recreational and park areas.

Under House Bills No. 666 and 665 the previous Acts are amended to divert these moneys in the future into a State Forests and Waters Fund, which shall be available to the Department of Forests and Waters for expenditure upon recreational areas, park sites and other land controlled by it. The Department of Public Instruction realizes the justice of this proposed legislation and will, it is understood, offer no objection to its passage. The Pennsylvania Forestry Association believes that these Bills should be enacted since they provide a more equitable use of moneys received by the Department of Forests and Waters.

The Spirit of the Tree

*From the first slanting rays of the morning bright
To the last ruddy glow of the sky at night,
The tree is striving with all its might,
To get more and more of the Sun's warm light.
Oh, if we all could only be
A Sunshine Storehouse like a Tree!*

J. M. SHERWIN.

FOREST LEAVES



Courtesy Penna. Dept. of Forests and Waters
Seed beds in which pines are growing at the State Forest Tree Nursery, Mont Alto, Pa.

Collection of Forest Tree Seed

By GEORGE H. WIRT

THERE is a steadily increasing number of forest trees being planted, and to supply this need, tree seed must be gathered and properly handled. Many large seed dealers buy their seed from reliable collectors in various parts of the country who can gather only small quantities of various kinds of seed, or a more or less regular supply of any particular species. Many people who want to plant trees are gathering their own seed and raising their own seedlings, and where not many plants are needed, this method is both cheap and satisfactory. Many more would collect and plant seeds for their own needs if they knew what and when to do the right thing.

The collection of seeds is a fascinating occupation. It requires one to get out into the open; it also requires a careful study of trees, keen powers of observation, and some good common sense. In addition, it is or may be made a source of more or less income.

Some trees ripen their fruit in spring, as elm, river birch, silver and red maples, cottonwood, poplar, and willow. Such seeds lose their power to grow soon after they are ripe. Some, indeed, start growing almost as soon as they reach a lodging place in the soil. But most trees ripen their fruit in the fall and have a period of rest before germinating. Now is the time to be on the lookout for the trees from which you expect to gather your harvest.

In the first place, one must determine what tree he wants to plant, or grow, or for what seeds he may have a market. He must be sure that he knows that particular species of tree. It will not do to collect seed from a Norway maple and expect to sell them as sugar maple seed, or to grow sugar maple from them. Next, the trees from which the seed are to be gathered must be located and carefully selected. Only trees that are sound, thrifty, and of good form, should be chosen, for it is a well founded fact

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that the principle of heredity is as strong in trees as in animals. Ordinarily, trees standing in a fairly open position, not too young and not too old, are the ones to select. The seed of young trees and of old trees are likely to have little or no vitality and if seedlings are produced, they will always be weaklings. It has been known that seed from crooked pine trees has produced nothing but crooked trees. Trees growing in situations favorable to good development should be chosen in preference to ones standing in situations which are evidently not favorable to good tree growth. A good index to this condition is the comparison of height of tree to diameter. Tall, straight trees with a regular tapering stem are preferable to short, stubby and branchy trees.

After the trees have been selected, one must know when to gather the fruit, or perhaps first, whether or not there will be any fruit upon the tree. Most species of trees mature their fruit during one growing season, so that the first indications of a possible harvest are the flower of the tree. To the experienced observer, a crop may be foretold even before the opening of the flowers, for he will know the difference between leaf buds and flower buds. After the flowers are over, the developing fruit may be observed. It will be found that certain trees have had flowers but no fruit appears on them, as in the case of willows, poplars, some maples, and ailanthus. So it is necessary to observe that fruit is developing. Some fruit requires two or more seasons to mature, as in the pines, junipers, and black oaks.

The next question is how can one tell when to begin gathering seed. Much of this information must be learned by observation as no definite rules can be given. Conditions peculiar to the tree from which the seed are gathered will be observed and noted. However, in the case of white pine, it will be observed that about the middle of August the cones begin to exude pitch, the ends of the scales of the cones begin turning brown, and if the cone is cut, it will be noticed that the outer coat of the seeds is beginning to turn brown. Any one, or all three, of these signs is enough to tell the collector to begin gathering cones. He will find that by about the middle of September, most of the cones remaining on the trees have dried and released most of their seed so that gathering cones is no longer profitable.

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The browning of seeds of all conifers is a safe rule to follow and may be determined by cutting a cone now and then. Some cones will be observed to hang upon the trees longer than others, and to retain their seed varying lengths of time. As for example, in some sections of the State hemlock cones may be gathered as late as January or February.

In the case of hardwoods, it is usually a safe rule to watch for the first fall of fruit and then begin work. Ordinarily the fruit that falls first does not contain good seed and this should be discarded.

As to the methods of gathering seeds, one may say that there are probably as many as there are species of trees. Each collector will use a method that appeals to him. However, there are certain methods known to be practical. Of course, an easy way to collect seed from trees is to pick them from trees that have been felled when the seed is ripe. This is frequently done in connection with lumbering operations. The seed on the higher and outer branches are usually best. Cones may be picked by hand from trees or long pruning shears may be used. This tool may be used for collecting other fruit, where it is impossible to pick directly from branches. In other cases, it is well to spread canvas, burlap, or sheets under the trees and allow the seed to drop upon it and then be collected easily. In other cases, it is only necessary to pick the seed from the ground.

After the fruit or seed has been collected, it must be treated for subsequent handling. Cones must be dried so that the seed may be released. This may be done by spreading them thinly upon a dry, tight floor on a cloth in the sun, or any convenient way. The cones should not be allowed to become mouldy. The seed may then be run through a windmill such as farmers use, or may be fanned clean with an ordinary fan. Fleshy fruit must be placed in water and crushed so that all the pulp can be washed from the seed. The seed should then be dried enough to remove all outside moisture. Acorns and nuts should be kept from drying out. In fact, nearly every species must be handled differently and unless the collector knows from experience what and how to do, he should get the necessary information from the dealer to whom he expects to sell, or from the Pennsylvania Department of Forestry

FOREST LEAVES

Progressive Forestry in Penna.

By J. HORACE McFARLAND

IN THE last quarter of the century during which I have been alive in this Keystone State I can look back without finding an actual date when I first began to be interested in trees and their association in forests. Because I am not planning to write an autobiography I do not want to pursue further the subject of sustained forest interest, but rather to say that Pennsylvania's forest potentialities have, it seems to me, barely been touched.

We have forests. We have forest lands partly planted. We have forest lands not at all planted. We have fires, and fires, and more fires.

But we don't have State parks worthy of comparison with our neighbors in New York and New Jersey. We don't have a developed, worthwhile recreational policy to make these forests available, interesting and important to their owners, the people of the Keystone State. We don't have among our thousands of school children a live, earnest, fighting interest in developing, protecting and continuing forests in Pennsylvania.

Now someone will immediately deny some of these statements. Let it go at that! I am quite willing to be wrong, or partly wrong, if a little bit of rightness will set forest workers to thinking toward the vitality of the forests in Pennsylvania as a necessary part of the life of the State.

Another of the things we do not have is an adequate conception of how the forests may get to the people through co-operation with the highways. Here, of course, I touch officialism, because forests are administered in Pennsylvania by the Department of Forests and Waters, and highways are administered by the Department of Highways. The distinction is quite as important to me as it would be to tell me when I got up in the morning that inasmuch as I arose from a bed which later would be remade by one department of the house economy, it was impossible to co-operate as to time with another department of the house economy which would provide me with breakfast!

I have long had a dream that the magnificent flora of Pennsylvania might be constantly and

definitely in evidence, as the great highways of the Keystone State took tens of thousands of people who now know nothing of highway beauty possibilities to the scenic situations which would make Pennsylvania supreme as a resort State if they were adequately advertised, after being really understood and appreciated. The scenery of the State needs no defense; it does tremendously need understanding, promotion and exploitation. Every time this has been undertaken (and there are very few times at that!) the effort strikes some snag, whether it be mental incapacity to understand what was being done or the lower-bid iniquity which assures mediocrity in printed literature.

My ire is excited when I see that for a relatively small expenditure New Hampshire sells her scenery to us in Pennsylvania who spend money to see it without appreciating the equality, and even the superiority, of what we have at home.

What has this to do with forests? Everything! I cannot conceive of forestry in Pennsylvania having to do only with the provision of timber products. It ought to produce character, health, good citizenship. It can have these by-products to the board feet which seem to be the main ambition, if only working together rather than separately the unofficial citizens who pay in taxes operate with the excellent officials who spend.

Now I know my toes will deserve being tramped upon! They are used to it, and I won't squawk very much if part of what I have said will tend toward a larger, better development of the combined forest sentiment in Pennsylvania that is so necessary.

With this issue of FOREST LEAVES, the printing of the magazine is taken over by Mr. Philip A. Livingston, a member of the Association. Mr. Livingston has also joined the Publication Committee and will assist in the preparation of the magazine. The new printer is an active naturalist and conservationist, and has promised the Association the benefit of his experience in improving the appearance and contents of FOREST LEAVES.

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"Stop Gullies—Save Your Farm"

Restoring vegetation at the danger points is the key to success in stopping gullies, the raw earth sores that eat into farm lands as a result of active erosion, according to W. R. Mattoon, of the Forest Service, U. S. Department of Agriculture.

"Many farmers have worked hard cutting trees or brush or throwing wire or even old automobile bodies into gullies in an effort to keep them from growing bigger," Mr. Mattoon says, "and yet they have seen the gullies eat further into their fields or pastures. Much time, labor and money have thus been wasted in efforts to stop more of the farm from washing away.

"Yet there is a way to stop or heal gullies and large washes that can be applied easily on the farm. Gullies, large and small, can be healed successfully by restoring a protective vegetative cover. For hundreds of thousands of years in the past, trees, shrubs, vines and grasses have grown and formed a protective cover over the soil. Washes or gullies did not begin until this natural protective cover was cut away, killed by fire, or eaten out by livestock. Bad cultivation speeded it up.

"The secret, therefore, of healing gullies is either to give nature a chance to re-establish some vegetative growth or, quicker and surer, to help nature by planting trees, vines, grasses, legumes or other plants, and by protecting them from fire, overcutting by man, and overgrazing by livestock.

"The necessary steps are (1) construct temporary check dams in the gully to catch up loose soil in which to plant trees, vines, or grasses; (2) slope the banks to an angle of repose (about thirty per cent on many soils), which will also serve to put into the gully topsoil necessary for stimulating good growth; (3) plant trees, vines, or grasses selected for their ability to grow quickly and spread their roots in the soil and their tops over the soil; and (4) protect the vegetative cover from fire, livestock, and overcutting. In shallow, short gullies it will often be unnecessary to build any check dams except at or around the gully head or heads—the most critical points in an active gully.

"Brush dams if laid compactly and staked will stop downward cutting and catch up topsoil in which the trees or grass, or both, are to be planted. Dams should slope downward to a low

place in the middle and should seldom be higher than two feet at that point. The purpose is not to fill up the gully, but to make it possible to hold the surface. The dams are only temporary in character, good for three to six years, or until the trees or grass can get a good start.

Fire! Fire! Fire!

If anyone wants to know what destruction forest fires cause, he should ask George H. Wirt, chief forest fire warden of Pennsylvania. Here is Wirt's reply:

Fire injures and kills growing timber.

Fire destroys seeds, small seedlings, and sprouts.

Fire causes the loss of felled timber.

Fire in the forest causes the loss of homes.

Fire causes the loss of human lives.

Fire destroys game and fish.

Fire causes a decrease in insectivorous bird life.

Fire causes the loss of bee colonies.

Fire destroys scenic beauty.

Fire destroys the litter and humus which forms the forest floor.

Fire results in a loss of soil productivity.

Fire increase the infestation of injurious kinds of insects and fungi.

Fire causes expense and difficulty of reforesting burned areas.

It hardly seems necessary to pursue the argument further. Forest fire is certainly nobody's friend, least of all the hunter's.

Department Changes

Newspaper reports indicate that changes are now taking place in the personnel of the Department of Forests and Waters. Secretary Bashore has appointed Dr. James Bogardus, of Swarthmore, Deputy Secretary. John W. Keller who had been Deputy Secretary for many years is now State Forester, a position that has been vacant for some time.

It was also announced that the forest districts in the State had been reduced from twenty-four to ten. What this means in change of personnel is as yet unknown, but we are confident that Secretary Bashore will do nothing to hamper forest work.

FERA Tree Planting Projects PROVE EFFECTIVE IN SAVING ORNAMENTAL TREES

By C. CLIFTON LEWIS

THE sale of ornamental trees has been so slight in the last three years that the trees and shrubs in the nurseries have grown so close together that they are being destroyed, and it is imperative that something be done to utilize and conserve this natural resource by removing the alternate trees which would permit the remaining trees to develop. In the United States today, there are about two hundred million ornamental trees growing in about 100,000 acres. In this composite group of nurseries a full 25 per cent of the stock, or fifty million trees, must either be moved or cut out this year to prevent damage to the remainder. In Pennsylvania alone there are 7,000 acres of nursery land in this critical condition. Since about 3,000 acres of nursery stock are within a radius of 30 miles from Philadelphia, Pennsylvania's problem is practically Philadelphia's problem. Of the six million trees adjacent to this center, about 1,500,000 must be moved or destroyed this year.

A study of this problem revealed the only possible immediate outlet for such material, was on Public Works projects. It was apparent that relief labor tree planting projects would be desirable, since work would be provided for large numbers of experienced men out of employment as a result of the distressed condition of the nursery industry. With the co-operation of Landscape Engineers, several tree planting projects were sponsored which proved so successful from the standpoint of providing useful work of lasting value to the community, that a works-procedure on tree planting projects, based on the projects performed, was issued by the Federal Emergency Relief Administration to each State Administrator so that similar projects could be readily sponsored by other political sub-divisions throughout the country.

According to the working procedure, sponsors of projects may be "State, County or Municipal Park agencies, Highway Commissioners and State or local governmental units." The outstand-

ing opportunities for tree planting are among the Parks, Schools, Hospitals, County Roads and in fact, any public properties that require planting.

Such public properties are numerous, since, due to lack of funds their landscaping has been neglected for a number of years. The majority of the thousands of public schools and other institutions that have been constructed during the past decade still remain barren. In a great many instances landscape plans were prepared at the time of construction, which affords immediate opportunity for officials in charge of such properties to sponsor tree planting projects. Where plans are not already prepared, the first step is to sponsor a preliminary white collar planning project.

It is hoped that the procedure for expending funds available to Pennsylvania from the huge works relief bill recently passed by Congress will take the form of the CWA under which a limited part of the total cost of made-work projects would be available for material. Tree planting projects are particularly desirable, since fully 80 per cent of the total cost is represented in labor. Unlike most made-work projects which deteriorate and finally become obsolete, tree planting projects enhance in value and become more beautiful with the passing of time and will remain living monuments to the sponsors of such projects.

Right on their toes at the sound of the bell, Alan Corson, Chief Engineer, and Samuel Baxter, Landscape Gardener, of Fairmount Park, sensed the opportunity of developing sections of Cobbs Creek and Morris Parks at a time when normal appropriations were at an ebb. A vast group of 6,037 beautiful trees were transplanted. They ranged in height from six to eighteen feet, and required a corps of 700 men to handle them.

From a landscape engineering organization about forty skilled foremen and superintendents were selected for the key positions in supervising



the project. Most of these men have remained in service supervising the hundreds of relief laborers employed in moving several thousand crowded trees from the nurseries of Fairmount Park to sparsely planted sections of that vast domain. This task is virtually completed, so that this large organization of trained men is now available for other work of a similar nature. Philadelphia is especially well manned for tree planting.

Through sheer lack of funds large areas under the jurisdiction of the Fairmount Park Commission have been totally neglected and virtually undeveloped. Portions of Cobbs Creek and Morris Parks are still in the same unsightly condition as when first acquired. The Juniata Golf Course, as well as about four miles of the Roosevelt Boulevard from Welsh Road to City Line, need immediate landscape development. Last September the Commission sponsored a white collar

planning project to prepare detailed plans for the development of these areas. Under the direction of R. B. Cridland, Landscape Architect, thirty assistant landscape architects, engineers and draftsmen were employed in this work. These plans are now complete in every detail.

Based on the required planting under consideration, a new works relief project is envisioned which would provide 810,000 man-hours of work. This would employ 2,149 men for twelve weeks at an aggregate of about 80 per cent of the total cost, thus making it possible to landscape develop these extensive and unsightly areas of the park. This will mean employment for 2,149 of Philadelphia's destitute citizens in a useful manner. At the same time it will relieve the overcrowded conditions in nearby nurseries by moving 27,300 trees into open areas of the park where they will be enjoyed and appreciated by the general public.

Fall Planting of Conifers

By WALTER LEACH

MANY millions of conifers have been planted in Pennsylvania during the past quarter of a century. By far the greater number of the seedlings were grown in the State forest nurseries and furnished at a low cost (formerly free) to the State forest and private tree planters. Commercial nurseries also have supplied many trees.

Most of the seedlings have been planted in the spring. In fact, April and May have become the months of greatest tree planting activities. From custom alone spring planting (and the use of coniferous seedlings) would become widely accepted as the proper time for reforestation.

There are though some advantages to fall planting—enough so to make further experiments of reforestation work in October and November worthy of careful investigation and study. One thing in favor of fall planting is the fact that dirt roads back to the tree planting sites are more dependable—less likely to be a sea of mud and water as is often the case in March, April, and May, resulting from the spring break up and rain. Another point may be suggested as debatable—the fact that the fall season is less crowded with the forest activities. For example, the forest fire work (and road work) is usually much less urgent and pressing—because the fire danger is less than in the spring. Some foresters, however, depend on their tree planting crews as organized forest fire fighting minute men and favor having the tree planting during the spring season of greater forest fire hazard. The result may be that in a serious forest fire season tree planting takes second place—with second rate effort.

One main drawback to fall planting is the likelihood of heaving and drying out of the roots thereby killing the seedlings. This is particularly true in open fields, southern exposures and low wet ground. In locations not subject to such heaving, fall planting may be attempted with better chances of success.

In November of 1932, the planting of white pine, red pine, pitch pine (and black locust), was

carried on at high elevations in the South Mountains in Franklin County. The exact location was on Snowy Mountain just south of the Mont Alto State Sanatorium. The seedlings were planted on scrub oak areas burned by forest fire during 1926 and the summer of 1930—narrow paths being cut through the young scrub oak sprouts to open up room for the seedlings. The trees were taken out of the nursery beds and trucked the short distance to the planting site—not being subject to damage in transportation. They were planted within the next few hours thereby being heeled in at the planting site but a short time. Scrub oak leaves continued to fall and blow over the planted trees—protecting them somewhat through the winter. The five plantations were inspected during the spring and summer of 1933 and again in September, when rather definite ideas could be obtained of the planting results. There were some losses by rabbits, deer and rodents—which are omitted from the table below—as these damages would occur in spring planting also.

Planting of Conifers in November, 1932

Species	Survival in June, 1933 (per cent)	Survival in Sept., 1933 (per cent)	Planting loss after nearly one year (per cent)
Red Pine (excellent seedlings)	96	95	5
	99	96	4
	97	96	4
White Pine (poor seedlings)	72	70	30
	67	64	36
Pitch Pine (fair seedlings)	88	85	15
	86	82	18

The grading of the seedlings as shown in the table was done at the time the trees were taken from the nursery. The red pine were well rooted and vigorous in every way, the white pine on the other hand were spindly with poor root systems; the pitch pine were about midway between the others. The seedlings were planted with care—but not with any unusual attention. A mattock was used for digging the holes and a wooden mallet for firming the soil around the seedlings.

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President Smedley, of the Pennsylvania Forestry Association, presiding at the planting of a hemlock, the State tree of Pennsylvania, in the park at Reading. These exercises were held in conjunction with the Berks County Conservation Society

Arbor Day

Fifty years ago on March 17 the General Assembly of the Commonwealth of Pennsylvania passed an Act which provides for the annual observance of Arbor Day. Twenty years ago next May 28 provision was made in similar manner for the annual observance of Bird Day on the same day as Arbor Day. These Acts were the result of the expressed desire of citizens to protect plants and bird life and to promote their increase and conservation.

Pennsylvania was one of the first states to establish formal observance of Arbor Day, and the first formal observance was on April 16, 1885, at the State Normal School, at Millersville. The first Bird Day in America was observed in Oil City, Pennsylvania, forty-one years ago.

The people of Pennsylvania thoroughly enjoy and appreciate the State's great natural resources. But a tree that is cut down is lost forever to nature and the flower that is plucked rarely per-

petuates itself. The State and its people can, however, protect what remains of its woods, flowers, and useful birds. We can make our lawns and highways beautiful with trees and shrubs, and reforest bare hills and unproductive fields. Wide and thoughtful observance of Arbor and Bird Day, and practice of its teachings throughout the year, can give to all of our people some of the joy of life that is close to nature.

The Arbor Day Act of 1885 specifically calls for "the planting of trees and shrubbery in public school grounds and along public highways throughout the State," and the Bird Day Act of 1915 sets aside a day for "study of wild birds and . . . the best methods through which conservation and increase of useful birds may be secured." We must do everything possible to encourage the protection and increase of our more than 230 species of birds, if we want to

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Dutch Elm Disease Quarantine

EFFECTIVE February 25 a quarantine (No. 71) was placed upon plants of all species of the genus *Ulmus* either grown in nurseries, forests or on private property. This quarantine prohibits the shipment of all trees or parts of trees from the areas in New York, New Jersey, or Connecticut, which are now infested with Dutch elm disease.

The Pennsylvania Forestry Association is grateful that such a precautionary measure has been instituted. There is little doubt that Dutch elm disease is a very serious disease of all elms in this country.

The following questions and answers on points most often brought up about this disease have been prepared by the Forest Research Institute. Our readers may find them of value.

(1) *What is the practical danger of loss from the Dutch elm disease?*

It will kill elm trees rapidly and completely.

(2) *Is this a tree disease like the chestnut blight?*

Yes, and it is even more deadly and rapid in action than the chestnut blight, or bark disease, as it is properly called.

(3) *What is a tree disease?*

A tree disease is a sickness caused by very small plants usually so minute that a very powerful microscope is needed to see them. These tiny plants use the wood and sap of the tree for food and there are so many of them and they multiply so rapidly that they deplete the vitality of the tree.

It is just like many of our own fevers and sicknesses which also are caused by little pirate plants called microbes. The heart or center of a tree, not like our heart, is dead, and all the life of a tree is in the portion just under the dry bark. When a beetle bores in through the bark, or a little way into the wood and brings some of these little disease plants along, they sprout and grow on the living part of the tree and in the sap which is the tree's blood. This, of course, weakens and may kill the tree.

(4) *Is this a new disease? Where does it now occur?*

It was first noticed in Holland sixteen years

ago (hence its name), and has since spread over Eastern Europe. It was discovered in this country (Ohio), five years ago and it now threatens the elm trees in Ohio, Connecticut, New Jersey and New York, and possibly Maryland and Virginia. Pennsylvania is still free from it.

(5) *How does it spread and how can it be stopped?*

The elm bark beetle, a small insect which lives in the bark and outer wood of elm trees, is thought to be the carrier of the disease from tree to tree and only by burning diseased trees can the spread of the disease be halted.

(6) *Are only elm trees attacked?*

Most of the different elms have been found with the disease. No other plants, although near relatives of the elm, among which is the hackberry, are apparently susceptible.

(7) *Are there many elm trees in the woods?*

No, not as many as of oaks, pines, maples and some others. Elm trees are very particular about where they live. Usually they are found only where the soil is very rich, deep and rather moist. But the beetles that carry the disease live on several different kinds of trees and so are very likely to find the elms in the woods or along our streets and highways and spread the disease among them.

(8) *Why is the elm tree especially valuable?*

Its natural vase-like shape without low-spreading branches makes it particularly good for shading roads. No other tree has this strikingly beautiful branching.

The wood of an elm is not nearly so heavy or hard as hickory, but it is just as tough when green, and almost as strong. It is very difficult to split. These features enable elm trees to withstand ice and windstorms which ruin such trees as silver maple, Carolina poplar, and willows.

(9) *Is the elm tree good only for shade and beauty?*

No, elm wood is very valuable. It is cut up into boards and used for many small wooden things as well as kitchen chairs, boxes and barrels. Sometimes it is softened and cut into very thin slices, called veneer, by a large razor-sharp knife, and very light strong boxes are made of this veneer. It is believed that logs shipped from Hol-

land for veneer first brought this disease to America.

(10) *How shall we know this disease?*

By the wilting and yellowing of elm leaves in May and June, but especially by cutting a small branch from a sickly tree; if it has this disease the wood just inside the bark will be brownish mottled or streaked instead of nearly white, and there will be rings of dots showing on a smooth cut across the branch. Very old trees are not often attacked by the disease.

(11) *What shall we do about it if we find such a tree?*

Report it. Send a few short pieces of such branches to the following address, together with a letter telling when and where the tree was found: Dutch Elm Disease Laboratory, Morristown, N. J. Do not cut down the tree until recommended by the laboratory.

(12) *Are there any other diseases that attack elm trees?*

Yes, a twig blight kills twigs and branches now and then, but the weather and other natural conditions limit this trouble, so it is rarely serious. A wilt disease (*Verticillium*) occasionally kills larger branches of elm, or even entire trees. Its symptoms are very much like those of the Dutch elm disease (*Graphium ulmi*), even showing brownish streaks in the wood, which are more continuous, however, instead of being broken and mottled in arrangement as in the latter deadly trouble.

(13) *Can an elm be saved after it is once attacked by Dutch elm disease?*

No, except in rare instances where only a single branch has been attacked, and this is cut off and burned before the other parts are affected.

(14) *Why should the laboratory, or other government agencies, be notified when elms are seen to be sickly?*

Only in this way can organized action be taken to stamp out the disease before it spreads far and wide. It also requires tests to be sure whether certain sickly trees have this incurable malady or just one of the less serious troubles.

The Department of Forests and Waters, Harrisburg, Pa., and its local officers, will also cooperate in identifying and scouting for this disease.

(15) *How about cutting diseased trees?*

This had best be done only under proper di-

rection, as axes or saws should be sterilized in alcohol after use, all wood or bark burned and stumps buried under six inches or more of soil.

The chestnut bark disease took all of our chestnut. If we act quickly, we may save our elms.

No Sahara Forming in Dust Storm Area

Despite the Saharalike atmosphere they create, the spectacular dust storms of 1934 and 1935 are not a sign that part of the United States is turning into a vast permanent desert, according to Dr. J. W. Humphreys, of the Western Bureau.

The appearance on this continent of an expanse of unproductive, drifting sand like that on the eastern hemisphere, Dr. Humphreys says, would call for a complete change in climate on the order of the one that, centuries ago, gave northern Africa its great desert. That change occurred through countless ages as the Europe of today slowly emerged from the ice cap which, for other countless ages, had covered it. With the melting of the ice beneath their northern range, the air currents that govern the earth's weather were shunted into new paths as they flowed south, thus altering Africa's climate.

No such climatic change is imminent in North America so long as the frozen north remains frozen, Dr. Humphreys says. Probably, he adds, the ice there will melt some day, but not for 5,000, possibly 10,000 years.

Dust storms in the United States are nothing new. The West has always had them. Until the last two years, however, they have been purely local disturbance. But several years of drought, on top of the reckless denuding of thousands of acres of land where rainfall is normally relatively light, provided, in great abundance, the first ingredient of dust storms. The high winds that blow over the plains in spring and summer brought the second ingredient. Until the season of strong gales ends—commonly about June 1—dust storms may continue, Dr. Humphreys warns.

Unfavorable conditions brought about over a long period of years cannot be relieved in a single season. As the program recently adopted by the United States Department of Agriculture to prevent wind erosion of the soil goes into effect, however, dust storms may reasonably be expected to subside. Among other things, this program calls for putting back into grass, land that never should have been plowed or over-grazed.

Arbor Day

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continue to enjoy their brilliant plumage and beautiful songs, and to realize the benefit of their economic value.

NOW, THEREFORE, I, George H. Earle, Governor of the Commonwealth of Pennsylvania, do hereby designate and proclaim Friday, April 12, and Friday, April 26, as Spring Arbor and Birds Days, and call upon every school boy and girl and teacher to give serious thought and appropriate action to the observance of these days; and I urge every adult citizen to encourage the planting of trees and shrubbery, for the general beautification of their communities, and the advancement of the work of reforestation throughout the Commonwealth, and I further recommend that the April 12 date be observed as Arbor and Bird Day in the southern part of the State, and April 26 in the northern part in special recognition of this fiftieth anniversary year of the founding of this worthy custom.

GIVEN under my hand and the Great Seal of the Commonwealth, at the City of Harrisburg, this second day of April, in the year of our Lord one thousand nine hundred and Thirty-five, and of the Commonwealth the one hundred and fifty-ninth.

By the Governor:

GEORGE H. EARLE.

Reforestation Work

The municipal water works of Hanover, Pa., was acquired by the Borough of Hanover in 1932. Since that time, 968 acres of land have been added for water-shed purposes, and the entire acreage is to be reforested.

The 1935 program planned by the Water Works Commission calls for the setting out of 225,000 seedlings and transplants. This will make a total of 544,000 trees set out since this work was started in 1932. The trees already planted are thriving exceptionally well. All trees were purchased from the forestry department of the states of Pennsylvania and Maryland, for the water shed is located in both states.

Fall Planting of Conifers

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The planting site may be described as difficult from the standpoint of poor soil, root competition and southern exposure; but better than average on the basis of partial to complete shading of the seedlings through the first year.

As stated before, further experiments in tree planting in October and November appear worthy of careful planning and attempt—as well as special investigation of the limited past fall planting work and accomplishments in the State. The testing out of methods to lessen the heaving and winter kill should be one of the main efforts throughout such a program.

The Shade Tree Commission

Continued from Page Sixty-seven

help, and as the highway trees are definitely a community asset, communities are without doubt justified in supporting a government unit whose duties are to preserve this tree life for ourselves and for future generations.

As more information is known about the functions and duties of a forestry unit than those of a shade tree commission, it may be well to discuss briefly the similarities and differences in the activities of the two groups. In contrast to the above statement concerning the value of shade trees and the duties of a shade tree commission, we have the forestry unit whose duties are to preserve the forest areas for forestry purposes. Obviously both units deal with trees with similar disease infections, similar insect infestations, similar destruction by vandalism, fire, carelessness, ignorance, and destruction for immediate gains without consideration of the future. The shade trees along the highways suffer from highway construction, causing root cutting, and the lowering of the water-table; they suffer from bad air condition caused by smoke, soot and dust, and poor soil condition caused by escaping illuminating gas, and unnatural drying out of the soil. These factors weaken the trees and make them more susceptible to diseases and insects. In shade tree work attention must be given to individual

trees, while in forestry this is impractical. A person in charge of the shade tree commission activities must understand the use and care of trees for street tree purposes rather than forestry. He must be a horticulturalist and a landscape designer. He must know the relative values of trees for various locations and must understand the relationship between the trees on the highway, and the construction and the services using the highway right-of-way. And finally he must be able to visualize the present and future need for trees along the highways.

The actual supervision and jurisdiction of a shade tree commission is confined to the trees along the public highways. However, in the control and eradication of extremely bad disease and insect conditions it is desirable to establish an advisory relation between the commission and the property owners. The necessity for absolute control of the shade trees along the highways cannot be denied. With this control it is possible to stimulate proper care and discourage the harmful and ill-advised work which is often performed.

Every shade tree commission must set up a series of regulations, which, if adhered to, will result in the best possible care and protection of the trees, the proper elimination of dangerous conditions, and the best possible technical advice for the planting of new trees. A permit must be required for all work performed, otherwise it would be impossible to study the condition of the trees and advise for further treatment and future planting. The commission should encourage more tree care, but must insist that whatever is done must be performed properly; a regulation which will result in healthier trees and finally in the improvement of the appearance and desirability of a community.

In order to be a unit worthy of support a shade tree commission should show actual work performed—work which improves the condition of the trees, improves the safety of the highways in so much as the trees affect it, and increases the number of trees planted in its community. Its actual work also includes the protection of trees against vandalism, fires, carelessness and ignorance. An understanding and co-operation must be established with the public utility companies, which will result in the distribution of their services without the mutilation of our roadside trees and the ruination of the beauty of our highways.

Eighty

A very important service which a shade tree commission must render in order ultimately to succeed in its purpose, is to incite within the residents a certain tree-mindedness which will cause them to be more conscious of the trees and their preservation. This objective may be achieved by education in the schools, distribution, through the garden clubs and other civic organizations, of interesting material relating to shade tree problems; and in the publication of articles of timely interest in the local newspapers. The finest and most permanent educational features are first, the actual example of the local government in realizing the necessity for such a commission, and secondly, the example set by the commission itself in carrying out actual work in the best possible manner and showing that a real improvement may be seen by the proper use of even a limited budget.

Roadside development or beautification and the work of a shade tree commission are closely related. It is essential to realize that roadside development starts with the original design and construction of the highway. To attempt to plant shade trees and develop the borders of a highway which has been designed from the utilitarian engineering aspect only, is similar to painting a building which is essentially ugly, in order to beautify it. Proper grading of a roadway must not end with the shoulders, but must be consistent with the existing topography. Even along old established roads much can be done to improve their appearance by proper grading followed up by carefully studied planting. All work of roadside development should be put in the hands of a person well informed and experienced in landscape design.

Certainly, a unit whose duties are as comprehensive as those of the shade tree commission is well worth support. The actual value of an individual commission will rest with the amount and quality of the work performed in caring for the existing trees, and in making the highways not only more beautiful, but safer to travel. The future of a roadside development depends upon a perfect co-operation among all those using the highways, and the units involved in their design and construction. In the design and construction of highways including the paved roadway and the roadside we have an excellent example of where beauty and utility must go hand in hand.

FOREST LEAVES

DEPARTMENT OF FORESTRY
STATE COLLEGE

FOREST LEAVES

JULY, 1935



PUBLISHED BY THE
PENNSYLVANIA FORESTRY ASSOCIATION
WAYNE, PA.

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THE PENNSYLVANIA FORESTRY ASSOCIATION

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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.

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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.

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Wildlife: A Forest Product

By JAMES N. MORTON

Pennsylvania Board of Game Commissioners

THE most essential contribution of the Commonwealth of Pennsylvania to the recreational needs of its citizens has been its comprehensive and successful program of wildlife conservation. During the thirty-nine years of its existence, the Pennsylvania Game Commission, through the gradual development and improvement of its game code, has turned the eyes of the Nation's sportsmen in its direction. The State's program of wildlife protection, acquisition of public lands, establishment of game refuges, propagation and distribution of game birds and animals, and the control of predators has resulted in establishing our wildlife as one of the biggest assets of the State. This has been a gigantic task when it is considered that the State was virtually destitute of game forty years ago, a task which could have been accomplished only with enthusiasm born of the highest sort of altruism and the most intense devotion to a cause.

The first refuges established in Pennsylvania were intended primarily to protect deer since that species of game had become practically extinct. The number of refuges was increased as the need arose and as areas became available. The intensive development by reason of Civilian Conservation Corps work on the State's forests during the past few months has made necessary the establishment of a number of additional refuges, particularly for the protection of small game. More than fifty were established during the past summer, principally for the protection of wild turkeys. Thousands of acres of forest which for years were natural game refuges, due to their comparative inaccessibility, are now

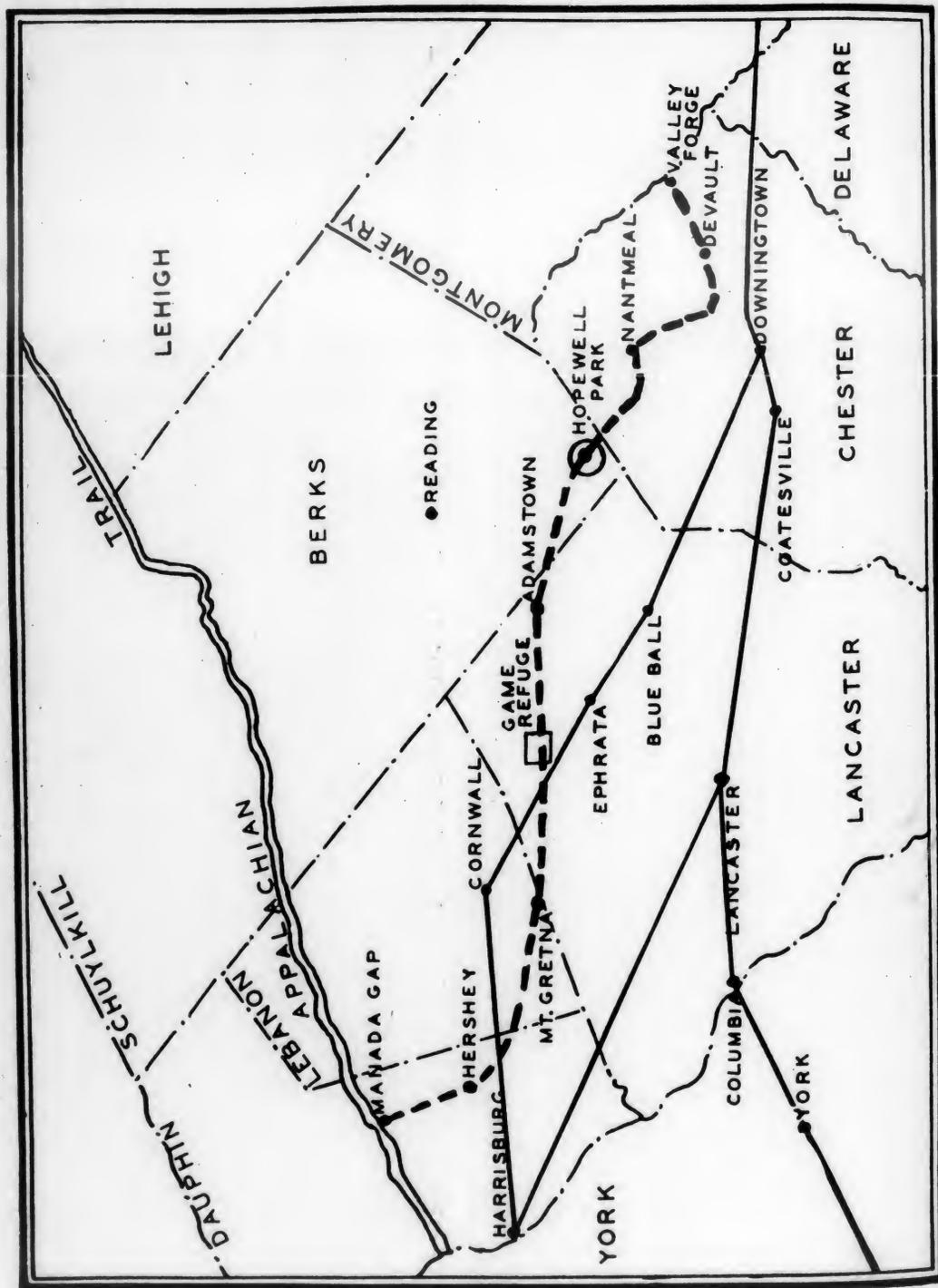
easy to reach. It is to protect game in some of these areas that the new refuges were established.

There is now maintained a total of 184 game refuges in Pennsylvania, having a total area of 127,587 acres; seventy-five are located on State Game Lands, sixty-four on State Forest land, one on National Forest land and forty-four on privately owned land.

In conjunction with the establishment and maintenance of refuges, the Game Commission has conducted, since 1920, a program of land acquisition. The total area acquired to date is 458,228 acres, the largest proportion of which is forest land, with perhaps five per cent abandoned farms. Since 1927, seventy-five cents from each resident license is, by law, set aside in a special fund for the purchase of lands and the creation of game refuges, and the maintenance of the game refuges and lands.

It is becoming increasingly difficult to maintain a sufficient game crop for the great army of outdoor enthusiasts. Ways and means of accomplishing this have been developing in Pennsylvania over a period of many years. At first there were simple regulations concerning Sunday hunting and bounties on predatory animals and birds. From there we have seen a great many important enactments, among which are the following: the creation of a Game Commission; the provision for seasons and bag limits for all game; the passing of laws prohibiting the use of dogs in hunting deer and prohibiting market hunting; the passing of a game refuge law; the passing of laws protecting black bear and protecting doe

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The Horse-Shoe Trail

By PHILIP ATLEE LIVINGSTON
With Photographs by the Author

THE Horse-Shoe Trail, traversing some of the most beautiful country of eastern Pennsylvania, is nearing completion as the result of more than a year's work on the part of horsemen, hikers and nature lovers.

The Trail, a wilderness route more than eighty miles in length, extends from Valley Forge to Manada Gap, northeast of Harrisburg, where it meets the Appalachian Trail. It is the concept of Henry N. Woolman, of Ardmore, who with a group of friends, visualized a bridle trail accessible to the populated sections of eastern Pennsylvania, yet traversing woods and back roads.

Preliminary surveys were made nearly two years ago, after which various groups visited the region by auto, securing the co-operation of groups along the way. During the past year the entire Trail has been made passable and much of it has been marked.

Carefully avoiding concrete and macadam roads, fenced land and towns, the Trail traverses a region of rare beauty. From Valley Forge the route follows the ridge on the north side of the Chester Valley and turns north just before reaching the Conestoga Road, paralleling it to the edge of Nantmeal Village. Here the Trail turns left and then north, crossing the west branch of French Creek, where is located the remains of the iron foundry which cast the first Franklin stove.

Soon after crossing Route 23 the Trail leads through the new French Creek National Park at Hopewell Furnace, now being developed by a large group of CCC workers. It follows an old road to Scarlet's Mill, where it again traverses an old log road along the ridge to Plowville. Here old roads are again used temporarily until the Trail can be located along the ridges to Alleghenyville and Adamstown, where it crosses into Lebanon County, following the old Chestnut Ridges with wonderful views into Lebanon and Lancaster Counties.

Passing through State Game Refuge No. 46, the Trail then crosses Hammer Creek, skirts the

edge of Cornwall Forests and climbs to the fire tower. At Mt. Gretna it climbs to the top of Governor Dick, continues along Beary Ridge to Mt. Wilson and Hartranft Hill, passing through Hunter's Bottom, and continues westward along Sprout Hill. Just before reaching the Dauphin County line the Trail turns north, crossing highway No. 5 through 8000 acres of the Hershey Estates, passing Hershey Hotel. Crossing Swatara Creek over the old covered bridge, the Trail follows back country roads to Manada Gap, where it joins the Appalachian Trail.

The rapid development of the Trail has been due in large measure to the enthusiastic co-operation of a group of hiking and riding clubs, aided by other local groups along the way. Most active clubs have been the Bridlewild Trails Club, the Quentin Riding Club, the Beauford Hunt, Beaver Valley Hunt, Back-to-Nature Club and Nature Ramblers.

The entire distance of the Trail has been ridden twice, with an increasing use of sections of the route for day trips. The Nature Ramblers, under the leadership of D. K. Betz, have scheduled a trip covering the entire Trail during the latter part of this month. The Trail is being marked with bright yellow horse shoes, whose position indicates the course. They will be placed with the toe pointing up when the Trail continues straight ahead; the toe will point to the right or to the left to indicate a change of route in either direction. Two shoes tell of a coming change of direction.

When completed the Trail will have available a chain of riding stables and rest houses for the use of those who wish to use part of the route, or who prefer to break a long trip with comfortable overnight facilities. A number of property owners have offered to donate land to the Trail for the construction of shelters. Two types are planned: a simple lean-to with a lean-to for the horses, and a cabin with bunks. Small inns along the way are being located and will be listed and

Continued on Page Thirteen

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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 the Editor, 306 Commercial Trust Building, Philadelphia, Pa. Kindly notify us of any change in address.

JULY, 1935

The U. S. Forest Service

There is before the United States' Senate a proposal sponsored by Secretary Ickes to change the name of the Department of the Interior to the Department of Conservation and Works. This proposal bodied in Senate Bill 2665 appears to be a harmless measure, yet careful study shows that it is fraught with danger to the Forest Service and all conservation activities.

This is but the latest in a long series of moves by various Interior Secretaries to take over many of the activities of the Department of Agriculture, particularly those having to do with conservation measures and practices.

The Pennsylvania Forestry Association is wholly opposed to any such move. This opposition is based on the past record of the Department of Interior and upon the satisfactory strides made by the Department of Agriculture. This Association has gone on record in a resolution passed at the June meeting of the Council, which is as follows:

WHEREAS, The conservation of our natural organic resources has been effectively guarded and fostered by the Department of Agriculture, and

WHEREAS, The past record of the Department of Interior is detrimental to the interests of conservation,

Now, Therefore, be it Resolved, That The Pennsylvania Forestry Association go

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on record as opposed to the transferring of any bureaus or agencies having to do with the conservation of our organic resources to the Department of Interior or to a proposed Department of Conservation and Works.

The Association feels that this move by Secretary Ickes can bode any good to the cause of forestry. We ask those who are interested in forest conservation to urge the retention of the Forest Service as a part of the Department of Agriculture.

We urge you to write to Senator J. Hamilton Lewis, Chairman of the Senate Committee on Expenditures in Executive Departments, voicing your disapproval of Senate Bill 2665.

In another part of this issue will be found a letter on this subject from one of our members, the former Governor, Honorable Gifford Pinchot. Also, there appears in this issue a statement by Professor H. H. Chapman, of Yale University, President of the Society of American Foresters, which clearly points out the danger to forestry involved in the proposal.

After you have read these articles, will you not act to save the Forest Service?

Membership

During the last few months, the activity of certain members of The Pennsylvania Forestry Association has resulted in a gratifying increase in the number of new members. If each member of the Association would feel his responsibility to the extent of obtaining one new member, the distribution throughout the State would be much more equitable.

These are parlous times for forestry not withstanding popular enthusiasm. The press for funds for relief and general expenses means a sacrifice of funds for the purchase of additional forest lands. We must guard against the continuation of such a policy. To have our voices felt we must have a substantial membership throughout the State.

Since the last issue of FOREST LEAVES, the following persons and organizations have joined the Association:

The Conservation Society of York County, York, Pa.
The Pennsylvania Horticultural Society, Philadelphia, Pa.

Garden Club of Clarion County, Foxburg, Pa.
Newtown Garden Club, Newtown, Pa.

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FOREST LEAVES

Conservation Bill Challenged

THAT Senate Bill 2665, sponsored by Secretary Ickes, to change the name of the Department of the Interior to that of Conservation and Works, should not be passed is the position taken by the Society of American Foresters, which has a membership of 2500 professional foresters. Prof. H. H. Chapman, of Yale University, President of this Society, says:

"Successive Secretaries of the Interior, including Albert B. Fall, Lane, Wilbur, Works and Ickes, have endeavored to create in the public mind the idea that this department is the logical recipient of all federal activities to which the term 'conservation' can be applied. In making these claims, they have cited only such facts as suited their purpose and have persistently ignored the entire field of conservation activities of the Department of Agriculture.

"The Society of American Foresters holds that such proposed concentration and transfer of conservation of forests, grazing, and wildlife from Agriculture to Interior, would be against the public interest and would tend to destroy the efficiency of existing agencies now operating successfully in the Department of Agriculture. The purpose of these repeated efforts of the officials of the Department of the Interior to extend its functions to include the work of the Biological Survey, the control of all public grazing, and the U. S. Forest Service, is to replace in this manner losses suffered by the decline of its principal activity, namely, the dissipation of the vast areas of public lands by grants to private owners. This policy, pursued unremittingly until all lands worth taking, and which had not been saved to the public by other agencies, were gone, has been the chief cause of the unparalleled waste of natural resources for which the nation is now suffering the consequences.

"Natural resources fall into two sharply defined classes, those of a mineral character, which are exhaustible; and those produced by the soil, which are renewable. In the latter class fall agricultural, crops, forests, forage and grass crops, and the domestic and wild animal life dependent on these crops. Abuse of the vegetative

cover of the soil, be it forests or grass, disturbs the balance of nature and destroys the soil itself by loss of fertility and erosion by wind and water. The Department of the Interior, not content with retaining control over the exhaustible mineral resources of the nation, now, for purposes of bureaucratic expansion, seeks to grasp the biological functions which are the natural heritage of the Department of Agriculture, and which the Department of the Interior is wholly unfitted to administer. A few of the historical facts to demonstrate this contention are as follows:

"The system of National Forests initiated by Presidents Harrison and Cleveland was extended and developed only after President Theodore Roosevelt had secured their transfer from the Department of the Interior to the Department of Agriculture, which understood and was competent to handle resources dependent on soil and biological functions. The successful management of the National Forests since that time is due to the fact that they were in the hands of men trained in the science of forest production as one of the fundamental uses of the soil.

"Through the National Forest policies the nation has learned the meaning and possibilities of conservation of renewable resources dependent on plant and animal life. After thirty years of demonstration, paralleled by appalling destruction on private lands, an effort is now being made to extend these principles to the entire soil resources of the country.

"As a by-product of National Forest management and use of all resources for the greatest good, the Forest Service developed and perfected a system of controlled use of grazing on these Forests, under which public interests were safeguarded and the acquisition of monopolistic, perpetual rights to the ranges was prevented. Meanwhile, the Department of the Interior was using every effort to dispose of the vast remaining area of the public domain under such acts as the stock-raising law of December 29, 1916, which honeycombed this domain with private claims of 640 acres each, an area incapable of

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supporting families dependent on the grazing resources. Unregulated free grazing on the public domain continued under its jurisdiction until the vegetative cover was largely destroyed, and widespread erosion took place to the permanent damage and depletion of soil resources.

"Finally in June, 1934, a bill to regulate grazing on the public domain was passed, giving the Department of the Interior power to conserve this resource. What is the result? The original provisions of this bill were formulated by officials in the Forest Service in the Department of Agriculture, based on their thirty-year experience in protecting the public from encroachments of private interests.

"But before it was passed most of these safeguards had already been eliminated with the consent of the Department of the Interior and the Taylor Act as it now stands gives to the stockmen practically complete domination of the grazing resources on 178,000,000 acres of the public domain through provisions for prevention of reductions of stock, control of policies by boards composed of stockmen and other devices, all of which had been previously advocated by stockmen, but had failed of establishment on the National Forests.

"Now the Department of the Interior desires to 'co-ordinate' the grazing policies of the National Forests with those established by the Taylor Act, and this move is being supported by certain live-stock interests, including officials of the National Livestock Association, who anticipate the extension of such privileges to the National Forest lands, on which they have so far been required to co-ordinate their interests with public welfare, game recreation and timber growing. The more enlightened and experienced stockmen are not in favor of abandoning the system of governmental regulation built up by the Forest Service and are distrustful of the wisdom of permitting members of their own industry to determine, not only for themselves, but for the public, the character and degree of control to be exercised over the grazing privilege on public lands.

"The breaking down of the safeguards against overgrazing on National Forests by such 'co-ordination' would imperil the existence of the forests themselves and have a disastrous effect on soil erosion, which by this time has been checked

and controlled on these Forests by the reduction of stock brought about by the Forest Service.

"In the brief period of a year, during which the Department of the Interior has undertaken the administration of the range on the public domain, no evidence has been forthcoming that this department is competent either to solve the problems of restoring this resource or of regulating it in the interests of the public. No reductions of stock have been proposed and it is unlikely that any will occur under the provisions of the Taylor Act.

"The restoration of renewable national resources dependent on the soil is the basis of our future national welfare. Forests, range, and wildlife are inherently related to the prosperity of agriculture, the health and recreation of our town-dwellers and industrial welfare. Responsibility for all phases of the problem of restoration and management of the soil and its products must be concentrated in the Department of Agriculture which through the Forest Service, the Biological Survey, and all related activities has demonstrated its capacity and understanding of these problems.

"The inherent inability of the Department of the Interior, as such, to comprehend and grapple with the problems of organic resources has been shown by many incidents, perhaps the most startling of which is the statement of Secretary Ickes on June 4, 1935, in his testimony before the House Committee on Expenditures in the Executive Departments, on H. B. 7712 (the companion Bill of S. 2665) who said:

"This whole question of terminology has become so chaotic that the average man cannot tell a cabbage from a squash. Some people even talk of trees as a growing crop like peanuts or onions and delineate them as an agricultural product."

"The entire civilized world, including America, long ago came to recognize the fact that trees are a growing crop, capable of renewal and not merely a mine to be exhausted. The Secretary of the Interior alone appears to hold tenaciously to that outworn creed.

"The administration of grazing on the public domain should be transferred to the Department of Agriculture where it naturally belongs. This department alone is capable of redeeming the trust imposed by the need for conservation of our soil, our forest resources, and our wildlife."

Effect of Fire on Seedlings

By GEORGE S. PERRY

ON August 15, 1930, at the height of the memorable drought of that year, a severe forest fire raged on the Snowy Mountain plateau in the Mont Alto State Forest, Franklin County. Since that date foresters in the Division of Research have made numerous studies there to determine the changes which such a fire makes in the soil and site conditions, especially with reference to the ability of trees to establish themselves and grow. Among the experiments were some pot cultures whose results are here set forth.

Samples of humus and soil were collected from three badly burned spots near the border of the fire area and then similar samples were taken fifty feet distant from a spot across the fire line where no fire had occurred for thirteen years previous.

Humus samples included all the layer of organic matter after the current fallen leaves were brushed away. Top soil was taken from the upper two inches after the organic or peaty layer was removed. Mineral soil was taken from a depth of four to six inches, where the intermixture of organic matter was very meagre.

These samples were passed through a quarter-inch mesh screen, and pots were filled with equal volumes of dry pressed earth of each kind. The six different pots represented compound samples of as many types.

The surface of each pot was divided into three equal sectors by glass rods, and fifty seeds each of Norway spruce, red pine, and white pine were sown therein. Germination tests on this seed in the laboratory showed respectively 45, 88, and 70 per cent viability in ninety days. Seeds were sown in January and the experiment ended ten months later. Pots were set in a sunny window and watered every day or two, with systematic shifting to keep all in equality as to position.

Germination data are rather erratic, but other things being equal, it appears that burned soils offer superior seed-bed conditions, especially for white pine. It was also noticed that the pines

showed less delayed germination in the burned soil pots, possibly because of organic acids eliminated by burning.

Air-dry weights of tops and roots give a test to determine which soils are best adapted to seedling growth. For the pines there is a consistent, but not especially strong trend toward the unburned soils. Root lengths may or may not support this, as they might be longer on slightly poorer soils. It is obvious that Norway spruce thrives best on burned soils. These are less acid than the unburned and doubtless contain more available calcium, which is a favorable condition for this tree so long as extremes of drought and heat do not occur.

When the pot cultures were tested by artificial drought conditions, the disadvantages of fire were most clear. More than five times as many seedlings perished in burned soils as in the unburned samples, despite greater root lengths in the former.

This test showed white pine considerably the most drought resistant of the three conifers tested. None of the trees shows a stimulus in growth because of fertility liberated by fire, as some theorists believe will occur. The released fertility probably leaches away rapidly.

About 1100 different species of trees are found in the United States.

A properly cut blaze or mark will nearly always remain visible regardless of tree growth.

The Oak is called the King of Trees, and acorns from oak trees were food before anyone in Europe knew the grain we called corn.

Rubber, Rosin, Gum Arabic, Myrrh, Gutta Percha, Copal, Dyes and Tans, Turpentine, Acetic Acid, Camphor, Cellophane, Explosives, Celluloid and Rayon—all come from various trees.

Ex-Governor Pinchot Warns Against Conservation Bill

July 9, 1935.

MR. H. GLEASON MATTOON, *Editor*,
FOREST LEAVES,
Philadelphia, Pa.

Dear Mr. Mattoon:

I appeal to you because the National Forests are again in serious danger.

Another attempt is under way to get the National Forests and the forest work of the Government transferred from the Agricultural Department, where the forests are safe and the work well done, back to the Department of the Interior, from which they were taken because of wretched management.

The present attempt is made under cover of an effort (Senate Bill 2665) to change the name of the Interior Department to the Department of Conservation and Public Works. The transfer of the National Forests and the Forest Service is not mentioned in the bill, but is planned for later on.

Conservation is too broad a subject to be confined to any one Department. Nearly all of them deal with it in one form or another. A Department of Conservation would be almost as illogical as a Department of Typewriting or a Department of Wastebaskets, which everybody has to use.

The conservation policy itself, and about every important conservation movement for the last thirty years, originated in the Department of Agriculture. It has shown practical horse sense in dealing with natural resources intelligently, uprightly, and without fraud or loss.

In contrast, the record of the Interior Department is far and away the worst in Washington. Every natural resource, without exception, that has been held for disposal by the Interior Department—public lands, Indian lands, coal, oil, water power, and timber—has been wasted and squandered at one time or another. It is one long story of fraud in public lands, theft in Indian lands, and throwing the people's property away.

Most of the fights for conservation have been made to save natural resources belonging to the people which the Interior Department was throwing away. The National Forests must not go the same road.

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Secretary of the Interior Ickes is sincere and honest, but he cannot live forever. Secretary Garfield was honest, but Secretary Ballinger, his successor, tried to give away the people's water powers and the coal lands in Alaska. The resulting scandal cost Taft his re-election. And everybody remembers Tea Pot Dome, when Secretary Fall handed the Navy's oil lands over to the despoilers. Fall tried hard to get his hands on the National Forests.

Ickes is my friend. Wallace is my friend. But the National Forests could not be better handled in the Interior Department than in the Department of Agriculture, where they have been safe for thirty years. What is the use of rocking the boat?

The Forest Service is completely free from politics where it is. Ickes himself is straight, but the whole history of the Interior Department is reeking with politics. The tradition of the Interior Department is to put private interests first. The tradition of the Agriculture Department is to put public interests first.

Wood is a crop. Forestry is tree farming. It belongs in the Department of Agriculture with all other farming and production from the soil.

Undoubtedly if Secretary Ickes got the National Forests he would do his level best. But he has more work now than any other Cabinet officer in Washington. The National Forests are bigger than all the Atlantic States from Maine to Virginia, inclusive. Why put this additional load on a man who has too much to do already? Let the National Forests stay where they are.

Sincerely,

(Signed) GIFFORD PINCHOT.

Monkey Puzzle

Everyone knows the Chile pine, for its horizontal branches bearing long cylindrical, horizontal or pendant branchlets covered by thick, leathery, spine-tipped, spirally arranged leaves, separate it from all other hardy trees.

It is often called Monkey Puzzle, a name that is said to have originated in a Cornish garden. The owner of an early introduced tree was exhibiting it to his friends, when one exclaimed, "It would puzzle a monkey to climb that tree." "Good idea," said the host, "we might call it monkey puzzle." And the name remains.

FOREST LEAVES

The American Mahoganies

By RUSSELL M. ZIEGLER

Pennsylvania Department of Forests and Waters

MAHOGANY is universally accepted as the finest cabinet and interior finish wood in the world. Wood technologists and botanists recognize three types of mahogany, all members of the Meliaceae family and of the mahognay tribe (Swietenioideae). These tree species have rather limited ranges.

West Indian Mahogany (Swietenia) comes from Cuba, Santo Domingo, and Haiti. It is also native to other West Indian Islands, but not in commercial quantities.

American Mahogany (Swietenia) is commercially important in Southern Mexico, Central America, Northern Venezuela, Eastern Peru, and Western Brazil, Panama and Northeastern Columbia.

African Mahogany (Khaya) is produced in Ivory Coast, Gold Coast, Western Nigeria, and Northwestern French Equatorial Africa.

The type of work to be produced with mahogany is the determining factor in the handling of the logs as to whether it is to be fabricated for quality, figure, or texture.

West Indian Mahogany, the scarcest of the mahoganies, is the leading species for certain parts of the finest furniture. It is the heaviest of the species, having close grown, silky texture and an exceptional color. It wears as well, if not better, than any other species. It is easily stained and takes a high polish.

The American Mahoganies show a close family resemblance, varying but slightly in color, texture, weight, and figure. Because of their larger size and straighter logs wider cuttings can be obtained from them. The wood is most adaptable for use in sizeable work such as office furniture and bank fixtures.

African Mahogany is also obtainable in large size. The logs are from fourteen to thirty-six feet in length and from three to five feet in diameter. They are hewn square for shipment and yield wider and longer boards than any other species. The wood is lighter in weight, has a

milder texture, and larger pores than other mahoganies. The figure, amazing in its variety, ranges from straight stripe to rich mottle figures.

Mahogany is not red, but a rich golden brown. The wood of some trees has a more reddish cast than others. The deep red color on mahogany is due to stain applied in finishing.

In all types of mahogany the pores contain a scattered quantity of dark glistening deposits, and the pores are smaller than in the types of wood substituted for mahogany. Substitutes for mahogany are the genus Shorea from the Phillipines, and black birch and gum in the United States.

There are no mahogany forests. The trees are scattered throughout the jungles, and two trees per acre are considered a very good stand.

Since the trees on the stream banks have long since been cut, the logging of mahogany is a battle with the tropical jungles. After an area has been cruised and sufficient material can be logged to make the venture profitable, trails must be cut to each tree. The trees are felled, bucked and dragged to the stream banks of dry creeks, and each log stamped. This work is done with cattle in America and man power in Africa.

During the flood season the logs are floated to deep water before the flood subsides. If the logs do not get to deep water it will delay their getting to market six months.

The logs are then formed into rafts, similar to those that once floated down our Pennsylvania streams, and allowed to drift to the ocean. It is a dangerous job, as the rafts must be floated out to sea so they can be loaded on streamers. To get the rafts over the sand bars is an extremely dangerous job, especially when the sea is so rough that the wave action is strong enough to break up the rafts and scatter the logs along the coast. The fact that these waters are shark infested increases the danger. Even aboard the steamer, the danger is not gone, as there is always the chance of tropical hurricanes.

JULY, 1935

Nine

Forest Service Crews Fight Twenty-Eight Fires a Day

Increasing fire hazards are reported in many of the 150 National Forests of the United States at the mid-year point this season in the annual battle with the flames, according to Roy Headley, assistant forester of the Forest Service, U. S. Department of Agriculture, who has charge of protection of the forests against fire.

In the last ten days of June, Forest Service protective crews had to fight an average of twenty-eight fires a day. An average of twenty of these fires were man-caused,—from matches and tobacco dropped in the forests, from unguarded camp fires, brush burning, and other sources.

The Forest Service "box score" of telegraphic fire information, gathered every ten days, shows that national forests in the first half of 1935, had 3,238 fires against 3,459 for the same period last year. However, 2,902 of the 1935 fires were man-caused, against 2,279 for the first half of last year. Area burned so far this year jumped considerably—105,146 acres, against 72,035 acres in the first six months of 1934.

The increase in losses this year for the national forest system as a whole is largely accounted for by the several million acres of land newly purchased for national forest purposes in the Southeastern and North Central regions. In these new areas the Forest Service protective system has not yet been fully developed, and local educational work against prevalent woods burning practices has not yet become effective. Three out of four of the man-caused fires in National Forests this year and more than 90 per cent of the acreage burned were in these two regions.

All the western regions except California have cut down the number of forest fires so far this year, and in California the acreage burned is only about one-tenth that of the first half of 1934.

Despite the West having about eight times the area of national forest lands, and its being usually subject to worse droughts, it has far fewer man-caused fires than the Eastern and Southern regions. To meet the problem of protecting life and property from forest fires, the Forest Service is rapidly developing its system of lookouts, communications, trails, firebreaks, and roads in

the new areas. Good equipment, trained men and local co-operation, it is expected, will gradually check the fire menace to the newly acquired forests.

National Forests Spread Over the East and South

National Forest areas in States east of the Rockies have doubled in the last two years. Lands purchased or approved for purchase since June, 1933, amount to 8,698,541 acres, according to the Forest Service, U. S. Department of Agriculture.

The aggregate area of National Forests in the United States, including Alaska and Puerto Rico, is now more than 170 million acres. While most of the National Forest area is in the West, the system in the eastern half of the country is growing to a point where it will more adequately serve these densely populated States.

With the approval of the National Forest Reservation Commission, the Forest Service has designated ninety-two purchase units in twenty-seven States, including timber-producing and critical watershed areas in the Ohio Valley, the Ozarks, the Appalachians, the Lake States, and the Gulf States. Purchases of land have already been approved with seventy-three of these units, although in some of the newer units very little acreage has as yet been acquired. Additional purchases are planned as funds become available.

On the newly acquired areas, the Forest Service is undertaking improvement work as rapidly as possible, to facilitate protection and to develop the timber, wildlife, and recreational resources. Rehabilitation on many of these new units is a big job, since much of the land has been wasted and depleted in the past. The National Forest purchase program is expected to make a marked contribution to local community stability and economic welfare through the building up of depleted resources and management for "sustained yield" of products and services.

The Bo-Tree is a sacred tree of Ceylon. When P. T. Barnum bought a sacred white elephant from India, he was required to swear by the sacred and holy Bo-Tree that the animal would receive much kindness.

Summer Meeting of Association

THE Summer Field Meeting of The Pennsylvania Forestry Association will be held on August 27th and 28th in the Poconos in Monroe County, Pennsylvania.

The Pocono Forestry Association, one of the most active sectional associations of the State, has asked this Association to join with them at their Annual Meeting which starts at 3 P. M. on August 27th. At 5.30 P. M., we will be their guests at a supper at the Buck Hill Falls Hotel. The evening meeting on that day, which will start at eight o'clock, will be held in the outdoor amphitheatre at the hotel. The speakers and moving pictures will be provided by this Association.

On the following day, The Pennsylvania Forestry Association has invited The Pocono Forestry Association on a field trip. The first stop will be on the summit of Big Pocono, where the course of the proposed Rim Parkway will be pointed out to us and an explanation given of the value of this proposed Parkway in fighting forest fires, adding to the scenic beauty of the region, and as an asset in other forestry projects.

From there, the cavalcade will travel to a nearby gypsy moth infested area where the control measures and destruction may be seen. A short talk will also be given by one of the men in charge of Gypsy Moth eradication. At 1.30 P. M., the members of The Pennsylvania Forestry Association will be the guests of The Pocono Forestry Association at a luncheon at Pocono Lake Preserve. Following the luncheon, a guide will conduct those who wish to tour the forest of the Preserve, pointing out the forest management plans and improved cuttings.

The Summer Meeting Committee composed of E. F. Brouse, Chairman, Edward E. Wildman, Edward Woolman, John K. Harper and H. Gleason Mattoon in co-operation with the Committee of The Pocono Forestry Association of which Charles N. Thompson is Chairman with J. A. Seguine, John H. Kunkle, and Egbert Carey have arranged a very interesting meeting. It is hoped that many members of The Pennsylvania Forestry Association will avail themselves of this

opportunity to see many points of interest in the Poconos and the projects relating to forestry that are being carried on there. A notice will go out to all members later, giving necessary information on hotel accommodations and rates. In the meantime, save these dates for the Summer Meeting.

Floods Forecast on Slow Streams; But Rivers of Northeast Too Fast

The flood season of 1935 is over in the Central valleys, according to M. W. Hayes, of the Weather Bureau. Small streams here and there may get out of bounds, but the important flood makers—the Mississippi and its large tributaries—are through for this year, if past performance is a guide. The Weather Bureau has no record of an extensive flood in the Mississippi system between July 15th and winter.

The outstanding feature of the floods in the Central valleys this year—the worst since 1927—was the extremely rapid rise from the unusually low river levels left by the drought of 1934. As a rule, Mr. Hayes says, the stage for any great flood is set in the fall. In 1926, for example, heavy rains saturated the ground, so that streams, big and little, went into the winter well fed with water. More rain in late winter and spring fell on saturated ground, making the 1927 floods inevitable.

Conditions this year were quite different. At the close of winter, streams were very low, the ground was extremely dry, and dust, rather than rain, swept across the land. However, the spring rains which finally broke the drought, were so hard and incessant as to pack the surface soil against rapid absorption. Rains ran off into creeks and rivers, bringing many of them to flood stage.

An unusual feature this year was the unprecedented flood in Southern New York. Although the shallow Finger Lakes in their low-lying basin have always given this section a perfect setting for a bad flood, Mr. Hayes says rainfall there had

never before been so heavy for so many days on end.

The Weather Bureau issues flood warnings for very few of the rivers east and north of the Susquehanna. These northeastern rivers are too short and move too fast to make long forecasts possible. By the time the forecast could be prepared, the flood would be upon the community. In the Middle and South Atlantic States and in the Central valleys, however, where the rivers are much longer and move more slowly, the Bureau—by means of river gauges at strategic points—closely watches the rise and fall of streams, as well as the rainfall throughout the system and any other conditions that affect floods. Forecasters can predict these river stages from two days to a month in advance.

Pennsylvania Imports 70% of its Timber

Pennsylvania, with all of its potential forest and timber resources, imports about 70 per cent of its timber supplies.

This condition was disclosed following a study of the pulpwood and mining timber industries in Pennsylvania, just completed by Dr. E. A. Ziegler, of the Division of Research, Department of Forests and Waters.

The survey showed that the market for timber supplies in Pennsylvania far exceeds the cut, despite the fact that the State now owns 1,648,896 acres of State Forests. Neglect of and apathy to forest fires thirty and more years ago, and the complete lack of a reforestation program during that period, are responsible for the economic circumstances of today.

In normal years the State uses 858,000,000 cubic feet of wood and grows only 375,000,000 cubic feet. The imports for lumber and large sized timber jump as high as 84 per cent of our total consumption and only about 16 per cent is produced within the State.

There are ten wood-using pulp mills in operation in Pennsylvania, with an annual consumption of approximately 237,000 cords of wood, of which more than 60 per cent is imported.

Almost all of the common trees of Pennsylvania are now used for pulp, with the exception of the oak, which the pulp mills have thus far been unable to handle economically.

This famine of timber in a center of potential plenty is felt chiefly in the anthracite and bituminous coal regions where large quantities of timber are needed for the construction and maintenance of mine shafts.

Here the imports soar to almost 84 per cent in comparison with the pulp imports of 60 per cent.

This paradoxical condition wherein a State with 1,648,896 acres of forests must import 70 per cent of its timber, is due to the indifference of several generations removed. Had the forests been properly managed and protected thirty years ago and more, a series of thinnings over a rotation period could have been conducted and as much as 40 per cent of the total growth could have been removed from time to time without injuring the remaining stand.

In conjunction with the research surveys that have been made of the marketing conditions in Pennsylvania, it has also been pointed out that during the past thirty years, under the management of the Department of Forests and Waters, the State Forests have produced such a rapidly increasing growth of young timber trees that the forests are ready at this point to yield timber products of small dimension size.

Trees—An Irreverent Parody

(Apologies to Joyce Kilmer)

*I must confess that I can't see
Why poets rave about the tree.*

*They call its roots "its hungry mouth"
(I wish they'd try to dig 'em out).*

*Those "leafy arms that lift to pray,"
(I've cut 'em day by weary day).*

*Of course, there's "nests of robins there,"
(But who wants robins in their hair?)*

*They "live with rain," but who has not,
(Who sleeps upon an Army cot?)*

*Yes, "poems are made by fools like me,"
(But any nut can plant a tree).*

The foregoing verse was written by a member of a Pennsylvania CCC Camp.

FOREST LEAVES

Twelve



Mr. Woolman explains route to Lebanon and Lancaster County group. Hammer Creek, April, 1934

The Horse-Shoe Trail

Continued from Page Three

a number of farmers have expressed a willingness to take care of mounts.

An increased appreciation of Pennsylvania's forests will be a natural result of the use of the new Trail. Although close to towns and cities, the route traverses excellent timber country and passes through regions still replete with deer, grouse and other forms of wild life. The finest stand of timber is found in the Cornwall Forests, where oaks, maples and beech dominate the woods. The wildest part of the route lies between Adamstown and Hammer Creek.

Mr. Woolman visualizes the project as eventually a part of a State or national park system, preserving its wilderness aspect in the face of the encroachment of civilization. "There seems to be no good reason," he states, "why our State forests and public reservations should not be made more generally available for horseback riding and hiking. A trail of this kind will bring business into the back country towns and retain much of the money in Pennsylvania that is now being spent

by our citizens for recreation in other States."

A permanent organization has been formed under the name of the Horse-Shoe Trail Club, of which Mr. Woolman is temporary president. The incorporators are as follows:

- Major Lynn G. Adams, Superintendent State Police.
- Myron H. Avery, Appalachian Trail Conference.
- Major Nicholas Biddle, Chairman State Game Commission.
- Edward E. Croll, Evening Ledger.
- C. M. Erdman, Quentin Riding Club.
- James Fentress, Scout Executive.
- Capt. Clyde E. Fisher, Governor's Troup.
- Percival E. Foerderer, Bridlewild Trails.
- Frank B. Foster, Boy Scouts of Chester County.
- Miss Lillian Gest, Philadelphia Trail Club.
- Wesley A. Gilman, N. W. Ayer & Son, Inc.
- Frank M. Hardt, Fidelity-Philadelphia Building.
- H. H. Harkins, Quentin Riding Club.
- Charles Hazlehurst, President Philadelphia Trail Club.
- P. N. Hershey, Hershey Estates.
- Mrs. Caroline Miller Huber, Director Pennsylvania League of Women Voters.
- Dr. Martin Kilpatrick, Philadelphia Trail Club.
- J. A. Lafore, Bridlewild Trails.
- J. Carlos Lopes, Scoutmaster.

JULY, 1935

Thirteen

Hon. Harry S. McDevitt, President Saddle Horse Association.
 Otto T. Mallery, Playground and Recreation Association of Philadelphia.
 Ehrman B. Mitchell, Beauford Hunt Club.
 Dr. Wm. H. Moore, Camp and Trail Club.
 Charles H. Muhlenberg, Jr., Reading, Pa.
 Edgar W. Nicholson, President Pennsylvania State Fish and Game Protective Association.
 J. N. Pew, Jr., Warwick, Pa.
 Hon. H. J. Pierson, Senator, Lancaster County.
 Dr. Horace C. Porter, Philadelphia Trail Club.
 Col. Fred Taylor Pusey, National Guard Pennsylvania.
 Claude E. Runkel, Quentin Riding Club.
 Dr. Benjamin Schneyer, President Back to Nature Hiking Club.
 Samuel L. Smedley, President Pennsylvania Forestry Association.
 Jonathan M. Steere, Girard Trust Company.
 Hon. Lewis H. VanDusen, Judge Orphans' Court.
 Hon. Thomas Weidemann, Member House of Representatives of Pennsylvania.
 Col. Samuel P. Wetherill, Jr., President Philadelphia Art Alliance.
 W. Nelson L. West, Smoky Mountain Hiking Club.
 W. Nelson West, 3rd., Secretary.
 Edward Woolman, Vice-President Pennsylvania Forestry Association.
 Henry N. Woolman, Temporary President.
 Clarence E. Wunder, Bridlewild Trails.

Wildlife: A Forest Product

Continued from Page One

deer by permitting only bucks with antlers visible above the head to be shot; the passing of a bounty law and the hunters' license law; and the passing of acts granting wide discretionary powers to the Board of Game Commissioners. It would be possible to go on and enumerate many more major steps taken for the purpose of safeguarding this ancient sport and the end is not yet in sight.

It seems to me that we are approaching the time when another major step will have to be taken. This one has to do with the manipulation of the environment for game in order to provide better conditions as to food and cover. I believe that the time is past when foresters can simply ignore game and assume a hostile attitude. They are failing in their duty to the people and to the profession, when they do not consider game an integral part of the forest and give proper recognition to it in the plans of management.

Wildlife is very rapidly increasing in importance in the minds of our people. It is one of the popular subjects of the present time. This interest is found in sportsmen's clubs, Boy Scout organizations, nature study clubs, and individ-

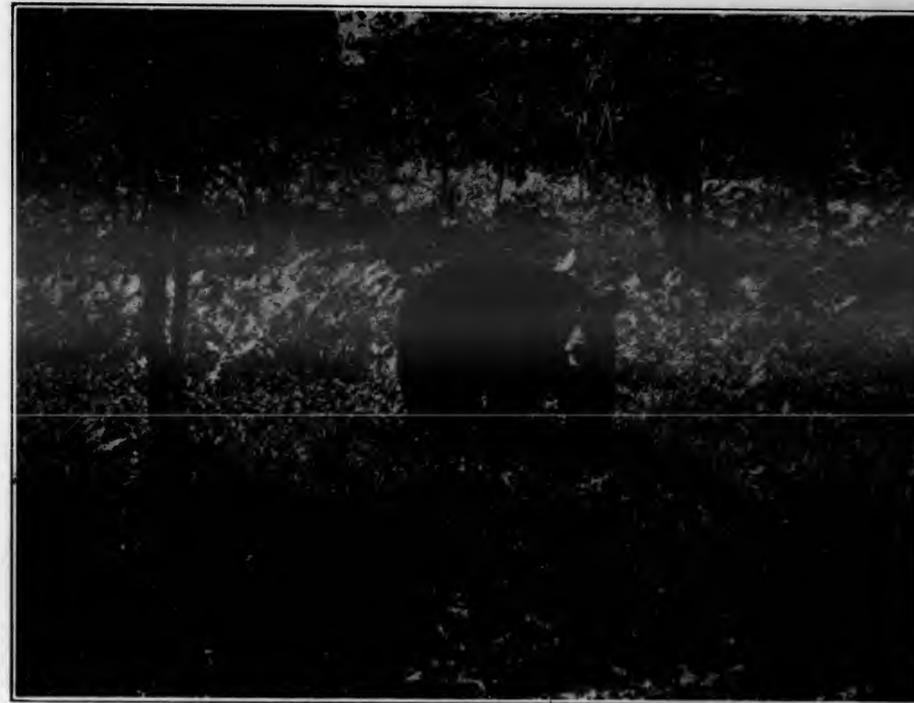
uals. Within the past year the President has designated a committee on wildlife restoration, having as its object the formulation of plans for the protection and restoration of game animals, game, song, and insectivorous birds.

The recreational use of forests, especially those publicly owned, has grown tremendously during the past few years and it will continue to grow. Wildlife is naturally a very important feature of this form of use because it furnished the inducement to hunters, nature lovers and others to go to the woods. The great public interest in wildlife and recreation cannot help but have a decided effect upon the future attitude of foresters toward the practice of forestry. They will of necessity give more thought to the creatures of the woods. They will be required to take a broader view of the forest than, generally speaking, has been taken in the past. The problem which confronts them is how best to manage the forest to permit the production of a maximum game crop without affecting seriously maximum timber production. The greatest contribution of the foresters will be in so planning their silvicultural system that the interests of game will be served.

The backbone of any state-wide scheme of wildlife management is the forest. Wildlife is definitely a product of the forest. Woodlands provide homes and hiding places which will enable our furred and feathered friends to exist. Many of our most sought for game animals and game birds, and a majority of the song and insectivorous birds, spend practically their whole lives within the woodland shadows. Many field dwelling mammals and birds when beset by hunter, dog or other enemy seek safety in flight to the nearest woodland, be it woodlot or mountain border.

Important as the forest is to wildlife in providing homes and protective cover the food problem is the most vital consideration where all life is concerned. All wildlife is found in profusion only where vegetation is found in greatest abundance. Forested areas, with their overstories of trees of diversified species, their understories of nuts, fruits, and berry-bearing shrubs and bushes furnish food in profusion for beast and bird.

We may have good game laws, an excellent refuge system, an efficient corps of highly trained protection officers, a good yearly output from our



Courtesy Penna. Dept. of Forests and Waters
The Black Bear is now protected by law

game farms, but if there is not satisfactory cover or plenty of food for game our efforts are in vain. Game will increase up to the amount of available food and no further, other conditions, of course, being favorable. It is in the development of these prime requisites that we need the co-operation and assistance of foresters. By their knowledge of the trees and of results from cuttings they are better fitted than anyone else to render valuable services.

There are two principal ways by which foresters can assist in improving the food and cover conditions for game, thereby making possible the maintenance of a larger supply. The first is the treatment of the area to influence the kinds and density of vegetation to favor different varieties of wildlife. The other is the planting of trees, shrubs, and vines which provide an assortment of food.

Many forest areas in Pennsylvania are now past the stage where they furnish browse for deer and good cover for small game. The crowns of the trees on many areas have closed, shading

out the understory of valuable tree species as well as the "forest weeds" those species of shrubs considered worthless by the forester, yet so important as game food producers. It seems advisable now, and it will be more so as the forests mature, to put a guiding hand in the struggle between the different tree species in order to maintain the proper understory at least on part of each area. The treatment given probably will be altogether contrary to good forestry principles; that is, the recognized practice of growing the greatest amount of the best producing, most valuable trees in the shortest possible time. Some valuable timber no doubt will have to be sacrificed on many areas in order to provide coppice or sprout growth for deer browse and thick cover for other species. Some valuable timber no doubt will have to be sacrificed to permit the growth of the so-called "forest weeds." These forest weeds require sunlight for growth, otherwise they are quickly shaded out by large growth. Wherever possible a forest of varying age classes and mixed species should be encouraged. A

mature, even aged forest often is open as to its floor, carpeted only with pine needles or fallen leaves and offering little cover in which game may hide. The low shrubs and plant life on the forest floor are particularly necessary for providing insect life for the young of game birds and cover and food for most game birds and animals.

In the planting of so-called waste lands with conifers, game should be given consideration. Coniferous species, while small, make good cover, but provide very little food. Game is going to suffer irretrievable losses if the planting of all openings and old abandoned fields is permitted. In all such plantings the areas should not be covered entirely with trees, but wide strips or patches should be left to grow up to the miscel-



aneous assortment of plants which furnish game food. If not already present such plants should be provided.

Even depressions do not lessen the desire of people for sport, if the sale of hunting licenses is a criterion. A steady increase in the sale of licenses has manifested itself during the depression years, with an all-time high mark for normal years set during 1934 with more than 565,000 resident and approximately 6,000 non-resident licenses. There was a slightly higher number of licenses sold in 1931, but that was the year when antlerless deer were declared legal game resulting in an abnormal sale of licenses. There probably always will be a demand for as much game as the forests can produce.

There is an opportunity for public service open to the State that develops its forest and

waste lands in conformance with the principle of highest land use, recognizing the distinction between tree development for wood volume alone and tree development to favor all uses of the forest. Participation in the development of the forest for the greatest good to all is not only a forester's privilege, it is his duty. That participation will have to consist of more than merely setting aside and helping to develop an area for a public camp ground or selecting a site for a picnic. It must include an active interest in the welfare of game birds and animals.

Editorials

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- The Westmoreland Garden Club, Greensburg, Pa.
- The Woman's Club of Pittsburgh, Pa.
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- Robert C. Auker, Phillipsburg, Pa.
- C. Kenneth Bates, Monument, Pa.
- R. Dale Benson, Jr., Philadelphia, Pa.
- Dr. James F. Bogardus, Harrisburg, Pa.
- Richard T. Brown, Wharton, Pa.
- Charles M. B. Cadwalader, Philadelphia, Pa.
- Otto Haas, Haverford, Pa.
- Frank M. Hardt, Philadelphia, Pa.
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- H. B. Spackman, Coatesville, Pa.
- Mrs. W. Plunket Stewart, Unionville, Pa.
- Dr. I. P. Strittmatter, Philadelphia, Pa.
- Mrs. C. M. Taylor, Huntingdon, Pa.
- Bernhard Wilmsen, Philadelphia, Pa.
- Grahame Wood, Philadelphia, Pa.
- Miss Josephine T. Woolman, Ardmore, Pa.
- Mrs. Charles Morris Young, Drifton, Pa.

A Redwood tree of recent felling gave 3000 fence posts, 650,000 shingles (enough for seventy-five houses) and 100 cords of firewood.

FOREST LEAVES

FOREST LEAVES

OCTOBER, 1935



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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

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Whole Number 279

Outdoor Recreation in Penna.

By DR. J. F. BOGARDUS

Deputy Secretary, Department of Forests and Waters

FOREST economists tell us that the function of forestry practice is putting land, adapted to forestry purposes, to its highest possible use. This includes the perpetuation of timber supplies, conservation of water, economic use of waste land, and the development of recreational areas for the public need.

Transplanted into terms of human welfare, forest use is not always limited to timber production. The recreational features in many instances are of vital importance, and most desirable.

It has been proved that forest recreation has a definite value, and so long as it is indulged in freely by all classes of people, it may be assumed that we will have a sound, healthy, economic and social condition.

The productive use of leisure time and the continued participation in wholesome outdoor recreation have always contributed, to a large degree, in maintaining the accepted standards of American life.

Forestry and recreation in Pennsylvania are inseparable. Both must go forward together. If one is held back, the other will suffer, and since both can be practiced on the same land area, there should be no conflict between the two. To carry out this program of forestry and recreation in our State Forests calls for intelligent direction.

If adequate appropriations for the development of recreational areas on our State Forests are to be assured, accurate data and statistics must be secured and surveys made so as to determine what facilities are needed to meet the demands of the public and the return value for the money

expended. This is what we are trying to do at the present time under the direction of the Division of Parks, which has been set up as a separate unit under the Department's reorganization plan.

It is said that more than half of the motor cars in operation are used for other than business purposes. An official of the Canadian Government recently stated that the income to Canada as a result of tourists and recreationists last year exceeded one hundred and seventeen million dollars. It is estimated that the money spent last year by recreationists to our State Forest and State Park areas was not less than ten millions of dollars.

Less than 10 per cent of our population in Pennsylvania is now actually living on farms, and more than half of our people live in towns and cities with a population of 10,000 and over. It is quite evident that with the increased leisure of our present day civilization our people are taking more and more to the great outdoors to breathe the pure air, drink from the cool mountain springs, and enjoy the freedom from their daily tasks.

The purpose of some who seek recreation in our State Forests is simply to have a good time in the out-of-doors, but a great majority go to our forest areas for the healthful benefits derived.

It is estimated that more than two million people annually enjoy the recreational and scenic areas in our State Parks, State Forest Parks, and public camping grounds, which now comprise 1,648,968 acres. An additional number use the State Forests for hunting and fishing and others



Courtesy Penna. Dept. of Forests and Waters
Bathing in Fuller Lake Public Camp, Cumberland County

visit our fire observation towers. The number of people that use the State Forests for recreational purposes is increasing at a rapid rate.

To meet this demand the Department of Forests and Waters is making a special effort to provide additional recreational areas and improve those now in existence.

At the present time, 50 additional recreational projects are planned, and topographic surveys of the areas will be made. Not all of these areas will be developed immediately, but the foundation work is being laid so that they may be developed when funds are available.

In addition to these surveys, Works Progress Administration projects have been approved for improvement work on recreational areas that are already under the jurisdiction of the Department of Forests and Waters. The Federal contribution for labor for such projects thus far approved amounts to \$143,804. More projects are contemplated and our present plans call for Federal expenditures of from five hundred thousand to one million dollars, most of which will be used in developing recreational areas.

Appalachian Scenic Parkway

By CHARLES N. THOMPSON
President of the Pocono Forestry Association

THIS is an appeal for consideration of the Appalachian Scenic Parkway as a Federal Park in the eastern part of the United States, where it will be available to the many millions of the citizens of the United States, and a vast number of foreign visitors to our shores, who will otherwise never benefit from our National Parks. Ninety-five per cent of our Federal Parks are west of the Mississippi River and the remaining five per cent so far from the greatly populated sections of our country as to be of comparatively little use.

The Parkway as it is at present conceived is one of 1,000 miles in length, from 300 to 800 feet wide—67,500 acres in itself, probably 300,000 acres including the State and Federal lands en route that would be included, with a roadway threading its whole length. It would extend from Virginia to Vermont, along the rim of the Appalachian chain of Mountains, utilizing land that is good for little else, making accessible lands that are now yearly the prey of forest fires, and thus being a boom to forestry and conservation,—worth all it will cost for this without even considering civic values.

Such a Parkway as far as that part in Pennsylvania is concerned, and the same probably follows along the entire route, could be obtained at this time at a very small fraction of the cost of Federal Parks generally. Consider the part in our State. It passes through Franklin, Adams, Cumberland, Perry, Dauphin, Lebanon, Schuylkill, Berks, Carbon, Northampton, Monroe, Pike and Wayne Counties—about 300 miles. In these Counties alone about \$35,000,000 was paid in direct relief last year; one-half of this amount would build the Park, and give to the eastern part of the United States a Park, by including land now owned by State and Nation of worthwhile magnitude. To do so would create something of inestimable value to the country and would give employment rather than a dole to those in need and who would much rather be gainfully employed.

Let us recognize the fact that the automobile has changed a great many things, and that it has changed the world's appetite for Parks. In the "horse and buggy days" the Park plan was to drive to Fairmount Park or Central Park, or any other nearby Park and just sit, or get out and walk around, but in this day of the automobile, the urge is to go somewhere, to *drive through*. To reach the greatest number of people, and to reach the changed mood of the people, from the quiescent to the active, this proposed 1,000 miles of ribbon Parkway, within 150 miles of more than 40,000,000 people, with an average width of about four hundred feet—about one hundred square miles of land in all, without considering the probably two hundred square miles of present State and Federal Park lands it will connect—is much better than one of ten miles square. As a matter of fact, the one 1,000 miles long is possible of accomplishment, and feasible; but the one 10 miles long and 10 miles wide, within the reach of any considerable proportion of the same number of people, is impossible.

While the general scheme of the proposed Park would be in conformity with the advanced ideas of what Parks will be, it will not cut loose entirely from the traditional Parks of "horse and buggy days." There will be sections of it that will be other than the ribbon Park described, where those wishing to picnic may be accommodated. There will be other sections where camping may be done and in still other sections, the several States will rent land for hunters and fishermen; always under the proper restrictions and regulations.

One real hazard to be avoided, is confusing this Parkway with a Highway. Very distinctly, this is to be a Park, under the supervision of our Park System—with restrictions against ugly, obscuring signs—all signs, and disfiguring hot dog stands and gasoline stations. The control of a sufficient width on each side of the drive will encompass this.

FOREST LEAVES

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H. GLEASON MATTOON, Editor

PUBLICATION COMMITTEE

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OCTOBER, 1935

The Offspring of Forestry

In 1886 when The Pennsylvania Forestry Association was organized, the hillsides of Pennsylvania were all but denuded of the natural growth of conifers and hardwoods. The saw mill had cut wide and destructive swathes through what fifty years before had seemed an illimitable supply of timber. The red demon had followed the axe men, poking sooty fingers of ruin into the remaining stands.

In that decade, a few courageous voices were raised against this wanton destruction. The cry gathered momentum and was augmented until laws were passed which became the nucleus of the present forestry program in Pennsylvania. If one reads the articles and editorials of those days, which bear on the subject, he soon gathers that timber conservation and production was the central thought. To increase and improve the tree crop acreage was the aim so that Pennsylvania would not have to import timber for her homes and factories.

From that beginning, there has been developed a vast acreage of State owned forest lands, areas unfit for agriculture and generally remote from large centers of population. Through natural and artificial regeneration and by protection from fire, vast acres are now clothed with a rich and sturdy second growth. The forests are returning.

But during the intervening half century, much

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has happened. No longer are these vast areas inaccessible to the people of the congested areas. In 1880, Pennsylvania numbered about 4,000,000 persons, most of whom spent much of their lives within a few miles of their homes. Today, about 10,000,000 persons are found within her borders. But they are no longer content to remain within a restricted area. Highspeed transportation and improved roads have brought the most remote forests to within a few hours of their door. In 1880, one could count on his fingers the persons who had traversed the mountain recesses, while to number the ones who go to the state forests today would require an adding machine. Hunters, fishermen, picnickers and campers, all tax payers, feel a proprietary interest in the State forest lands. With their money were they purchased. Each has a right to the rest, relaxation, recreation which they afford.

The original forestry program was conceived to fulfill a need of the people of the State. That need still exists, yet there are other needs which these forests may meet. Who shall say that the need for healthful sport, for spiritual peace or physical relaxation is not as important as the need for timber?

The original forestry idea has begot many offsprings through the years. It should care for them all. The State Department of Forests and Waters is recognizing the requirements of these offspring and is providing for them. Everyone interested in the development of State owned forest lands must appreciate that they possess a multiple value to the people of the State which will increase with the years.

Forestry and recreation are becoming synonymous in the minds of many. To establish recreational areas is not only necessary, but wise. When the entire population of Pennsylvania experiences the joy of forestry then will the value of State forests be generally recognized and the wisdom of increasing them will be a common wisdom of the public.

H. G. M.

Scenic Parkways

There is rapidly arising a clash of interest between enthusiasts for parkway development through wooded wilderness areas and the game and forest lovers. The former look upon the

Continued on Page Fifteen

FOREST LEAVES

Hawk Mountain Sanctuary

By PHILIP ATLEE LIVINGSTON

THE slow march of conservation, in the establishment of parks, game preserves, State and national forests and sanctuaries is sometimes aided when an emergency focuses public attention on some spot. It was in this manner that eastern Pennsylvania acquired a wildlife sanctuary of unique and fascinating character. And here is the story of Hawk Mountain:

The ceaseless battle between those who hunt with binoculars and those who hunt with guns has, in recent years, come to a head in the matter of the protection of hawks and owls. The well-proven fact, known for years, that most of these birds are harmless or valuable, has had little effect in saving them from slaughter at the hands of those who find an excuse for calling any wild moving target "game" or "vermin"—either class, of course, to be shot.

The Kittatinny Ridge is an ancient flyway of the hawks and eagles in their fall migrations. Bird lovers have but recently awakened to a fact long known to the hunters, who have taken a



Photo by Broun
Observatory Point

OCTOBER, 1935

staggering toll of these birds as they have soared along the ridges. Hawk Mountain, lying northeast of Hamburg (between Dreherstown and Eckville), was a favorite spot, where from 3000 to 5000 hawks were shot down each year.

The prevailing north and northwest winds of autumn create an upcurrent of air on which the birds of prey soar with rarely a beat of the wings. As the birds approach Hawk Mountain a break in the ridge swings them close to a 1500-foot peak, on which Nature has piled a great mound of giant rocks. Here, at close range, more than a hundred guns lay in wait for them on favorable days. The bird which survived the barrage was lucky indeed; one by one they collapsed in flight, hurtling down into the scrub growth or cliffs where, dead or wounded, they were never retrieved.

Ornithologists who watched the slaughter were enraged and horrified. State laws give virtually no protection, and local opinion was behind the hunters, including, of course, the stores which sold the shells. Two Philadelphia naturalists, Richard H. Pough and Henry Hill Collins, Jr., made it their business to do something.

That something was an appeal to Mrs. Charles Noel Edge, of New York, whose Emergency Conservation Committee stepped in and leased the whole mountain, with an option to buy. Thus, in the summer of 1934 two square miles of fascinating wild country passed into the hands of lovers of wild life.

Last fall Hawk Mountain had its first season as a spot for the study of birds of prey. Maurice Broun, a well-known naturalist of Massachusetts became ornithologist-in-charge and R. H. Kramer, as deputy sheriff, was retained to convince the shooters that their days of slaughter were over. Bird lovers from all parts of the eastern United States came to the mountain, to stand fascinated on Observatory Point while a constant procession of hawks, vultures and eagles passed by so close that often glasses were not needed.

If no birds were seen the day was well spent, for the rocks overlook a panorama of mountains,

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forests, and farms of spectacular and ever-changing beauty. But the birds were the attraction. Golden eagles, thirty-nine of them, were observed. This was a new bird to nearly all the visitors; even the great gyrfalcons of the far north, practically unknown to Pennsylvania, were seen. More than a hundred swift and powerful goshawks were counted, and 52 bald, or American eagles. Altogether more than 10,000 birds of prey were actually counted, with the probability that thousands more passed by when the men in charge were elsewhere.

This fall the visitors have increased in numbers, and the observations, begun earlier, promise an even greater total of hawks and eagles in the fall flight. More than 50 bald eagles passed in one day last month. On September 17 the day's total of hawks exceeded 3300, or about ten birds per minute during the flying hours. Such rare birds as wild turkeys and pileated woodpeckers have been seen on the property.

To those who realize the increasing scarcity of the birds of prey, this tabulation for the 1934 season (September, October and November) will be a revelation:

1. <i>Cathartes aura septentrionalis</i> . TURKEY VULTURE	166
2. <i>Astur a. atricapillus</i> . EASTERN GOSHAWK	123
3. <i>Accipiter v. velox</i> . SHARP-SHINNED HAWK	1913
4. <i>Accipiter cooperi</i> . COOPER'S HAWK.....	333
5. <i>Buteo b. borealis</i> . EASTERN RED-TAILED HAWK.....	5609
6. <i>Buteo l. lineatus</i> . NORTHERN RED-SHOULDERED HAWK.....	90
7. <i>Buteo p. platypterus</i> . BROAD-WINGED HAWK	2026
8. <i>Buteo lagopus s.johannis</i> . AMERICAN ROUGH-LEGGED HAWK.....	20
9. <i>Aquila chrysaetos canadensis</i> . AMERICAN GOLDEN EAGLE.....	39
10. <i>Haliaeetus l. leucocephalus</i> . BALD EAGLE..	52
11. <i>Circus hudsonius</i> . MARSH HAWK.....	105
12. <i>Pandion haliaetus carolinensis</i> . OSPREY...	31
13. <i>Falco rusticolus candicans</i> . WHITE GYRFALCON.....	2
14. <i>Falco rusticolus obsoletus</i> . BLACK GYRFALCON.....	2
15. <i>Falco peregrinus anatum</i> . DUCK HAWK...	25
16. <i>Falco c. columbarius</i> . PIGEON HAWK.....	19
17. <i>Falco s. sparverius</i> . EASTERN SPARROW HAWK.....	13
Unidentified	208
Total	10,776

Further information on this outstanding conservation move may be obtained from the Auk, official organ of the American Ornithologists Union, for July, and from the Emergency Conservation Committee, 734 Lexington Avenue,

New York. Visitors are welcome and desired. Drive to Dreherstown and take the mountain road to Eckville. Near the top of the rise a well-marked path leads off from the left, marked by a sign, and usually with an attendant on duty. The walk to the top of the ridge is not difficult.

Every member of the Pennsylvania Forestry Association will enjoy, not only the bird-saving aspects of the movement, but the forest conservation possibilities in this 1655-acre area. Perhaps, after seeing the success of the work, the visitor will want to contribute to the fund to purchase and maintain the sanctuary—hundreds have!

Aircraft and Radio Aid in War on Forest Fires

Increasing use is being made of radio and aircraft in protecting State and national forests from fire, says the Forest Service of the United States Department of Agriculture. Both airplane and radio aided in apprehending a firebug from the air, in a case recently reported by the New York Conservation Department.

A man was seen starting a forest fire by Albert Leo-Wolf, forest-patrol plane pilot. He reported by radio and later located the man at a nearby cabin. This information also was radioed, resulting in the arrest, conviction, and sentence of the firebug.

Approximately 1,000 radio sets for emergency communication in national forests are in use this year. They include several types developed for forest use by Forest Service technicians. Many of them are of a "featherweight" type that can be carried and quickly set up by "smoke-chasers" at the scene of a fire. Airplanes are being used in several of the national-forest regions for fire scouting, reconnaissance of "going" fires, and for emergency transportation of men and supplies.

The idea of managing a forest as a farmer manages a farm is of relatively modern origin. Yet the actual care of woodlands dates back into history's misty beginnings. Nearly 2,000 years ago, China had what amounted essentially to a department of mountain forests, and the ancient Greeks wrote long treatises on the care of woodlands.

The Summer Meeting

A WELL attended and interesting summer meeting of The Pennsylvania Forestry Association was held in conjunction with the annual meeting of the Pocono Forestry Association on August 27th and 28th in the Poconos, Monroe County, Pennsylvania. The members of this association were invited to be present at the annual business meeting of the Pocono Forestry Association which was held at 3 P. M. on Tuesday, August 27th, at Buck Hill Inn, Buck Hill Falls. Mr. Charles N. Thompson, the genial and efficient President of the Pocono Association, presided. It was indeed enlightening to realize the amount and scope of work which the Pocono Forestry Association has successfully undertaken during the past years. Reports and papers were read on controlling the tent caterpillar, general roadside beautification, gypsy moth control and eradication, the proposed Rim Parkway and the forest fire situation.

Mr. E. C. Pyle, State Forester of Delaware District, said that with the exception of 1922, 1930 and 1932 this season was the worst in the history of the department, in Monroe County. There were 75 fires which burned over 12,273 acres with damage estimated at \$11,980. In addition, it cost \$2,557 to extinguish these fires. In Pike County, there were 49 fires burning over 4,251 acres with damage of \$12,894. It cost an additional \$4,140 to extinguish them. Of the areas burned, over 8,500 acres were in the huckleberry areas.

Of the fires in Monroe County, very nearly one-half were incendiary in origin. To the members of The Pennsylvania Forestry Association, the situation in Monroe County was both shocking and illuminating. The problem of preventing incendiarism seems to be as far from solution as ever.

The officers of the Pocono Forestry Association were all re-elected, being Charles N. Thompson, President; Roy M. Houser, Stroudsburg, Treasurer; Miss Olive L. Poole, Secretary, and the following as members of the Board; J. A. Seguire, Cresco; J. H. Kunkle, East Stroudsburg; Egbert Cary, Pocono Lake Preserve; Frank B.

Micheals, East Stroudsburg; John Fansen, Mount Pocono; Edwin Cooper, Pocono Manor; Elwood Dunning, South Sterling; John Snyder, Jonas, and Rev. G. A. Hulbert, Henryville.

Mr. Willard Quick of the Monroe-Pike Sportsmen Association entered a very fervent plea to stop the threatened slaughter of doe in Pike County and outlined the work that had to be done to preserve the deer in their natural habitat.

The Pocono Forestry Association went on record as opposed to Senate Bill 2665 which provides for the enlarging of the Department of Interior to a proposed Department of Conservation and Works. It was felt that the possible transfer of conservation activities from the Department of Agriculture to the proposed new department would be inimical to forestry.

Following this meeting, the members of The Pennsylvania Forestry Association were the guests of the Pocono Forestry Association at a picnic supper which was served, due to the inclement weather, on the lower porch of Buck Hill Inn.

The evening meeting was devoted to motion pictures, provided by the Department of Forests and Waters and to two interesting and instructive talks. Dr. J. F. Bogardus, Deputy Secretary of the Department of Forests and Waters gave a highly informative talk on "Recreational Development in Forestry." This will be found on another page of this issue of FOREST LEAVES. It is well worth reading by all who have any interest in forestry or recreation.

Mr. W. E. Montgomery, Chief of the Division of Maintenance of the Department of Forests and Waters, followed with a talk on "Modernistic Trends in Forestry." Mr. Montgomery is a forceful and interesting speaker and presented this subject in a pleasing and instructive way. It is hoped that a later issue of FOREST LEAVES will contain this speech.

On Wednesday, August 28th, the members of the two associations journeyed to the summit of Big Pocono, where a magnificent view of Monroe County can be obtained. Here, Mr. Earl F.



Photo by Livingston

The Joint Committee of the summer meeting in the Poconos

Tygert sketched the details of the proposed parkway. Following this, Mr. Thompson outlined briefly the advantages both economic and scenic of the project.

From there, the caravan drove to Tunnel Knob to get another perspective of the route of the proposed parkway. Then we journeyed to Pocono Lake Preserve, where a delightful luncheon was served in the pavilion. This also was provided by the Pocono Forestry Association. After luncheon, Mr. Egbert S. Cary read two of his delightful poems after welcoming the members of the association to the Preserve. He was followed by Mr. George H. Wirt, Chief Forest Fire Warden of Pennsylvania, who gave one of his interesting talks "Community Values in Relation to Forestry."

Mr. Egbert S. Cary, Jr., Forester of the Pocono Lake Preserve, outlined briefly the forestry pro-

gram carried out at the Preserve, following which actual development work was observed.

From the Preserve, the caravan journeyed a distance of some three miles to visit an area which had been infested by the gypsy moth. Here the control measures were seen. So thoroughly were they carried out, that no evidence of damage this year could be seen.

The members of The Pennsylvania Forestry Association are indeed grateful to the Pocono Forestry Association for its hospitality. The meeting was generally considered a decided success and the 135 members present gained considerable in interest and information on matters pertaining to forestry and its problems.

Pennsylvania has been allotted \$792,288 to combat the gypsy moth infestation in the Scranton-Wilkes-Barre area.

Parks in Delaware County

By SAMUEL L. SMEDLEY
President of the Delaware County Park Board

ENCOURAGED by the studies and publications of the Regional Planning Federation of Philadelphia a number of its members who reside in Delaware County undertook the task of improving conditions there.

They realized if something was not done promptly that the careful work of the Federation would go for nothing as far as Delaware County was concerned.

In 1931 they made an appeal to the County Commissions to appoint a Park Board. They knew that the citizens of the county had made substantial contributions towards the support of the Regional Planning Federation and they believed the local government was in duty bound to carry out their suggestions, so the Delaware County Park Board of nine citizens, who were particularly interested in park and recreational activities, was appointed.

Funds available for park development at that time were quite limited. The Park Board soon found that if a comprehensive study of the County was to be made it would be necessary first to prepare a detailed map of the County. Fortunately the Civil Works Administration of the Federal Government could be applied to for funds with which to carry out such a project.

With money from this source, a civil engineer and a number of assistants were employed and a careful study of the topographical and other geographical features of the county was made and a map was drawn showing nearly all the streams, roads and political sub-divisions together with details of nearly 1,000 farms which were located in the creek valleys, estimating their possible value for park purposes. Detailed large scale topographical maps of the main creek valleys are now being prepared.

At the time that the park survey was being made, the Park Board in conjunction with the Delaware County Welfare Council conducted a survey of the recreational opportunities of Delaware County. This, also, was made possible through Federal funds. The report of this sur-

vey was published by Professor Stewart G. Cole, of Chester, Pa., under the title "Leisure in Our Time."

The report points out many serious defects in our recreational system. One feature noted therein is that the aggregate area of park and playgrounds scarcely amounts to 300 acres, while for the poor, the insane and criminals, we have set aside nearly 2000 acres. According to standards established by the Regional Planning Federation, there should be available for recreational use of our population of 300,000 people, at least 3000 acres.

It is most gratifying to note the number of local governments who are providing park areas. Upper Darby Township has established a very attractive park along Naylor's Run. This is greatly appreciated by the citizens for it has stimulated real estate activities there beyond any other section of Delaware County during these depressed times.

Glenolden has launched a similar project and through Federal funds has a most creditable Community Park. The same appreciation of land values and activity in building are noted there as at Naylor's Run Park. In both instances, provision has been made for tennis, baseball, wading and picnics.

From the studies made by the Park Board, many hundreds of acres should readily be available along our creek and small stream valleys, and should be acquired at comparatively small cost as such lands are of very little value for building purposes and are likely to remain so for generations.

In order to arouse public interest in park development for Delaware County, Mr. Liberty H. Weir, who is affiliated with the National Recreational Association with headquarters in New York City, was invited to inspect our County and advise us concerning recreational developments. He is a nationally known authority on such matters.

He visited our County on two occasions and

was most enthusiastic over the many natural advantages which we have that are so essential for park development. He cautioned us not to destroy the natural beauty of our stream valleys as others have done before realizing their full value.

In Westchester County, N. Y., the stream valleys had become open sewers and dumps for all kind of refuse. They had become a menace to public health. It cost them \$70,000,000 to redeem and restore what is now one of the most outstanding Park areas of our country. Since they can show an increased real estate valuation of \$12 for every dollar spent, it proves beyond a doubt that park development pays financially. This is entirely apart from the great opportunity which will be afforded the present and future generations to get acquainted with the great out-of-doors.

The Delaware County Park Board has been offered many desirable tracts, one in particular situated along Crum Creek of fourteen acres. It contains one of the largest areas of original hemlock forest left in our country and it is most important that it be preserved.

The Park Board is most happy to announce the acquisition by gift by Mr. and Mrs. George T. Butler of twenty-five acres partly within the borough limits of Media, half of which is in heavy timber. Shrubs and wildflowers abound there while a great variety of birds is in evidence. A rapidly flowing stream runs through its entire length with a water fall of 12 or 15 feet.

Mr. Weir was very enthusiastic about this tract stating it was a "natural arboretum to start with and that the County would be most fortunate if it could be acquired."

It is the thought of the Board to add to the number of trees, plants, and wild flowers and make of it a park for educational purposes rather than for sports and games as there is very little space suitable for such activities.

Never in our history has there ever been a greater demand for access to the great out-of-doors than at this time. The hundreds of thousands of our young men who have been in the CCC Camps, as they return to their homes, will have a new vision of life and will want to get back to nature every so often. Boy and girl scouts are constantly alert for new scenes for

their activities. Hiking clubs are looking for opportunities to broaden their horizon.

Trips by nature lovers under the leadership of a competent guide are a commendable source of recreation. Suitable bridle trails will in many ways care for the demands for other activities.

Delaware County has within its boundaries unlimited opportunities to which her citizens should have access. The Park Board's mission is to make them available.

This is the Year of Heavy Southern Pine Seed Crop

A bumper pine seed crop, which occurs about every seven years, is maturing in the South. What causes this heavy seed crop at regular intervals, generation after generation, is still a mystery.

Pine cones are ripening. As their scales bend back the winged seeds flutter to the ground or are carried by the wind far from the parent tree. Late this coming winter the seeds start germinating. Billions of pine seedlings will result.

For this reason, the Forest Service of the United States Department of Agriculture is warning of the greater losses to pine-tree seedlings if there is the customary burning of forest pastures in the southern pine regions this year. Next year and for several years after the pine seed crop will be light.

Many of the great, even-aged stands of long-leaf, slash, loblolly, and shortleaf, the four principal species of southern pine, can be traced back to a year of extraordinary seed production. They seemingly store up a supply of food beforehand for producing heavy seed crops.

Some trees when injured or dying will produce a heavy seed crop—apparently in a final effort to continue their kind—although the season may not be the one for heavy seed production.

When longer fences are built, the CCC in Hawaii probably will be called upon to build them. The latest assignment for this group of Federal employes in the territory of Hawaii is to construct a 40-mile fence, 8,000 feet up the side of the Nauna Kea, highest mountain peak in the Pacific. This long fence will enclose 68,000 acres of the forest reserve, protecting the young trees from wild goats.

The New Forest Reserve Law

GOVERNOR Earle afforded relief to the overburdened landowners of Pennsylvania when he signed the Auxiliary Forest Reserve Law.

The measure provides that surface land suitable for growing merchantable forest products shall constitute a distinct class of land to be known as Forest Reserves, and shall be rated in value for the purpose of taxation not in excess of \$1.00 per acre.

This gives the timberland owner, already overburdened by taxation, exemption from annual township assessments and excessive taxes under the general tax law, on land that yields a mature crop but once in a lifetime.

To secure this relief, the landowner transfers whatever land he has containing young growth into the Auxiliary Forest Reserve class, and upon the approval of the Department of Forests and Waters, the tax exemption begins immediately.

Commissioners of the county wherein the land is located will be notified of the change, and upon receipt of the assessment rating from the local township assessors, the commissioners will

reduce the amount to a sum not exceeding \$1.00 per acre.

When the land is ready to yield its crop, the landowner will then repay the county for the tax-exemption he has enjoyed in the ensuing years. The tract will be examined by an experienced forester of the Department of Forests and Waters, and before any cutting is done the owner will be required to give a bond to the county treasurer of 20 per cent of the amount of the estimated stumpage, which shall be approved by the Court of Common Pleas of the county.

When the timber is cut, 10 per cent of the stumpage value must be paid by the owner to the county treasurer in lieu of the annual taxes.

In most cases, depending upon a fair market value, the 10 per cent of the stumpage value paid to the counties will exceed the amount that would have been paid in annual taxes on the land, and at the same time relieve the landowner of the tremendous burden of paying annual taxes on tracts that yield only one lifetime crop.

Landowners can apply to the Secretary of Forests and Waters for land transfers.

Sanctuary

By EGBERT S. CARY

*When irked by man, I'm wont, alone, to stroll
O'er deep-worn paths that thread an ancient
park*

*Where columned corridors, all still and dark,
From nowhere rise and nowhere find a goal:*

*Where, high aloft, the leafy billows roll
Shot through by javelins of flame whose mark,
Outlined against the gloom, shows, bare and
stark,*

Some forest monarch's dead and crumbling bole.

*Here dwelleth Peace amid these mighty shafts
Whose hearts entomb their ring-writ story old;
Their Atlas arms uphold a world untrod,
While thirsting roots bore deep, for living
draughts.*

*Here, then, I rest while visions new unfold
And strength returns, fresh drawn from springs
of God.*

Indians May Have Had the First Game Law

Two hundred years ago the Indians in Kentucky set aside game refuges for bears and created what may have been the first game law in America, says Vernon Bailey, retired naturalist of the Biological Survey. Bear fat, bear meat, and bear skins were the most prized returns of the hunt. Large areas were set aside as "beloved bear grounds" where only a limited number of animals could be killed each year, so that a permanent supply of these animals would be maintained. Mr. Bailey believes it might be well today to follow the example of the Kentucky Indians, and establish "beloved bear grounds."

Appalachian Scenic Parkway

Continued from Page Three

While this is, in its widest phase, a movement for civic betterment, and it is generally impossible to measure such in dollars and cents, a dollars and cents measure can be used here. Prosperity is dependent upon the use of commodities. Automobiles, tires, gas and oil are some of the commodities that will be directly used in this Parkway. Based upon a count of the traffic on a recently completed section of the Skyline Drive in Virginia, and taking into account the direct accessibility of population, each hundred miles of this Parkway (somewhat dependent upon the approach of that particular section to the heavily populated regions) will return to the State and United States in gasoline taxes on the gasoline used in traversing the roadway, to say nothing of that used in getting to and from the roadway, three-quarters of a million dollars each year, based on the present rate of tax charges. The civic appreciation can only be measured by its use. In advance it can be somewhat gauged by the use of the Skyline Trail, the Whiteface Drive, the Pike's Peak Drive, etc., etc.

As a project this Appalachian Scenic Parkway will probably take years to complete. It will be a "reservoir" into which to put the unemployed for other depression periods beyond this one, but that part in Pennsylvania, because of its having the greatest value to the greatest number, should be started at once and rushed to completion. That sector in the northeastern part of the State is within one hundred miles of both Philadelphia and New York and the thickly populated sections suburban to both these cities. It is not conceivable that any other sort of a Federal Park could be established so near to that great population of the largest cities of our country. That sector in the central and southeastern part of the State is easily accessible to Philadelphia, Baltimore and Washington. The Federal Government owes the thickly populated sections of the country, Parks; the increase in civic consciousness demands it, and it can now be done both economically and well. It will use lands of value for nothing else and labor that otherwise would likely be paid for doing nothing, which we all know is most undesirable from every viewpoint.

Pennsylvania has so much of scenic wealth it

Twelve



Photo by Livingston
Mr. Thompson explains the Rim Parkway

seems invidious to select any particular part of it for a Federal Park. That part of the State through which the Appalachian Scenic Parkway is now tentatively planned is only equalled in scenic values, and does not exceed, that of many other sections of the State, but it forms a direct connection between the south and the northeast and, because of its **ACCESSIBILITY TO THE GREATEST CENTERS OF POPULATION**, has greater claim as a Federal project. The easy approach to that part of this Park within the State of Pennsylvania from Washington, Baltimore, Wilmington, Trenton, northern New Jersey, Binghamton, Elmira, New York and its thickly populated environs, all outside Pennsylvania, as well as such cities within the State as Philadelphia, Pittsburgh, Altoona, Johnstown, Scranton and Wilkes-Barre, make it a Federal

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rather than a State proposition, but one in which our State should take a most active interest.

This is not a project of mushroom growth, as far as that part of the Parkway within the State of Pennsylvania is concerned. It has stood the test of time and analyses. Under the auspices of the Department of Forests and Waters nearly 100 miles of it have been tentatively surveyed and charted. Grants of land have been solicited and freely offered without cost. No actual transfers have been made, but not only has a most friendly feeling to the idea been evinced, an eagerness to co-operate and to work for it has been evidenced. Nearly a dozen miles of that part already charted are on State owned lands, for which reason it is a project that could be started almost immediately—something that should appeal to those interested in the employment problem.

In the western part of our country there are many National Parks; Arizona has one, Arkansas one, California three, Colorado two, each of the Dakotas has one, Oklahoma one, Oregon two, Washington one and Wyoming one. And within 150 miles of this whole group there is not one-third the population that would be so accessible to the one we propose, and those residents are not nearly so much in need of Parks for breathing spaces as are those of the more congested States.

Outdoor Recreation in Pennsylvania

Continued from Page Two

log cabins.

The last General Assembly acted favorably on 17 out of 20 departmental measures, and did more to aid the Department of Forests and Waters in developing its recreational program than any other Legislature in history.

I am sure you will be interested in some of the legislation that was passed. This included:

The transfer of the Conrad Weiser Park in Berks County from the Historical Commission to the Department of Forests and Waters.

The transfer of the Drake Well Memorial Park in Venango County from the Commission to the Department, with an appropriation of \$4,000 for its maintenance.

Also a bill, which permits the Department to develop recreational areas at the Pymatuning Reservoir in Crawford County.

Two of the outstanding laws which will have a decided effect on recreation in Pennsylvania provide for the condemnation of land for State Park purposes, and for the acquisition of land for State Forest and Park purposes by lease. They will have a direct bearing on our land acquisition and recreational program.

The purpose of the amendment to the Act approved May 9, 1929, is to enable the Department of Forests and Waters to accept by long term lease for State Park and recreational purposes, areas within the Commonwealth that have been or may be purchased and developed by the Federal Government.

In accordance with a general Federal policy which is being carried on in many other States, the United States Government has acquired three areas in Pennsylvania, each of which contains approximately 5,000 acres. These areas are located in French Creek, Berks and Chester Counties, Raccoon Creek, southwestern Beaver County, and Laurel Hill, western Somerset County. Civilian Conservation Corps camps have been established on these areas and they are being developed at Federal Government expense.

Preliminary surveys have been completed and Federal approval given for the acquisition of nine additional areas of approximately 5,000 acres each, located in ten counties of our Commonwealth. Civilian Conservation Corps camps will be established in each of them. It is the plan of the Federal Government to purchase and develop these areas with Federal funds and then turn them over to Pennsylvania for State Park purposes. They are contiguous to large centers of population and have been selected after a very careful study. As a result of this legislation Pennsylvania will have at least twelve large additional areas at practically no cost to the State.

Another Federal purchase program includes the acquisition of sub-marginal agricultural lands which may be purchased and developed with Federal funds and turned over to the Commonwealth for forestry purposes. Areas approved and on which options are being secured, are located in five counties of the State and comprise 40,000 acres. They will be developed by Civilian Conservation Corps, Works Progress Administration and other agencies with Federal funds. Many of these areas are now a burden to their owners and some of them tax delinquent. The

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Thirteen



Courtesy Pennsylvania Dept. of Forests and Waters
Pennsylvania is rich in scenic beauty

Department of Forests and Waters, on behalf of the Commonwealth has agreed to accept these park and forest lands from the Federal Government and the legislation which has been enacted will meet the requirements for the acceptance of the areas.

As a result of Act Number 429, the Commissioners of Valley Forge Park are authorized to increase the area of the park on both sides of the Schuylkill River from 1,600 acres to 5,000 acres. The Act carries no appropriation, but paves the way for a more extended development when funds become available.

Probably the most important bill passed by the Legislature, and one which will have a direct influence upon our park development, was the Forests and Waters Fund Bill. This bill provides that all moneys from the receipts and proceeds derived from the State Forests, State Parks, recreational areas and other lands and waters under the jurisdiction of the Department of Forests and Waters, together with all water power and water rights belonging to the Commonwealth and all receipts and proceeds derived from the collection of costs of forest fire extinction and all activities of the Department of

Forests and Waters shall be credited to the State Forests and Waters Fund. Heretofore, all revenues received from our State Forests were deposited in the State School Fund and could not be used for forestry purposes. This bill had the approval of the Department of Public Instruction and educational associations throughout the State. The creation of the Forests and Waters Fund does not abolish the State School Fund. The creation of this fund is an initial step in making the Department self-supporting.

Pennsylvania is rich in historic shrines and scenic beauty. With all the recreational, historical and scenic features available to the citizens of our State, it is essential that the people know where they are located and become familiar with them.

To meet this need a bill was passed and signed which provides for a commission, consisting of the Chairman of the Pennsylvania Historical Commission, the Secretary of Forests and Waters, Secretary of Highways, and four other persons appointed by the Governor, whose duty it shall be to compile, edit, publish and distribute pamphlets and literature on the scenic, recreational and

historical places of our State. The sum of \$20,000 was appropriated for this purpose.

The aim of the Department of Forests and Waters is to be of use to the citizens of Pennsylvania, and it stands ready and willing at all times to dedicate its resources toward this end. I assure you that it is the purpose of the present Administration to maintain the quality of service rendered on a high plane of efficiency.

Editorials

Continued from Page Four

forest lands as potential scenic areas which should be made accessible to all. The latter see no benefit to trees and game from the opening up of these areas to public encroachment and question the value to the public.

Too often wildings, whether animal or vegetable, react adversely to the influences of civilization. Were it possible to develop such parkways without the resulting high speed traffic, without the enervating effect of humanity and without the willful and unconscious destruction of game and bird life, a common meeting of ideas might well be imagined.

The fauna and flora are at the mercy of man. It is well that there are persons who strive to protect and maintain them. The citizens of the country are entitled to the opportunity to absorb the beauties and benefits of the wooded hill and mountain stream, but in their enthusiasm over the prospect they must be careful that they do not destroy that which they seek.

H. G. M.

Back Numbers Wanted

A request has been made by the Librarian of the University of Pennsylvania for the following issue of FOREST LEAVES to complete their file of the publication: January 1935, whole number 276.

We have also had a request from the New York Public Library for the issues, beginning with Volume 1, number 1 to and including Volume 5, number 11.

The Editor will be grateful for receipt of any of these issues so that the files of these two libraries may be completed.

Our Mailing Addresses

FOREST LEAVES now has two mailing addresses. Since the first of the year the magazine has been mailed from the office of a large printing concern in Wayne, thus expediting delivery. In order to fulfill the postal requirements for entry as second class matter, the Association maintains an office at Wayne for FOREST LEAVES, but, of course, continues with the regular office at 306 Commercial Trust Building, Philadelphia.

To avoid confusion and delay, address all mail relative to Association business to the Philadelphia office. Matter relating to the magazine may be sent to the printing office at Wayne or to the editorial office in Philadelphia. Mr. Livingston and Mr. Mattoon, respectively, will see that it gets attention at either office.

Dr. Wildman's Booklet

Elsewhere in this issue of FOREST LEAVES is printed an advertisement for "This Week Out of Doors." In this booklet Dr. Edward E. Wildman, a member of the Pennsylvania Forestry Association, makes available in permanent form the contents of a series of radio talks which attracted wide attention. The booklet is designed to be of especial interest to schools, boy scouts and other organized groups where it can serve as a stimulus to nature study, and in many cases, as a textbook.

In Great Britain, ninety-five per cent of the original forests are gone. In France, Italy, and Greece between eighty per cent and ninety per cent of the forests have been destroyed. Sweden and Finland are the only countries of the Old World that still have half of their original forests left.

More than 25 different common names have been applied to Douglas fir. Its scientific name *Pseudotsuga taxifolia*, derived from the Greek "pseudo," the Japanese "tsuga" and the Latin "taxifolia," may be translated "false hemlock with yew-like foliage."

The ancient Romans, instead of receiving Carnegie Medals for civilian bravery, were awarded crowns of oak leaves.

Dogwoods for Montgomery County

By ADOLF MULLER, President
Montgomery County Dogwood Association

Realizing that the native dogwood is unexcelled in beauty and length of bloom and in the charm and variety of its fall coloring and perceiving the possibility of making Montgomery County, Pennsylvania, known throughout the country because of its dogwoods, the Montgomery County Dogwood Association was formed last spring. Its purpose is to promote the planting of dogwoods along the highways of the county, both on the public rights of way and on private property.

Already the fame of the dogwoods at Valley Forge Park has spread far and wide. No less than 250,000 persons visited the park last spring during the five weeks in which the dogwoods were in bloom. With this great planting as a start, sufficient impetus should be given to the movement.

Though the Association is but a few months old, the members have already obtained promises from land owners to plant twenty miles of dogwoods before next spring. By arousing the interest of various civic organizations, it is felt that planting on a large scale can be carried on in the thirty-eight townships and twenty-four boroughs of the county.

Rare Hybrid Ash Discovered

A specimen of an extremely rare tree, discovered growing wild in the Allegheny Plateau by George R. Seville, forester at ECW Camp S-124, Cammal, Pennsylvania, was recently submitted to the Mont Alto office of the Division of Research for identification.

A tentative identification made by Research Forester John Kase, later verified by the curator of the Arnold Arboretum of Harvard University, indicated that it is a hybrid mountain ash whose scientific name is *Sorbus hybrida*.

The tree from which the specimen was taken is 12 inches in diameter and 35 feet in height. It is a natural hybrid of a type occasionally found with the parents (*S. Aucuparia* X *intermedia*) in Europe, particularly in Scandinavia. Horticulturists have cultivated it to some extent, but it is an extremely rare member of the natural flora of Pennsylvania.

Sixteen

ADVERTISEMENT

"THIS WEEK OUT OF DOORS"

In the Penn Country and Beyond

By EDWARD E. WILDMAN
Author of Penn's Woods, 1682-1932

These records of week-by-week developments in nature are the reproduction in print of the broadcasts in nature study given by Dr. Wildman in the *Evening Public Ledger's* "School of the Air" for the Philadelphia Branch of the Shut-In Society. It is a readable and intensely interesting record of the doings of nature week by week. The coming of the birds, the opening of buds, the awakening of wild flowers, the appearing of insects, all are set down in their proper time. This is a valuable record which each lover of nature should have.

"During the school year just closing we have been interested in a series of radio talks that have been given once a week by Dr. Edward E. Wildman, our Director of Science Education, on the subject, 'This Week Out of Doors.' These radio talks have been very interesting and stimulating, and have opened our eyes to a good many natural wonders that we never knew existed.

(Signed) EDWIN C. BROOME,
Superintendent of Schools."

"It is good to know that Dr. Edward E. Wildman's radio talks, 'This Week Out of Doors,' are to have permanency in print. Teachers and pupils, I am sure, will appreciate and treasure them.

(Signed) JOHN J. BONNER,
Superintendent of Catholic Schools,
Archdiocese of Philadelphia."

"I am glad that Dr. Edward E. Wildman is going to put in convenient form for readers the wealth of Nature Study material which he has been broadcasting weekly. It seems to me that there must be groups in all our schools which will benefit as much by study of the current events in 'This Week Out of Doors' as other groups profit by the usual line of current events served up in connection with our courses in social studies.

(Signed) WALTER W. HAVILAND,
Headmaster, Friends' Select School, Philadelphia."

"The booklet, 'This Week Out of Doors,' will be appreciated by all of our troops when they receive it. May I congratulate you as the author upon the production of this splendid material?"

(Signed) HORACE P. KERN, Scout Executive,
Philadelphia Council, Boy Scouts of America."

"Your nature study talks are most delightful. I am quite sure that every teacher would like to have a copy . . ."

(Signed) FLORENCE A. DOYLE,
Director of Teacher Training,
Philadelphia Board of Public Education."

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**End of
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