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FOREST LEAVES

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THE PENNSYLVANIA FORESTRY ASSOCIATION

JANUARY-FEBRUARY
1943

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THE PENNSYLVANIA FORESTRY ASSOCIATION

Founded in June, 1886

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

ANNUAL MEMBERSHIP FEE, THREE DOLLARS

One Dollar of which is for subscription to FOREST LEAVES

Neither the membership nor the work of this Association is intended to be limited to the State of Pennsylvania. Persons desiring to become members should send their names to the Chairman of the Membership Committee, 1008 Commercial Trust Building, Philadelphia.

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Whole Number 313

Why Better Forest Management

by HARRIS A. REYNOLDS

OFFICIAL FORESTRY sources warn us that we are threatened with a severe shortage of lumber and other forest products this coming year in meeting our war needs. This is not a pleasant outlook. We know that these shortages are not due to actual lack of forest resources, but largely to the scarcity of man power and the location of our remaining timbered areas.

For more than half a century our lumbermen have cut over one after another of our virgin forest regions until most of the remaining stands of primeval growth are to be found in the three Pacific Coast States and Alaska. Our industries are mainly in the East and our forests are largely in the Far West. With water transportation crippled by submarine warfare, our overburdened railroads must now shoulder the task of hauling this heavy commodity long distances from source to consumer.

Although we have developed the profession of forestry in this country during the past forty years and thousands of men have been trained in the art, less than a third of the forest land of the country is under forest management. Most of our forest lands have been stripped of the virgin growth and with little or no help from man, Nature, hampered by man-caused fires running over millions of acres annually, insects and dis-

eases, has failed to reclothe them. And, when any second growth did reach a marketable stage the process of unrestricted cutting was repeated.

As a result, we have scores of millions of acres of forest land that are either idle or producing at less than one-third capacity. Most of this land, of which we have many thousands of acres right here in Massachusetts, is a burden rather than a servant to society. It is not paying its way in taxes, it is unprofitable to the owner and it is not providing raw materials for our wood-using industries.

The war has brought this condition into public focus, as no effort on the part of foresters and conservation agencies has been able to do. Timber growing calls for vision, patience and outlay in capital and the average woodland owner lacks one or all of these factors. Until recent years the hazards of timber production, such as fire, insects, fungi, taxes and lack of public support have discouraged even the public spirited owners from recognizing their responsibility of ownership and from practicing forestry on such lands. Shortages of annual crops can usually be overcome in one growing season, but for most tree species a half century or longer is required to produce a profitable saw log.

Other civilized countries confronted with this problem of forest maintenance have, through long experience, been

*Reprinted from FOREST and PARK NEWS,
Massachusetts Forest and Park Association.*

forced to recognize that the public interest in all forest land was such that the people as a whole had to assume the responsibility of timber growing. This has been done through public ownership and the regulation of private cutting coupled with adequate assistance to the owners from the public purse.

In this country we have made some progress in the establishment of national, state and community forests, but for the most part the lands acquired, especially in the East, were devastated areas, no longer attractive to private capital. Even then the public has been slow to recognize that the growing of timber, like other crops, costs money and development of these lands has been retarded through lack of appropriations.

The next step, public regulation of private woodland, therefore seems to be in order if we are to avoid the hazard of timber shortage in future emergencies. It is not that we are faced with an absolute shortage of timber now or in the near future, but rather local shortages, even in areas where there are adequate forest lands to supply home industries, because of neglect of the growing stock.

The problem of protecting the immature growth and thereby bringing all our forest lands back to capacity production is now rapidly becoming recognized even by the lumbermen. It is not a question so much as to what should be done—the forester can provide the technical answers—but who shall do it.

Within the past two years a congressional investigation has done much to arouse public interest. There are already bills before Congress which would place the power to regulate all privately-owned forest land in the hands of the federal government. Opposition to that course has been voiced from every part of the country, and yet the leaders in the forestry profession, conservation and lumbering agree that some action must be taken to put our house in order. Here

in the Northeast the Council of State Governments has had a committee of foresters working on the preparation of a model bill for regulation. Many of the states officially have also made studies and many more have unofficial groups engaged in formulating plans for legislative action.

This is a trying period in the forest conservation movement. Laws that do not have the support of public opinion cannot be enforced and soon become useless. Under the stress of war, radical programs are sometimes tolerated that in peace times would meet with overpowering opposition. The present forestry situation does not call for strong arm methods under the guise of war measures by either the federal or state governments. This problem will be with us long after the fighting ceases, and ill-advised action now will do more to retard than to advance effective conservation.

It is true that under the stress of free competition the lumbermen have been responsible for much of the devastation of our forest resources. But, they have been no more at fault than the farmer, who, through poor farming methods, has ruined the top soil on millions of acres; the miners whose wasteful methods have skimmed the cream from our mineral deposits; the manufacturers who by dumping waste into our streams have ruined them for fish life and recreation; or the hunters who have often reduced certain species of game birds and animals nearly to the point of extinction. Public ignorance and indifference lie at the root of these ills and society itself must make amends or bear the penalty.

Here is where organizations of public-spirited citizens, such as the Massachusetts Forest and Park Association, have a grave responsibility. In the final analysis, more progress will be made towards a sensible solution of these problems by applying a maximum of public cooperation with a minimum of compulsion.

PUBLIC POLICY

and Private Forest Management

by LAWRENCE W. RATHBUN,

Forester Society for the Protection of New Hampshire Forests

I WISH TO DISCUSS public policy and private forestry enterprise. I dare say no so-called exploiters of natural resources are entirely satisfied either with their own methods or results. There are, to be sure, better technical methods than those customarily employed that may be adopted. Public policy demands that somehow forest harvest practices be modified to protect the future and the not far future at that. There are, however, other reasons than mere personal greed and shortsightedness for present procedures.

Public policy may be expressed in lofty terms but public practice may be wrong and the cause of bad private practices. What should public policy be? Let me quote a recent release by the New England Regional Planning Commission, of which Victor M. Cutter, a member of our Society's Executive Committee, is Director. "To bring about better conservation and use of our natural resources, we should put into effect a land utilization program to the end that no land capable of producing a profitable crop shall be idle; that those farmlands which, because of poor soil condition or inaccessibility, are submarginal for farming shall be withdrawn from cultivation and put to forest or recreation uses; that our 15,000,000 acres of now practically idle woodland shall produce marketable timber on a paying basis; that overcutting because of the defense rise in prices shall be avoided; that erosion shall be controlled; that full use shall be made of such mineral deposits as

are adequate in quality and quantity for profitable extraction."

But public policy merely stated is no better than wishful thinking. This we have done too long. The Weeks Act of 1911 was public policy with meaning for it was followed by action. The United States now owns and administers nearly 200 million acres of forest land. Russia went us one or even two better and nationalized all land as public policy. England today is publicly administering a large area of agricultural land and nationalization is very much in their thinking. But before jumping into regulation or nationalization either by purchase or decree let us scrutinize our present governmental actions and see if they support our announced policy.

As I do not believe a government policy should or can be laid down for the actual management of free men I shall take the liberty of restating the conclusion of the aforementioned Planning Commission.

To bring about better conservation and use of our natural resources public policy should make private ownership of land, which government alone can grant and make secure, profitable only when reasonably sound use of that land is made.

The several States are the only agencies which can really implement a policy of sound private stewardship as they alone have direct relationship with the owners and secure to them their right and title to the use of their land. It is the people of the several States which, in their right of sovereignty, possess the original and ultimate property in and to all lands within the jurisdiction of the State. It is they who in their sovereign

(Continued on Page 6)

FOREST LEAVES

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and related subjects.

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JANUARY - FEBRUARY, 1943

TAXATION AND REGULATION

IN PENNSYLVANIA, over the years, three attempts have been made by law to adjust or defer part of the taxes on timber land until the crop has been harvested. In every case such laws have been declared unconstitutional. Apparently without revision of, or amendment to, the constitution of this Commonwealth, there is no way of rebating or deferring taxes on forest land until such time as the trees are mature. Such a situation is most unfortunate, because it encourages clear cutting of immature timber to meet unfair tax bills.

On another page of this issue is an article by Lawrence W. Rathbun, forester of the Society for the Protection of New Hampshire Forests, which discusses taxation as it affects forest land. In that article he speaks of a constitutional amendment in New Hampshire which was acted upon last fall. This amendment, which was carried by a five to two majority, empowers the legislature, for the purpose of encouraging conservation of the forest resources, to provide for special assessments, rates and taxes on growing wood and timber. It is time to consider a similar amendment to the constitution of Pennsylvania.

The curse of tax delinquency is plainly

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attributable to the present unscientific and unfair method of assessing land. The curse of clear cutting of forest land is at least in part due to excessive taxation.

In Congress are several bills calling for federal regulation of cutting practices on private forest land. In the state legislature other bills may be introduced which set up some form of state regulation of cutting. Before any of these are passed some means should be found to mitigate the tax burden on uncut timber. If the tax burden on young growing stock is not lightened and laws are passed, either federal or state, restricting cutting, then will the list of tax delinquent lands grow by leaps and bounds.

The forested townships of this state depend largely upon taxes from forest land to pay salaries and provide the few facilities. To meet those taxes the owners of timber land must get some revenue. In certain townships nearly all of the timbered area has been cut so recently that the stand is little more than pole size. Suppose under regulation none of that timber could be cut until it reached saw timber size, thirty or forty years hence. What the result would be can be easily imagined. The township would receive little tax money but it would have thousands of acres of tax delinquent land on its hands.

Before regulation laws are passed the tax system on forest lands should be thoroughly reviewed and revised. The process of amending the constitution is long and tedious. It should be started now before the forest owner is faced with regulation, not afterward.

H. G. M.

D. O. Mason, who has a well-started grove of 500 Chinese Chestnut and 300 grafted walnut at Franklin Park, N. J., reports that the Thomas is doing well planted on the campus of Middlebury College in Central Vermont. Planted in 1932, is now about 20 feet tall, and bearing.

FOREST LEAVES

JOHN BARTRAM

DIARY OF A JOURNEY THROUGH THE CAROLINAS, GEORGIA, AND FLORIDA from July 1, 1765 to April 10, 1766. JOHN BARTRAM, *The American Philosophical Society, Philadelphia.* Paper, \$2.00; Cloth, \$5.00. Bound as Part 1 with William Bartram's TRAVELS IN GEORGIA AND FLORIDA. Part 2.

To all of us who love Pennsylvania's forests and other wild life, the name John Bartram is a familiar and an honored one. Yet few of us have had the opportunity to get at the facts of this truly great man's work.

His house, which he built with his own hands, still stands, much as he left it at his death in 1777. The garden which he laid out along the Schuylkill in "Kingsessing" in the early 1730's has not been encroached upon by the ever-expanding city, thanks to the good work of the John Bartram Association over the past forty years. But these things only whet our interest in the man himself.

For more than thirty years John Bartram walked and rode the wilderness of colonial America, searching for plants to send his European correspondents and to grow in his garden. We know that he made at least a dozen exploring and collecting trips far from home, and that he kept journals of most of these. But only two or three of these records have been preserved. Fortunately this one is the daily record of the longest and perhaps the most important journey that Bartram ever made. He had just been made King's Botanist, which position enabled him to make this Survey. Now for the first time, this valuable document is available to the Public.

John Bartram was one of the charter members of the American Philosophical Society, founded by Franklin and his associates just 200 years ago, in 1743—"for promoting useful knowledge." It is most fitting therefore that the transactions of this ancient and honorable Society should carry to the world this unique Diary. It appears here just as

JANUARY - FEBRUARY, 1943

Bartram wrote it, with misspelled words, lack of capitals and punctuation. Yet it is filled with references to interesting people, places and events. Notwithstanding all this, however, it would seem almost like a story in a foreign language to us moderns were it not for the excellent work of the editor, Dr. Francis Harper, who has given years to its study. In order to retrace Bartram's steps in this famous journey, Dr. Harper enlisted the help of local landowners and surveyors throughout its course. His colleagues on the research staff of the Academy of Natural Sciences and scientists, historians and ethnologists of the states traversed have helped him identify plants and animals, mineral and fossil deposits, Indian and Spanish cultures and customs referred to in the Diary. Credit is given to Mr. Arthur Leeds, who initiated the study and to the sponsors who supported it.

Thus, while the Diary itself covers 43 pages, we are not surprised to find twelve pages devoted to the interesting Introduction, twenty-two pages of Comments, geographical, historical, and other, and twenty-eight pages of Annotated Index, all full of interesting information. Following a very complete General Index, the report closes with twenty-two plates showing photographs of maps such as Bartram must have used; of houses, churches, and Spanish forts which he visited, and still to be seen; of a page of his Diary, showing his handwriting; and of beautiful drawings of plants, made by his gifted son, William.

This issue is very limited. Orders should be sent promptly with payment to the American Philosophical Society, 104 South 5th St., Philadelphia, Pa.

EDWARD E. WILDMAN

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Public Policy and Private Forest Management

(Continued from Page 3)

right charge a rental under pain of forfeiture in the form of a land tax. It is the States, further, which grant their tenants a low rent for non-use, idleness and misuse, and conversely exact a disproportionately high levy on productive enterprise, full use, and in the present crisis on that production upon which our very existence as a free nation depends.

The federal government, as you have heard, plans drastic actions because private ownership does not appear too successful in the vital role of maintaining forest production. Government ownership can circumvent the difficulties of private ownership, taxes, interest, etc. and in time create near perfect forests. It is not necessary, however, to have public ownership to determine the productive capacity of the forest. Technicians can readily determine the potential capacity of various soil types under proper management, that is, the measure of the annual value which society should receive whether the land is under private or public ownership.

The State of New Hampshire, through one department, endeavors to persuade forest land owners to use their lands for the public welfare. At considerable public expense low price planting stock is made available. At considerable public expense fire risk has been reduced to a small fraction of 1% a year. Cooperating with the Extension Service, help is being extended in organizing cooperative marketing agencies.

But let us look at the duties prescribed by law of another Department. Does our tax policy encourage good or bad land use? You all know the answer. If land is skinned to the last two by four the assessors can be and frequently are persuaded to assess its value at \$1.00 per acre and collect in taxes only two to four cents per acre a year. The wild lands in the unorganized townships, some 200,000 acres, pay on the average only three

cents per acre. A very low land tax is no spur to good land use but permits owners to persist in misuse. On the other hand, a high tax on production or growing trees is the surest way to discourage enterprise. We do both deliberately by law. Therefore, I say our real and effective public policy is basically opposed to better land use. The only way around this for the Federal government is by decree or subsidy. So far only subsidy, W.P.A. for landowners has been tried.

The method of taxation is the surest control for land use. A proper method will secure good tenants and can eliminate bad ones, just as is done every day in private business. The public is no more justified in providing free, or at partial cost, planting stock, fire protection, and other services which cannot or will not be advantageously used than is a housing authority justified in providing over-luxurious apartments for tenants who neither pay the full rent nor properly use the facilities.

The first public policy which this society advocated was Federal acquisition of the White Mountain National Forest. The full economic fruition of that policy will not come to bear for many years yet. On the whole, the people are satisfied but those who live closest to it find fault, and I believe with some justification, that the tenant, the United States, despite certain aids, does not contribute its share in local taxes. If the National Forest is sound policy it should be able to pay the equivalent of local taxes, if our tax method is correct.

The next step was the creation of the State Forestry Department. Fire protection became public policy and it was implemented with funds and action. The provision of inexpensive planting stock became a policy and still continues at an appreciable cost. Public recreation became a policy and at some cost. Better forest management has as yet to become a goal for which we shall provide proper implements. As I mentioned before, the present policy of taxation will negate almost any subsidy which the State or Extension Service or Federal Govern-

ment becomes willing to grant for better forestry.

The proposed constitutional amendment upon which we shall have opportunity to vote on November 3rd will pave the way for legislative action to meet this situation. In my opinion, we are not ready for immediate action. A fact-finding study of our forest resources, the trend of utilization, and the fiscal dependency of each town on the present tax basis must be carried out. Any adjustment in taxation should be on a basis of encouraging or even forcing better land use. Above all, it should not be merely to lighten the burden of owning land, to hold on to it in idleness, or for speculation. It should be carefully calculated to stimulate activity, the employment of labor, the creation of wealth—trees for the raw material of industry, or the environment for recreation.

Education for better practices will be far more readily accepted or even sought under such stimulus. The bad effects of our present policy have already reduced large areas to a condition of poverty which defies private ownership, i. e., tax delinquent land. Many towns in which the problem is becoming acute strive to preserve private ownership for the sake of a paltry few cents per acre annual tax. No town can afford to have lands yielding less than 15 cents per acre. Such low taxes won't maintain roads, fire protection, etc., and automatically increase the burden on all other real estate. A new public policy is called for. If a private owner could possibly hold such land and retrieve his tax payments after 30 to 60 years from the growth thereon the public could do it easily. Therefore, the State of New Hampshire should be willing to assume ownership of any delinquent land and pay to the township in which the land lies the equivalent of the taxes it received from the last owner. A floor at an increasing height might be so created and our people will soon learn that if they reduced the productivity of their land below a certain point they

could not afford to pay the taxes and would have to relinquish it to public ownership. Such publicly-owned land might be returned to private ownership eventually but under contractual restrictions or regulation agreeable to both State and Town.

I would have the State authorized to borrow as a starter \$10,000 annually for the payment of rentals on lands acceptable to the State to which towns can and wish to grant a good title. Eventually a tax floor of 10 or even 15 or 20 cents per acre could be established which is certainly less than the value to the public of placing land under proper management. At 10 cents per acre a year, and allowing three per cent interest, the State will have paid less in 26 years than the average purchase price of all National Forests secured under the Weeks law. It would take 40 years for that rental to accumulate the average acre cost of \$7.76 for our own White Mountain National Forest. Ten thousand dollars a year could secure to the State from one to two hundred thousand acres. Furthermore, it would help out those towns which are suffering most from tax delinquency and put them in a position to insist on a minimum of 10 cents an acre for all wild land. This measure, coupled with a change in taxation of growing wood and timber, would within a generation make over the forests of New Hampshire. That would be public policy in action.

War time restrictions will force the owners of shade and fruit trees to become acquainted with some excellent fertilizers that are not so well known as the standard mixtures. Castor bean meal, soy bean meal, cotton seed meal tankage, dried blood and many other organic materials contain the plant food elements in which most soils are most apt to be deficient. Those who have been burning wood in the fireplace should be sure to save the wood ashes for the vegetable garden or lawn. They are high in potash and calcium. Do not use them on acid loving plants.

A LETTER from the New Secretary of Forests and Waters

January 28, 1943
Harrisburg, Pa.

DEAR MR. MATTOON:

The very kind felicitations of the Pennsylvania Forestry Association and yourself, as contained in your letter of January 18, are greatly appreciated. The creditable achievements of the Association in promoting forestry have been most beneficial.

Your commendatory statement with respect to the State Forest timber utilization project was read with a great deal of interest as well as your comments on the advisability of furnishing marketing information to private woodland owners. I am informed that the Department has three cooperative marketing and utilization projects which were inaugurated during the past year in cooperation with the U. S. Forest Service, for the purpose of assisting private forest land owners, particularly farmers, in the management, utilization and marketing of their forest products. Each project is under the direction of a graduate forester. The total area comprises approximately 500,000 acres of privately owned forest land. The projects include the counties of Centre, Clearfield, Luzerne, Lackawanna, parts of Lycoming and Columbia, Franklin, Cumberland and Fulton. Cuttings on a sustained yield basis and diameter limit are stressed.

I am quite in accord with your suggestion that the State Forest recreational areas should be kept in a presentable condition so that they may serve the desired purpose during the postwar period. As I view the situation today, it is apparent that postwar planning must be given special consideration, not only with respect to State Forest recreational areas, but to other Department activities.

I note what you say about the condi-

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tion of the Schuylkill River. This, as well as a number of other contaminated streams throughout the State, will be considered in connection with the Stream Sanitation program. The reforestation by mining companies of refuse banks created by mine stripping no doubt would help to alleviate the condition mentioned, and the planting of these areas would furnish gainful employment during the postwar period.

The forest fire protection and extinction program must necessarily be continued if we are to save the forests from being destroyed by fire.

Please be assured of my interest in the excellent work of the Association.

Sincerely yours,

JAS. A. KELL

PLANTS POISONOUS TO INSECTS

IT IS GENERALLY well known that plant extracts or powder have from earliest time been used for controlling insects, although a vast proportion of the insect world feeds upon plants. Some insects, however, live upon plants the extracts of which are toxic to other insects. The tobacco plant, for example, has its own pests including, we believe, caterpillars, yet extracts of the plant in the form of nicotine are more or less deadly to all forms of life, though some insects are too resistant to be controlled by practical doses. Many of these more resistant pests, however, yield to extracts of derris or pyrethrum, the lethal character of these plant products being known to the natives of China and South America long before white men knew of them.

In our earlier days quassia chips were only just giving way to nicotine, these chips of the quassia tree yielding a bitter extract when boiled. Even today, the

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age of chemistry, no synthetic materials as yet threaten the plant products as insect killers; indeed the plant materials that yield insecticides are so important that the government does not allow their re-export nor their extracts, except to specified countries.

But while everyone realizes plant extracts are dominant among insecticides, especially where non-poisonous residues are desirable, it will surprise many perhaps to learn that according to a survey made by the Boyce Thompson Institute, that at least 100 species of plants yield extracts that are more or less deadly to some insects. Some, such as the Clove, Nutmeg and Eucalyptus which we ourselves use daily, are toxic to ants, and in a similar way, numerous other plants harmless to some forms of life are fatal to others. Many of these plants have been observed to be toxic to insects when they ventured to feed upon them. The pyrethrum industry came about because a woman in Dalmatia observed dead insects on a discarded bunch of Pyrethrum flowers.

In studying the killing properties of around 100 varieties and species of plants, A. Hartzell and Fredericka Wilcoxen made extracts either with water or acetone and used them against the larvae of mosquitoes. Among the plants that yielded extracts giving a high kill of the larvae were *Liriodendron tulipifera*, *Populus* sp., Bay, Barberry, *Inula*, male Fern, *Hydrangea arborescens*, Sage and Pumpkin. In all cases either the leaves, wood, root or seeds were used to provide the extract and, additionally, crude botanical oils and drugs in standard use were tested. A great number of the extracts tried gave a kill of less than 50 per cent, but against mosquito larvae, extract of Balm of Gilead (*Populus*) 5.8 p.p.m. was a lethal dose, this in comparison with rotenone at 0.06 p.p.m. Against aphids, a distillate of *Inula* gave up to 90 per cent kill. An interesting fact is that an acetone extract of Linden (*Tillia europaea*) gave a 50 per cent kill of mos-

quito larvae, yet the tree itself is a notorious breeding place for aphids.—“Florists Exchange.”

TREASURER'S ANNUAL REPORT

THE PENNSYLVANIA FORESTRY ASSOCIATION
RECEIPTS AND DISBURSEMENTS

Year ended December 31, 1942

RECEIPTS

Cash Balance	
December 31, 1941	
The Cheltenham National Bank.....	\$ 51.44
Receipts:	
Dues—1941	\$ 31.00
1942	1,922.50
1943	310.00
"Forest Leaves"	117.40
Donations	1,368.00
Dividends and Interest	664.00
Life Memberships	280.00
Miscellaneous	72.08
Rent	480.00
Advertising	7.00
Total Receipts	5,251.98

\$5,303.42

DISBURSEMENTS

Salaries	\$1,811.93
Traveling Expenses—Mr. Mattoon..	43.85
Office Expenses	139.97
Stationery and Printing	172.16
Postage	170.94
Rent	1,050.00
"Forest Leaves"	857.73
Telephone	126.83
Interest—Loans	13.90
Miscellaneous	49.81
Repayment of Loan	500.00
Refund of Interest Bond—Gatineau Power Co.	14.17
Refund of Dividend—American Tel. & Tel. Co.	22.50
Life Membership—Transfer	280.00
Total Disbursements	5,253.79

Cash Balance	
December 31, 1942	
The Cheltenham National Bank	\$ 49.63

INVESTMENT ACCOUNT

BALANCE SHEET—December 31, 1942

ASSETS

Cash—	
The Cheltenham National Bank	\$ 509.26
Securities	13,602.87
	\$14,112.13

LIABILITIES

Funds:	
"Forest Leaves"	\$ 2,818.88
General Fund	68.08
Life Membership Fund	\$7,855.17
Additions during 1942	280.00
M. H. Hansen—Bequest	3,000.00
Louise A. McDowell—Bequest	90.00
	\$14,112.13

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JANUARY - FEBRUARY, 1943

Secretary's Annual Report

THESE ARE trying times for organizations such as this. The orienting of this country's productive capacity for war, the training of millions of men and women for a gigantic military machine and the disruption of our peacetime pursuits and plans have necessarily affected the Pennsylvania Forestry Association.

We may be grateful that this world disturbance has not as yet been reflected alarmingly in our income or membership. While our Treasurer will submit a detailed statement of finances, it is fitting to mention here that income from dues in 1942 was \$75.50 greater than in 1941, although decrease in total income amounted to about \$105. Our paid membership, this would indicate, is slightly greater than in 1941. Briefly, the membership statistics are as follows: Annual members, 615; Club members (\$5.00), 17; Sustaining members (\$10.00), 21; Contributing members (\$20.00), 4; Life members, 114; Subscribers to "Forest Leaves," 173; "Forest Leaves" exchanges, 71. Total distribution of "Forest Leaves," 1,018.

A year ago your Executive Board was disturbed by a recommendation of the U. S. Army Engineers for the construction of a 250 foot earth dam on the Clarion River above its confluence with Mill Creek. Had such a dam been built, it would have flooded about 1,000 acres of Cook Forest, destroying most of the recreational facilities and killing all of the virgin trees below 1,350 foot elevation.

Through a member of the Association in the western part of the state an engineer of repute was engaged who made a thorough study of the situation and later appeared before the Federal Power Commission where his testimony so impressed the members that the project was abandoned. He also convinced the U. S. Senators from Pennsylvania that such a project would not lower the flood crest at Pittsburgh appreciably.

Ten

Your Secretary took an active part in the movement for State acquisition of the Ricketts Glen property in Sullivan County. The bill calling for an appropriation of \$150,000 for the purchase of some 11,000 acres was passed by the last session of the Legislature.

Because a contract to cut timber on some of the property which the State has planned to purchase was entered into between the Ricketts heirs and a sawmill operator, Secretary Stewart, of the Department of Forests and Waters felt the property should be reappraised. After some delay the State took title to part of the acreage, making a payment of \$82,000 with a further agreement that additional land would be acquired in 1943 and 1944. The Kitchen Creek Glen has thus been preserved, although it is doubtful whether improvements will be made until after the war is over.

While some may question details of the cutting program instituted by the Department of Forests and Water on the State Forest lands, your Secretary cannot but be grateful that such a policy was adopted. It was first advocated by this Association in 1940 before war engulfed us. At that time such a policy was urged as a conservation measure, to harvest mature timber, to provide more game food and to demonstrate selective cutting procedure. Since then the greatly increased need for wood and wood products created by our war program has made the harvesting of the State Forest timber more imperative.

The program calls for the removal of about 100,000,000 board feet. Your Secretary visited two cutting operations last June, where the contracts called for the removal of all trees over a certain diameter limit. Penalty clauses for excessive breakage and specific requirements for the lopping of the tops and the handling of brush were included in the contracts. While the diameter limit method of cutting is not ideal, your Secretary

FOREST LEAVES

recognizes that the lack of technical manpower made it necessary.

Because of increased costs, restriction on the use of paper and the fact that all the time spent in preparation is volunteered without remuneration, only five issues of "Forest Leaves" were put out in 1942. Whether additional cuts will have to be made depends upon the availability of paper. The reader response to the contents has been greater than in any previous year. Your Secretary will be grateful for manuscripts on forestry and related subjects and for suggestions or criticism of the material which appears.

The immediate future of the Pennsylvania Forestry Association will necessarily be influenced by the war and the degree to which it is essential for the country to suspend so-called non essential activities. It is your Secretary's conviction that the need for the activities of such an organization is greater than in peace time. More effort should be expended by us to see that the war needs for wood and wood products are met without sacrificing the gains conservation of our renewable resources has made. But more particularly we give thought and support to a post war program.

The readjustment will of necessity be difficult. Planned programs to take up employment slack will probably be inaugurated. The administration at Harrisburg is giving thought to a post war program. The National Resources Planning Board and other federal agencies are making plans and preparing programs. There will be no dearth of programs, rather the danger lies in the lack of correlation and in the purpose of the programs.

It is not your Secretary's desire to suggest that we add to the confusion by proposing another program, but the Pennsylvania Forestry Association, if it is to merit public support as an authoritative exponent of conservation of our renewable resources is obligated to bespeak their rehabilitation as a logical

corollary to the rehabilitation of the millions of men who shall return to peacetime activities.

H. GLEASON MATTOON

Protection of Forests Is National Defense

GEORGE H. WIRT, Chief Forest Fire warden, has been appointed Chief of the Forest Fire Fighters Service for Pennsylvania by the State Council of Defense. This service has been organized nationally by the U. S. Office of Civilian Defense.

The Forest Fire Fighters Service has been established to safeguard forest lands and timber resources, and to lessen the damage as a result of fire. Enrollment in the Service provides an opportunity for civilians to participate actively in a vitally important war service on the home front.

Mr. Wirt points out that forest fires can cause much damage and hamper the war effort just as seriously as enemy bombs. They can disrupt transportation and communication facilities as well as impede war industrial activities. The protection of our forests is essential to our war effort and deserves the support of every citizen. The diversion of men to the armed forces and war industries necessitates the dependence of the State organizations upon volunteers to help prevent and control forest fires.

In Pennsylvania thousands of acres of growing timber are burned annually. Most forest fires are the result of carelessness or incendiarism. Both types can be stopped before they start. Timber is one of the most important of our war materials. Forest fires in Pennsylvania help the Axis—do your bit and see that your neighbor does his by keeping out of the woods.

Reprinted from: PENNSYLVANIA DEPARTMENT of FORESTS and WATERS, SERVICE LETTER. November - December 1942.

JANUARY - FEBRUARY, 1943

Eleven

Pennsylvania Nut Growers' Association

A Practical Body of Nut Growers Whose Aim Is to Stimulate Greater Interest in Nut-Tree Planting



Black Walnut Kernel

DR. FRANK L. BAUM, VETERAN NUT GROWER, DIES

DR. FRANK L. BAUM was the first man to plant a sizeable nut grove in Pennsylvania and possibly had the largest one in the north. One who always thought ahead of his profession, he was responsible for the saving of many lives when the regular treatment would not have sufficed. Carrying this thought into the agricultural field he saw the possibilities in a black walnut grove of improved varieties. He had over one thousand trees about seventeen years of age.

He is survived by his widow, Isabella Jane, and two daughters, Dorothy, wife of William Cope, and Eleanor and two grandsons all at home.

The love he showed for his farm and nut grove was an inspiration to others. The benefit to his fellowmen by pioneering in this new field of nut culture will indeed be a lasting monument to his life.

J. W. H.

TIMBER SALE OPERATIONS ON STATE FOREST LANDS

THE CAREFULLY planned program of forest utilization by contracting for the sale of 100,000,000 board feet of merchantable timber from Pennsylvania State Forests to meet some of the present-day emergency needs, is progressing according to schedule.

The stock survey, which was completed in 1940, showed that there are two billion six hundred million board

Reprinted from: PENNSYLVANIA DEPARTMENT of FORESTS and WATERS, SERVICE LETTER. November - December 1942.

Twelve

feet in living trees on the 1,654,441 acres of State Forest land. About half of this total volume is of saw timber size, while smaller trees from eight to twelve inches d. b. h. make up the remainder. The inventory shows that there is an annual growth of over 120,000,000 board feet of wood.

Utilization is by the selective system of cutting in forest compartments that contain mature and hypermature timber. Regulations which guarantee the protection of smaller trees, watersheds, recreational areas, wildlife and other essentials of sound forest practice are provided for in the contract of sale.

Before a prospective timber sale area is advertised for bids, an intensive study of the compartment is made by the district forester, his assistants and a forester specially assigned to this work. A detailed report is then submitted, after which the Harrisburg office makes a final inspection of the area. If all are satisfied that the cutting operations will have no injurious effect on the forest soil and watershed, and that there is a sufficient amount of natural regeneration and seed trees, the sale of timber on the particular tract is advertised. The Department of Forests and Waters reserves the right to reject any or all bids.

The cutting operation is at all times under the immediate jurisdiction of the Department. Copies of the contract are furnished the district forester and daily inspections are made to see that the contractor is carrying out the provisions contained in the contract. A qualified person is assigned to do the scaling.

The cutting is done to a minimum diameter at breast height limit, which usually ranges from sixteen to eighteen inches for white pine, hemlock, white oak, black cherry and red pine; fourteen to sixteen inches for red, black and scarlet oak, basswood, tulip poplar, sugar maple and white ash; twelve to fourteen inches for chestnut oak and beech; ten to twelve inches for pitch pine, yellow and black birch and eight to ten inches for locust, red maple and aspen.

FOREST LEAVES

Our Future Civilization

by JOHN W. HERSHEY

SO MANY comments arrived for me to go over as I fork and hoe regarding the subject in a recent issue, I have been compelled to continue the thought.

As I browse through the dreams of ambitious bossers on "how they're going to 'out-Hitler' Hitler in Hitlerizing us." As I browse over the benevolent dreams of ego-intoxicated idealists regarding a "just" peace by force of arms, and idle pratings such as "Men shall cross the threshold of a new age"—"that American democracy shall rule the world"—that "the plowing under of crops and pigs will feed starving millions"—"the sword of today shall be the bread of future generations," a classical quotation comes to me from Omar Khayyam:

*"But leave the Wise to wrangle, and with me
The Quarrel of the Universe let be;
And, in some corner of the Hubbub coucht,
Make game of that which makes as
much of Thee."*

And then pops into my head the expression that dear old Dr. Deming (80 odd years young) made at the Northern Nut Growers' Convention last year when the youngsters were going through their annual convention exercise of trying to evolve a plan that will make all America nut tree planters. After everybody had run down, he delightfully explained, "Love of nut growing and grafting nut trees springs from the heart. You cannot inject it with a hypodermic syringe or instil it with propaganda."

So it is with life. The change must come from within if we are to end economic chaos and war. How? By humility of the soul before the great universe. With such awe the rhymes of the Cosmos "tune in" and guide us.

As I, in the corner of the hubbub, couch viewing and reviewing high water marks of ego-intoxication, the cause of all human troubles, I compare the pettiness of it to the greatness of the universe

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and the clear thinking of those cosmic tuned. My mind goes back to that day in history where the Children of Israel demanded a King. Living in a democratic government under God, they, like we, tired of the chore of self-government and wanted a king to make their decisions. But, instead of the great God saying as ours has, "You'll not only be ruled by democracy and like it for it's my best judgment"—he said "if you want a king, have him"—for "man" has to work out his own salvation.

This ego-intoxication blinds the scientific world to the real issues of life. Their continual stream of proclamations on solving all human problems, leaves a taste as of ashes. When one views the net results as of today.

Scientific Breakdown

The medical profession is particularly adept in kidding the race into believing they now have everything under control. Regardless of the marvelous work done in health problems—in controlling diseases, they are losing a winning battle fast in the whirlwind of startling failure to curb cancer, stroke, heart failure, nerve cracking, many types of tumors, and to project a simple receipt for contentment, the true source of health.

In agriculture, I've recently noticed a typical case. The extension service celebrated the 50th anniversary of the tobacco experiment station in Lancaster County. They had a good time telling the public of the fortitude the different directors of the station showed in sticking to it—of the remarkable work they had done for the tobacco growing industry. But, as they talked, Death stalked the tobacco fields in the form of rust, ruining as it went, and has been periodically for years. Little use is a leaf of tobacco free of all other disease blemishes, if unsalable because of rust. Little use

Thirteen

is a man immunized to all diseases except the one that kills him. Little use is a culture that builds barriers, plasters up knot holes, surrounds itself with moots, if life oozes out in one uncontrollable gap.

Scientists are too fish minded. They see a fact and gulp it, seldom seeing the intangible lines attached. And sneer at the unseen cycles and rhymes of nature, factors more important than the tangible.

While the torch carriers of sociology and democracy force regimentation on the people to save it—its one essential feature, the independence of the individual—is smothered. And, as the stage is set for a perfect world, dictatorship is in the saddle.

A rather pathetic picture—the net results of the human masses living without God and nature. But be not discouraged, this last “bust” of idealism (war) will bring many to their senses.

Sample Suggestions for a Solution

If raw milk cannot be delivered in large cities uncontaminated by human pollution physically and financially because of the volume handled, move the people to small towns where it can be handled, in smaller volume with safety. If raw vegetables in winter lose 60% of their food value, enzymes and vitamins, when shipped 2,000 miles to the big cities, move the people to smaller towns where they have homes instead of a “box stall,” a garden instead of “bridge,” canning instead of “getting canned.”

If people in large cities don't breed—lose their sense of balance, the common touch—the instinct of self-preservation because of cultural and intellectual filth move industry to the country where all nature enhances productivity. Or, if necessary, remove industry from among us until such a time as man learns by slow degrees to enslave the machine and system instead of being enslaved by the machine and system. Have the high school social clubs teach duty instead of “beauty”; loyalty, thrift, and frugality instead

Fourteen

of “getting by,” and the glory of life on the soil as fundamental.

Paw and snort as you will—what we create and cannot control will eliminate us. I am not arguing, nor am I overconcerned. I'm no uplifter trying to find expression on the people. But, we the people must do the deciding. Take your pick, phenomenal production in large cities and race suicide, or individual occupation in small towns and farms with contentedness and health.

People of the soil guided, even though unconsciously, by the cosmic tuning of the universe, make poor groundwork for the discontented uplifter.

The daily association with the mysteries of life and growth ranging from the placid stride of plant life to the jungle fury of insect, of animal life, temper and gauge their thoughts and decisions.

I sometimes wonder if it isn't essential to have one's feet on the soil, planted in Mother Earth, to receive life-giving flashes of revelation from the blue, just as one must have his feet on the ground to become a conductor of death-dealing flashes of lightning from the blue.

Insulate the human masses just so long in the top story by a layer of intellectual ego—under foot with asphalt and we have a culture as dead as a cake that has fallen or a political party that's been in office too long.

Have free enterprise, religion and education been so insulated too long? Lost ability, “to make game of that which made as much of thee.” Or will they arise to the occasion and rehabilitate themselves and the soil?

*While the handouts flow along the Potomac
Brink
With the New Deal the Ruby vintage drink;
And when the Angel with his reality Draught
Draws up to Thee—take that, and do not
shrink.*

P.S.—Did I hear some say, “What's that got to do with nut and forest planting?” Get the people married to the soil as we must be to “last,” and all kinds of tree crops will be planted. They'll demand them.

FOREST LEAVES

Plant An Arboretum on Your Farm

Make It Crop Trees

IN MAKING a study of “why arboretums are planted” the range is wide and varied.

Many times it is to express the egotism of the individual. Strange as it may seem regardless of how much money a man makes unless he's truly attuned to the universe he has an urge to get up on a pinnacle with some sort of stunt, so people see he's doing something different, and attract attention.

Most colleges have them for botany study and this is good. But so long as it's done with the superior feeling that we're studying inferior specimens, so long as any specimen of God's creation is used merely to satisfy our personal desire for knowledge the greatest attainment—the fullest value to the observer is lost.

If any professor of botany, theology or philosophy wishes to pay a lasting contribution to society let him or her use an arboretum to teach the development and growth of the soul. Take your classes daily to the temple of God and contemplate the marvelous magnitude of a living tree. Get the picture of how they full-fill their destiny. Add new trees each year and instill your students with a zeal to “help” by taking the BEST of care of those trees. Care, equal to one's first born in a family that hasn't gone modern. There's a cosmic tune to the universe that when aligned with it makes for peace and contentedness from which worries slick off as water off a duck's back. An attitude of devotion with trees will crack this secret for you.

We all know the value of milk from contented cows “for health” but the intellectual, the philosopher and scientist, has failed to teach the importance of the value of “the milk of human kindness” from contented people to have contented people.

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Albert L. Bailey, Jr., of Sunset Valley, West Chester, Pennsylvania, well known to many readers, has put out a small arboretum of a few dozen nut trees and bird life trees, mostly seedlings or rare selections or crosses.

You, too, can have the fun of such an arboretum, for many nurserymen have trees they're experimenting with which they'll gladly share at a small cost. Here are the rules:

Plant it to become closer associated with creation, and learn their use and purpose.

To have friends that understand your whims and never betray you.

To have friends from whom you can learn the unspoken secrets of the cosmos, secrets that breed humility, wonder and awe.

To learn how to convey these secrets to others on the look.

“Then your days will be filled with music,

And the cares that infest the day,
Shall fold their tents like the Arabs,
And as silently steal away.”

Declaration of Principles

*Tree Farm Program as Sponsored by the
N. C. Forestry Association.*

IN RECOGNITION of the importance and value of the forest products industries of North Carolina and the desirability of perpetuating the state's supply of timber, The North Carolina Forestry Association has assumed the sponsorship of a TREE FARM Program as one of its major activities. The primary objectives of the Program are (1) Fire protection,

Fifteen

- (2) Selective harvesting of timber crops,
 (3) Reforestation, (4) Information.

1—Fire is the greatest enemy of the forests and fire prevention and control constitute the first and most effective step in any plan of conservation. The North Carolina TREE FARMS Program seeks a solution to the problems of fire protection.

2—The judicious utilization of our forest resources, looking to the production of continuous crops of trees, should be based on a system of selective harvesting. Such a system permits the harvesting of a part of the timber crop at regular intervals, while maintaining the growing stock for future use.

3—Through the exercise of fire control and selective harvesting, our timber may be utilized, preserved and increased. Natural re-seeding, with adequate fire protection, will provide an abundance of young growth. On idle or barren lands it is desirable to plant forest tree seedlings and such planting will be encouraged and promoted wherever advisable.

4—Of particular importance in such a program is the dissemination of information to the owners of forest lands and to the public, with a view to urging the protection and growing of trees and the development of better forestry methods and practices.

As a means to this end it is proposed to designate, mark and publicize a system of TREE FARMS throughout the state. TREE FARMS is the name selected for areas, large or small, dedicated to the growing of forest crops for commercial purposes, protected and managed for continuous forest production. This term will be used to designate the application of commonsense forestry practices to the many types of privately owned forest lands.

To qualify as a TREE FARM the following requirements must be met:

Reprinted from Tar Heel Forest Notes.

Sixteen

(a) The owner must protect his property from forest fires. This may be accomplished by cooperating in the forest fire control program promulgated by the North Carolina Department of Conservation and Development in localities where state protection is available, or through his own efforts under advice from the State Forester where organized protection is not available.

(b) The land owner must practice selective logging or other controlled partial cutting, with the view of assuring continuous production of commercial timber crops, in accordance with the practices approved by the State Forester.

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Conservation and Economic Security

by ALFRED H. WILLIAMS, *President*
Federal Reserve Bank of Philadelphia

IT IS BOTH pleasant and worthwhile to turn aside from the business of war to the theme of this forum. The two are in marked contrast, for the business of war is to destroy and the topic of this conference is how to conserve, to restore, to maintain. The economics of war can be expressed very simply—it is to devote the greatest percentage possible of the nation's manpower and materials to the business of destroying our enemies. The destructiveness of modern combat is revealed clearly by this fact: a single 4 inch anti-aircraft battery, if the guns are fired steadily—this is difficult because of overheating—can destroy \$100,000 worth of ammunition in one hour. Each shell contains an expensive clocklike firing mechanism that explodes the charge at pre-determined heights. The United States Treasury will spend 100 billion dollars for war in the calendar year 1943.

But my topic is not the destructiveness of modern warfare but the relationship of the conservation of our natural resources to economic security. In the few minutes that are at our disposal, I shall confine myself to economic security for the group, or nation. Equally important, of course, is the effect of conservation on the economic security of the individual but time does not permit the development of this fact.

My first major point is that an enduring high standard of living must have a

sound basis in natural resources. A few examples will illustrate the relationship between standards of living and physical resources. The United States is a case in point. This country has the highest standard of living in the world. On what is this based? It rests, it seems to me, upon the following factors: first, rich physical resources; next, a populace that is energetic, venturesome, and imbued with the desire to "get ahead." In the third place, we have a set of sound social institutions and a dynamic technology. Last, but not least, we have "lived on our fat"—that is to say, we have exploited our physical resources. We have taken from the land more than we have put back. In a very real sense, we have lived on our capital in building up tremendous exports of cotton, wheat, lard, oil, lumber and other commodities. We have shipped pounds of rich, southern soil with every bale of cotton we put aboard ship. Yes, a fruitful combination of physical, human, social and technological assets, plus a policy "after us, the deluge" has given us a higher standard of living.

Sweden is an excellent example of a country with a good but not a high standard of living. If I analyze Sweden's situation clearly, this is the result of average physical resources, plus an unusually homogeneous, intelligent people plus unsurpassed technology, plus good social institutions. Last, but not least, Sweden

has practiced resource conservation. The soil has been conserved systematically in Sweden since 1600. A decade ago I visited this country to study its industrial development. We went back country to look at an iron and steel company. This included not only mining, smelting, rolling and forging of steel products but also an electric power project, a charcoal distillation plant, an extensive lumbering operation and many farms. These unlike units were integrated into one efficiently operating company that gave to its employees steady employment and maximum economic security.

Finally, Japan is an illustration of a country with a low standard of living. The Japanese are an homogeneous people and are almost without parallel in the world when it comes to physical energy and a willingness to expend it. Likewise, they have an excellent asset in their modern technology so assiduously copied from western nations. The country has such poor physical resources that they have been unable, despite rigorous conservation practices, to overcome their poverty and attain even a reasonable standard of living.

My second major point is that the United States must not assume that its standard of living will continue to be superior to that of other peoples. The pages of history are replete with illustrations of the decay of nations that in their day and age had standards, relative to those of their neighbors, far superior to ours. Indeed, the day is now here when certain sections of our country have low standards of living. Three areas of resource depletion may be cited—the cotton belt, the cut-over lands of Michigan, and the “dust bowl.” In the cotton belt soil exhaustion and other evidence of an impoverished agriculture are to be seen. The cotton growing industry of the South is not being conducted by a prosperous people. Foreign markets for Southern cotton were disappearing prior to the outbreak of the present war. Cotton from Brazil, Russia, China and India

displaced American cotton to such an extent that our exports declined from 60 per cent to 40 per cent of annual production. This was due in considerable part to high costs arising from erosion, floods and drought. Poor land makes a poor farmer and, in turn, a poor farmer makes poor land. The latter thought was expressed by Adam Smith in 1770 when he said “a necessitous man is not a free man.”

A third point is that we cannot safely rely upon science and technology to “bail us out” if we do not cooperate with Nature. Science can, of course, synthesize many of Nature’s products but it cannot take the place of what has been aptly called the “balance of Nature.” Nature in a primeval state is in balance or equilibrium and the mutual interdependence of forest and river and soil and grass cannot be disturbed with impunity. Erosion, flood, drought, silting and pollution are the result of Man’s interference with the balance of Nature. And, ironically enough, those who demand free enterprise and laissez faire and do not practice conservation of natural resources bring about conditions that can only be remedied by government interference and the curtailment of free enterprise. Moreover, when exhaustion of resources brings retrogression in standards to a people accustomed to the highest plane of living, the consciousness of decline will cause dissatisfactions not otherwise present and perhaps will bring demands for changes in the form of government.

What is to be our national policy with respect to this problem of conservation? Ought we not to strive for the highest possible standard of living consistent with minimum waste of natural resources. To continue to cheat Nature, to continue to take from her more than we give back to her is to commit national hara-kiri. Of this we may be sure: the people of America cannot continue with impunity to violate Nature’s demands. We must make our peace with her. She will not be cheated.

FOREST LEAVES

KEEP THEM GROWING

Save Time and Timber While Harvesting Chemical Wood

by ROBERT R. LYMAN AND
CARL E. OSTROM

THE HARDWOOD distillation industry, though not very large, forms a vital part of our war machinery. Its charcoal, carbon, methanol, acids, tars and oils enter into the manufacture of innumerable materials required for war, such as steel, plastics, explosives, textiles, rubber and gasoline. Today this industry is facing a raw-material bottleneck. Operation at several plants in northern Pennsylvania has become intermittent for lack of wood. Here is a definite challenge to plant owners, wood jobbers, foresters, and woods workers.

The most evident cause of the raw material problem is the shortage of skilled woodcutters. But even the freezing or allocation of manpower would not provide a panacea, because the manpower shortage is a general one, and because inexperienced men cannot expect to earn a fair living at the highly-skilled trade of wood cutting.

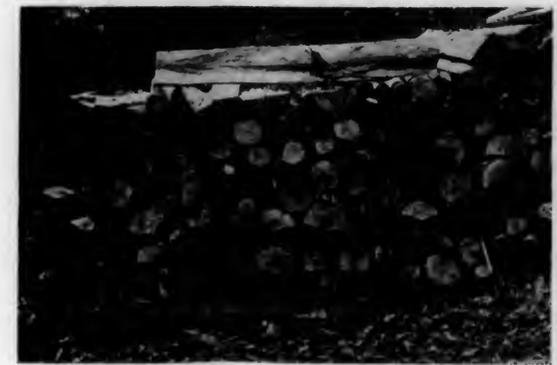
The one thing that distillation plant owners can do about the wood supply problem is to increase the efficiency of the woods end of the enterprise. There is ample room for progress. The harvesting of chemical wood has been allowed to proceed along traditional lines with but little change in the past forty years, while operating methods in the harvesting of some other forest products have advanced steadily under the direction of logging engineers and foresters.

New hope for improvement in chemical wood cutting methods springs not only from accumulating engineering and forestry information, but in the New York and Pennsylvania region, it springs also from the change in character of the timber and the timber business which has occurred since the industry became established.

History of the Clear Cutting Tradition

In the past, clear cutting in progressive strips was the method most honored by chemical wood operators. It developed from the economic conditions and needs of the period. Forest land on which the trees were all cut, the timber removed, and the brush piled for burning had an extra value for pasture and farming purposes over the uncut or selectively cut areas. The forests were considered inexhaustible and there was no thought of a future crop. There were no good roads, no mechanical devices for making cheap roads, and no trucks for rapid transportation from remote places. The wood supply had to come from sites close to the factory or a railroad, and clear cutting resulted in maximum production from the nearby points. The wood was cut in stands of virgin timber where nearly all the trees were of proper size for use and only a scattered few small enough to be left. Conditions have changed but clear cutting continues simply because it was always done that way; human nature is such that old-established methods are not put aside without a struggle.

(Continued on Page 11)



Irregular wood from clear-cut strip in small timber.

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MARCH - JUNE, 1943

NO LET UP IN CONSERVATION

The Pennsylvania Forestry Association

Dear Sirs:

Am enclosing \$2.00 as my small contribution to the excellent work of the Pennsylvania Forestry Association in the protection of wildlife, improvement of forests and development of forest recreation.

As a member of your organization, and a graduate of the Pennsylvania State Forestry School, I sincerely regret my inability to contribute more, at the present. As a member of Uncle Sam's armed forces I trust that you will continue the fine work, and preserve Pennsylvania's beautiful forests and mountains for thousands of men serving with me to come home to.

Sincerely yours,

SGT. ROBERT S. FRANKENBURGER
Army Air Base
Pueblo, Colorado
(Now Lt. Frankenburger)

This short note is more eloquent than labored pages of argument for the activities of conservation organizations in general and the Pennsylvania Forestry Association in particular. To be so single-minded in waging war against our external enemies that we forget the continual fight that must be fought against

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destructive forces within, is to undo much of the good accomplished by conservation organization.

The non-profit, non-partisan organization whose sole objective is the wise use of our renewable resources has a real role to play now that the needs of war are used as an excuse for over cutting of our timber lands. Agencies of the Government that countenance uneconomic forest practices as necessary if the war is to be won must be checked by public opinion focused through such organization.

This then is a plea for a militant Pennsylvania Forestry Association now, to preserve the hard won gains of the last fifty years. It is a plea to each member of the organization to appeal for more activity by the Association.

POST WAR FORESTRY

Of the many conservation problems facing the country those concerned with the transition from a war to a peace economy deserve priority. It is probable that many men now in the armed forces will for a time require employment on public works. This burden should not be entrusted wholly to the federal government with the possibility of its becoming a political football. Experience during the past decade proves that in the end we must pay dearly for what appears at first to be a benefaction by a fatherly central government. There are millions of acres of now idle land in this country suited best for the production of timber. Reforestation is a self-liquidating project and there are literally thousands of towns with enough idle forest land to provide useful employment for a large part of their unemployed. In fact, such employment is one of the strongest reasons for the establishment of community forests. It is not too early to be making plans for these post-war projects and every city and town containing such lands should have a committee at work on this problem.—*Forest and Park News.*

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Forestry in the Post-War World

by HARDY L. SHIRLEY

UP TO THIS POINT, our program has dealt with forestry during war time. Daily wrestlings with war's stern facts have made your speakers hard-headed realists. You are now to hear from an impractical idealist who fled in early youth from the mundane affairs of a plumbing shop, hardware store, lumber yard, and general farm to the cloistered halls of learning, and who, from that time hence, has steadfastly dwelt in the ivory towers of education and research. Those who feel that the knowledge of the research specialist needs tempering with the earthy wisdom of the common man may dismiss my remarks as of little more merit than those of the crystal gazer or the reader of tea leaves. With this warning to you all, I propose to be both rash and fanciful. One thing I do ask you to bear in mind—that the viewpoints expressed, although not entirely original, are purely personal and that they have received no advance approval from Joseph Stalin, Madame Chiang Kai-shek, or Cordell Hull.

First, the war probably will end some time between 1944 and 1947. Second, the United States will join other nations in establishing a world federation made up of executive, legislative, and judicial divisions having at its disposal an international police to prevent the rise of armed aggressors, and an international economic authority to promote trade, supervise international investments, develop economically backward nations, and control international monopolies in transportation, communication, and of such important resources as rubber, tin, quinine, and nickel. Third, we will have an American Beveridge Plan providing more adequate old age pensions, sickness and accident insurance, hospitalization and medical care for all income levels, and unemployment insurance for all types of workers. Fourth, a long-range, flexible program of public works involv-

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ing soil conservation, forest rehabilitation, housing by both public and private authorities, school improvements, modernization of transportation, and other socially useful jobs will be a permanent feature of our economy, and so timed as to take up the slack in periods of industrial depression. Fifth, within this framework, private enterprise as we now know it will continue to occupy the main fields of American economic life. We can, however, expect to see organized labor become stronger, and the organized consumer become an important factor in production, distribution, and politics. In social security, housing, and economic democracy, America has lagged far behind such enlightened democracies as Great Britain, Switzerland, Sweden, Denmark, and Norway. This fact will not be hidden from observant American soldiers who will, upon their return, insist that wealthy America catch up with social progress.

No such bold policy will be adopted without vigorous debate and perhaps restrictive compromise. Tremendous sacrifices lie ahead of us before the war will be won. By the time the ink has dried on the Armistice, isolationists will emerge from their underground retreat and shout to the war-weary soldiers and bereaved mothers that America could have avoided heavy debts and human sacrifices had we kept our food, munitions, and soldiers at home to build a fortress no combination of nations would dare attack. Self-styled realists will pooh-pooh collaboration with foreign powers to prevent war, insisting that warfare is an ineradicable outgrowth of organized human society. The failure of the League of Nations and the World Court will be pointed to as proof of their contention. The fact that America never supported the League, and that its total annual budget never exceeded seven million dollars a year, an amount sufficient to support our present

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war effort but 32 minutes, will be forgotten. Backwater politicians will renew the outcry against sending our boys to fight abroad for world peace, as if there were something especially noble about letting our enemies kill us on our own soil. Spokesmen for special interests will warn that lowered tariffs will reduce American living standards to the level of the Chinese. They will continue to ignore Benjamin Franklin's trenchant statement that the individual or nation is best off that buys in the cheapest and sells in the dearest markets. Sleek money-changers that have never known the debilitating effects of malnutrition or chronic illness will insist that ensuring a minimum subsistence level for all people will destroy the incentive to work. And loudest of all will be the assertions of big and little industrialists that public economic controls paralyze initiative and slam shut the door of opportunity.

But when has the American nation ever faced greater opportunity? A new chance for worldwide leadership lies ahead. American citizens have never had brighter frontiers to challenge their energy, ingenuity, and idealism. Worldwide collaboration can open the way for economic development of such potentially wealthy areas as South America, Africa, Melanesia, yes—and even India and China—as never before. The opportunities for national and international statemanship of a high order were never brighter. Financiers, economists, and diplomats have never faced a greater challenge than the development of a pattern for a worldwide economy. Mere removal of the threat of periodic economic depression and wars will work wonders towards restoring real confidence to the business man, while insurance against unemployment and other hazards of life will do much to overcome the tendency of individuals to hoard and thereby nurture the seed of economic depressions. And when since the days of the Roman Empire has the world been more in need of a great social and religious leader, to

become a new Messiah, selecting from the separate religions those ethical, social, and spiritual principles common to all and welding them into a universal religion to which every man can subscribe.

Perhaps we should pause here for a few moments while we descend from the Heavenside layer of the stratosphere down at least to the tree tops. What has all this to do with foresters? First, foresters as citizens have a vital interest in helping to free the world of wars and promoting world economic collaboration. To do so opens enormous vistas. Wood is going to be important, as it always has been, and in a host of new ways which we can now only dimly foresee. The maker of new types of plywood airplanes, Mr. J. G. Vidal, has been heard to remark that wood had a future of far more challenging proportions than metal. Most striking among the techniques that will usher in a new age of wood are the changes wrought by chemical transformation. The age of the cellulose engineer appears to have dawned. Wood is a raw material treasure chest richer than coal. The chemist need only discover the various keys that unlock the separate compartments. Already it is possible to dissolve wood cellulose and convert it into rayons, cellophanes, and the like. Destructive distillation yields tars, creosote, alcohols, acetic acid, and charcoal. Hydrolyzed wood yields sugar for alcohol, and hydrogenation produces waxes, oils, and higher alcohols. Wood powder is a base for plastics that upon setting assume properties entirely different from wood. Still, the chemistry of lignin and cellulose is largely an unexplored field.

But brilliant as are the achievements in wood chemistry, those in timber physics are no less promising and involve far greater use of raw material. Long dominated by the single product—Douglas fir plywood—the American plywood industry has been slow to come of age. Because of their strength and superior glue-holding qualities, the fine-grained, diffuse porous hardwoods have been used

for laminated furniture built on tubular steel furniture lines, and laminated propellers superior to walnut. The new moulded semi-plastic plywood may make possible the construction of exoskeletal ships, fuselages, and buildings, bringing into play new theories of design, new beauty, new usefulness, and at the same time considerable economy in material and reduction in weight. It may some day be possible for a man working evenings in his own basement to construct from plywood and 1½ x 3 scantling glued wall panels for his future home. The use of timber connectors has measurably increased the strength of wood joints. The properly constructed glued joint is still better, and many of the laminated arches eliminate the need for joining on the site entirely.

Important as the new developments of wood chemistry and timber physics may be, they are likely to remain for a long time overshadowed by such time-honored uses of wood as general construction, building repair, cross-ties, poles, posts, piling, paper, and fuel. Together, these uses absorb wood of all grades and sizes and in tremendously high volume. Demand will be especially high during the reconstruction period, when war-ravaged cities and countrysides are restored for human habitation and industry.

Looked at in a broad way, our future job as foresters is to make sure the post-war needs for wood are met and that depleted forests are restored as promptly as possible to full productivity. We cannot usher in a new age of wood with scarcity of raw products, low operating volumes and wages, and high prices to consumers. An ample, well-managed growing stock can assure an abundant, steady supply to industries. Increased mechanization and more efficiently planned woods work can make possible higher wages to workmen, and elimination of wastes of all sorts can lower prices to consumers. Non-commodity benefits of forests will be in increased demand. Growing cities need safe water supplies.

Improved transportation will increase recreationists, and the fruition of current research in forest influences will provide basic knowledge for sound public programs of protection forests.

Perhaps one of our first jobs will be to provide again a huge conservation program to absorb workmen and soldiers discharged during the period when industry is being retooled for peacetime production. Such a program will be particularly useful before industrial products for large-scale public works become available. As never before, American citizens have learned that the capacity of the steel, shipbuilding, aluminum, synthetic rubber, farm and forest industries are a vital personal concern to everyone. Will our citizens therefore not insist that future public works be applied where they will be most effective? This means that public programs of forest planting, timber stand improvement, road development, and fire protection will be carried out on private lands as well as public, giving priority to those areas that promise greatest productivity and the highest accessibility for future use.

If we are to plan intelligently for producing the wood required in the future, the nationwide forest survey should be completed as soon as possible. But far more intensive information is needed to plan production in local counties and community working circles.

Producing an abundance of forest products in the future and public-private cooperation presupposes some restrictions on the use of forest land. These are likely to take two forms: first, the establishment of nationwide or statewide minimum standards; second, regulations locally initiated and supervised to provide for sustained support of industries and communities.

Regulation of timber cutting in the public interest is not a new idea. In speaking of the obligations of government, the Chinese philosopher Mencius, some 2300 years ago, stated: "If the seasons of husbandry be not interfered with, the grain

will be more than can be eaten. If close nets are not allowed to enter the pools and ponds, the fishes and turtles will be more than can be consumed. If the axes and bills enter the hills and forests only at the proper time, the wood will be more than can be used. When the grain and fish and turtles are more than can be eaten, and there is more wood than can be used, this enables the people to nourish their living and bury their dead, without any feeling against any. This * * * is the first step in royal government."

Regulation of timber practices will not necessarily lead to creation of an unsympathetic bureaucracy that will stifle private management of forest land. It has not been so in Europe. Preventing timber owners from destroying the productivity of their lands is no more onerous than prohibiting unsanitary working conditions in our factories, long hours of work for children and women, or adulteration of food and drugs. The few inspectors required in time will be looked to as experts to help the owner make more money from his lands, much as the county agent is looked upon by the farmer today.

As a profession motivated by a high sense of public service and public responsibility, it will be our largest job of all in post-war America to eliminate every possible source of waste from the forestry and forest utilization fields. We have been inclined in the past to think of waste mainly in terms of low-grade logs left in the woods to rot, of tops usable for fuelwood but too remote to justify working up, and to some extent of idle land producing no timber. But there are equally important sources of waste about which our profession has done little. Long freight hauls of lumber from the South and West Coast is one; cross hauling of material is another. I had the privilege recently of seeing a map prepared by the Agricultural Extension Service showing the flow of milk from the farms to bottling works in northern New Jersey. It was a veritable mass of crisscrossing lines. Many farmers hauled

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their milk 35 miles, passing by two or three other milk plants on the way. Studies on national forests and elsewhere reveal the same overlapping of territory by portable and permanent mills. Think about this the next time you hear a severe indictment of overlapping government bureaus.

This, of course, is only one source of overlapping function in the timber industry. Salesmen of rival concerns cover the same territory, retailers overlap in their selling of lumber, and oftentimes lumber passes through as many as six or seven hands from the timber owner to the user of the lumber. High grade trees and high grade lumber are often used for low grade purposes. Material that might make handle stock often goes into crossties. Select lumber is used in many places where No. 2 common is equally satisfactory. Waste of manpower occurs in cutting small trees; this also wastes timber. Waste of timber occurs from infrequent cutting, as many trees otherwise usable die and rot where long cutting cycles are used. Waste occurs when portable mills must be moved and reset. Even greater waste occurs when the entire lumber industry migrates from the Lake States to the South and West Coast, or when the pulp industry migrates from New England to the South. Losses to stockholders are but a minor consideration compared with other losses inevitable in a sick industry. These include low wages to workers, high prices to consumers, tax delinquency, ultimately stranded communities, and loss of skill. Each of you can think of many additional sources of waste in the forestry and wood-using industries.

Elimination of waste requires two things: Sound information based on impartial investigation; and intelligent planning based on the facts ascertained and the objectives sought. First, we must have research to discover the sources of waste and how waste can be prevented. This must encompass waste of growing space in the woods by understocking, poor species, or poor-formed trees; waste

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due to slow growth as a result of overcrowding; waste of workers' time due to lack of skill and proper equipment, or harvesting immature timber; waste in transporting and processing forest products; and waste in distributing these products to the consumer.

But research in itself must be followed up by carefully planned action, and where we are planning for such an important thing as the entire forest products industry, we must begin with community plans. Ultimately, these must be articulated with plans at the state and national levels.

The program I have sketched will provide employment for all American foresters in the post-war period, but an even greater task and a greater opportunity lies before us. To meet fully the needs of a war-torn world, and to build a future world-wide prosperity, the forests of other countries must also be well handled, and I personally believe that American foresters will be in the best position of all to assume world leadership in international forest enterprises. This is true for two reasons: first, our country will enjoy tremendous international prestige; and second, our country will probably come through the war with its ranks of professional foresters less curtailed by war losses than any other important country.

A big job, of course, will be the restoration of war-ravaged European forests. This, I feel, can be handled largely by the foresters who will be available in the countries concerned. Some American help may be needed in financing the job and in supplying tools, equipment, and literature, but most countries will be amply able to handle their own tasks. Our big job will be to help build up the timber industry in the countries which formerly lacked a forestry profession and an important timber industry. This job lies mainly in the tropics. Training foresters, surveying the resources, studying the usefulness of species and their silvical requirements; planning essential public

controls; planning industries; and articulating the forestry and wood-using industries of each nation into a world-wide economic pattern will be a part of this large task. This is the biggest and most challenging job of all, and one which has the greatest potentialities for restoring constructive trade among nations. It will do much to cement economic ties into a permanent federation based on good will, mutual understanding, and cooperative principles of exchange.

I know many will denounce these proposals as impractical and visionary. I admit to their being visionary, because no such thing exists today on anywhere near the scale that is proposed. I deny that they are impractical. War is impractical; it results only in destruction and enmity. The costs of world cooperation are infinitesimal compared with those of raising and maintaining huge armies that otherwise will be required. Formulae for peace are the most practical things to which we can turn our minds. The more we think them through and the more time we devote to their formulation and discussion, the more practical they are likely to be. Accustomed as we foresters are to thinking in terms of long-range benefits, it should not be hard for us to see the many advantages of world collaboration and worldwide planning. Ours is a great opportunity and a great future if we but grasp it. The world can be led to a new era of peace and prosperity if every American industry and profession seeks to understand what the future means and resolves to do its part.

DO YOUR PART

Buy U. S. Savings Bonds and Stamps

. . . to BREAK THE AXIS APART

MARCH - JUNE, 1943

Nine



Selective cutting plot on Gray Chemical Company lands near Sweden Valley, Penna.



Uniform wood from selectively-cut, pole-skidded strip.

Keep Them Growing

(Continued from Page 3)

Since clear cutting was the practical and favored way, it is fortunate that it also proved to be good forestry in the virgin stands of beech, birch, and maple timber where the advanced reproduction assured a good second growth. It is quite possible that clear cutting might be practiced repeatedly by companies having sufficient area of land to offset the lower production, and strong enough financially to pay taxes and carrying charges for sixty, seventy, or more years while the forest stand approaches maturity. Now that the virgin timber is gone and the second growth is still far from mature, the wood requirements must come from younger stands and new methods of cutting should be applied. Contrary to popular opinion, shared by forest workers and private owners alike, selective cutting in second growth can be cheaper and more efficient than clear cutting.

Is Early Clear Cutting Good Business?

The simple fact is that young, second-growth stands, unlike old-growth stands, contain a large number of trees that are too small to cut. When these small trees are removed in clear cutting, the wood cutter unwittingly loses time in handling them, plant owners receive light cords of undersized wood, and their retorts yield less products for war industries. Foresters, thinking of the waste of timber as well as time and plant capacity, point out that the smaller second-growth trees have just begun to grow in usable volume. Figuratively, the suppressed trees have spent years in developing a skeleton and are just ready to be fattened up by being released. When this framework of small trees is removed along with the larger trees in clear cutting, many unproductive years must elapse merely to rebuild the skeleton before the cordwood volume begins to grow again.

From the standpoint of the landowner and the local people, clear cutting of

young timber removes the possibility of getting further income or forest products on the same land for another generation. This fact is at the root of the unfavorable public reaction toward clear cutting. If clear cutting is not the most efficient timber management in young second-growth forests, the obvious alternative is to leave small trees and to work toward a form of selective cutting. The primary purpose of such a step is to save time and timber for the war effort. That it promises to benefit the landowner and the local forest dependents in the long run is a fortunate coincidence, but one that should also concern farsighted distillation plant owners.

Right in the Allegheny Plateau chemical wood area, the Armstrong Forest Company of Johnsonburg, Pennsylvania, has been practicing for several years the selective cutting of cordwood for paper pulp from its beech-birch-maple-cherry stands. Adoption of this method of management was due to the efforts of E. O. Ehrhart, forester for the Company. Ten years ago, he began a study of volume growth on two adjacent plots of second growth, one of which was selectively cut and one of which was left uncut. Upon finding that the growth rate in cords per acre was higher on the plot released by partial cutting than on the overcrowded, uncut plot, he set to work on the practical aspects of accomplishing selective cordwood cuttings on his Company's lands.

The method was applied first along the borders of new haul roads and in areas where the dominant black cherry trees had been severely damaged by the St. Patrick's Day glaze storm of 1936. At first, the woodcutters had to be given supervision and encouragement to break away from their clear cutting tradition. By 1940, when a cost study was made by the Company and the U. S. Forest Service, the cutters were convinced; they preferred work on the selective cutting plots to that on the clear cutting plots which were required for cost comparisons. The cost study supported their



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young timber removes the possibility of getting further income or forest products on the same land for another generation. This fact is at the root of the unfavorable public reaction toward clear cutting. If clear cutting is not the most efficient timber management in young second-growth forests, the obvious alternative is to leave small trees and to work toward a form of selective cutting. The primary purpose of such a step is to save time and timber for the war effort. That it promises to benefit the landowner and the local forest dependents in the long run is a fortunate coincidence, but one that should also concern farsighted distillation plant owners.

Right in the Allegheny Plateau chemical wood area, the Armstrong Forest Company of Johnsonburg, Pennsylvania, has been practicing for several years the selective cutting of cordwood for paper pulp from its beech-birch-maple-cherry stands. Adoption of this method of management was due to the efforts of E. O. Ehrhart, forester for the Company. Ten years ago, he began a study of volume growth on two adjacent plots of second growth, one of which was selectively cut and one of which was left uncut. Upon finding that the growth rate in cords per acre was higher on the plot released by partial cutting than on the overcrowded, uncut plot, he set to work on the practical aspects of accomplishing selective cordwood cuttings on his Company's lands.

The method was applied first along the borders of new haul roads and in areas where the dominant black cherry trees had been severely damaged by the St. Patrick's Day glaze storm of 1936. At first, the woodcutters had to be given supervision and encouragement to break away from their clear cutting tradition. By 1940, when a cost study was made by the Company and the U. S. Forest Service, the cutters were convinced; they preferred work on the selective cutting plots to that on the clear cutting plots which were required for cost comparisons. The cost study supported their

preference when it showed that cord-making time was twenty per cent greater for clear cutting than for selective cutting of pulpwood.

Would this finding apply to chemical wood operations? Because of their mutual interest in the question, the Gray Chemical Company and the Forest Service cooperated in a chemical wood cost study last summer on the Gray Company's land near Sweden Valley, Pennsylvania.¹ The study showed that where all trees below seven inches in diameter were left, the cord-making time was ten per cent less than for clear cutting. In terms of cubic feet of solid wood, the partial cutting was nineteen per cent faster than clear cutting, since the leaving of small trees increased the solid content of a cord. On plots where only trees ten inches or larger were cut, the cord-making cost rose to equal that of clear cutting.

Another finding of the study was that it takes as much time to produce a cubic foot of wood from four-inch trees as from twelve-inch trees. Above sixteen inches the time per cubic foot showed a slight increase; trees of this size should be cut into logs rather than cordwood. The wood on these strips has not yet seasoned to permit draying. The fewer bolts per cord on the selectively-cut strips should reduce the handling time in draying, but the reduced number of cords per strip may increase the dray-road construction time per cord.

Suggested Changes in Harvesting Methods

In the application of partial cutting, the increase in dray-road construction time per cord can be eliminated by one of two methods. If the stump-piling and draying system of operation is used, the width of each cutting strip can be increased to provide about the usual number of cords per dray road. Then toward the edges of the strip only the largest trees should be felled. These large trees will fall well into the center of the strip, so that not much of the wood will have

to be carried to the middle of the strip for piling.

A better method of accomplishing selective cutting is not to make dray roads at all, but to skid pole lengths with single horses. The skidded poles can be bucked up and piled beside a truck road. This practice has proved economical on Mr. Ehrhart's pulpwood operations near Johnsonburg, in the spruce stands of New England, and recently on the lands of the Gray Chemical Company.

Anyone familiar with the wood business will realize immediately that there are many "angles" to an innovation such as the pole skidding of chemical wood; one method may not be the best under all conditions. Pole skidding is less expensive than draying over reasonably short distances. It eliminates two handlings of each bolt, reduces the need for carrying brush, saves the time spent in dray road construction, utilizes more convenient working space for bucking and piling, and allows greater specialization in operations. On the Sweden Valley experiment, pole skidding appeared to be twenty per cent cheaper than draying on strips 350 feet long. The method requires some degree of organization, and is not well suited for use by the independent cutter who prefers to work alone. On the other hand, the only investment required for skidding is a single horse, whereas draying requires an investment of about \$1,000 in a team, dray, sled, and perhaps a wagon, for all-weather work. It is evident, therefore, that pole skidding is a means of accomplishing selective cutting in cases where it is felt that the draying cost would be increased by lighter cutting.

Where the timber is a long distance from a truck road, pole skidding becomes more expensive than draying. Under such conditions, if the truck road cannot be extended, the cheapest method is to skid out poles to a main dray road and

¹ The Forest Service share of the work was financed largely by the Division of State and Private Forestry, Region Seven, Philadelphia, Pa.

then to dray the wood to the truck road. In general, the pole skidding method more or less automatically leads the woodcutter to concentrate on the larger trees, which save him the most time and which give the highest yields of chemicals per cord. Small trees are a nuisance to handle by this method and they are not in the way if they are left.

By centralizing the cord-making at a landing point, the pole skidding method encourages mechanization of the bucking operation. A crew of two or three men can usually increase their bucking output with the aid of a portable circular or drag saw. Perhaps the chief benefit of such mechanization at present is that it may help to relieve the woods labor shortage, since it attracts men with mechanical experience who will not do handwork in the woods. If the equipment is dependable, if the various phases of the jobs are well synchronized, and if there is a smooth flow of wood, the mechanization can also result in a saving. One trial of power bucking of distillation wood into 18-inch lengths for bulk handling has proved more economical than the usual method. However, the short bolts appear suited only to the few plants which have predrier ovens to accommodate the green wood in bulk form.

If power bucking machinery is to aid in securing efficient and desirable forest practices in cordwood cuttings, the equipment should be as mobile as possible so that there will be little expense in moving it from one yarding spot to another. If the equipment is costly to move, there will be pressure to cut heavily and to take unprofitable, small trees in a given spot in order to justify the expense of setting up the power bucking unit.

Large-scale mechanization of cordwood cuttings is undesirable in some sections of the East where woods workers are settling down to become forest residents and part-time farmers. Intensive mechanization, if it required large crews of men, would cause a trend back to localized forest exploitation. Instead, the trend should be toward decentralization

of woods work, localized sustained yield of products, and permanent resident dependency on fairly small units of land. These objectives have guided the Gray Chemical Company in its program of decentralized forest management integrated with a housing program for woodcutters and their families. Local over-cutting in a large, mechanized operation would defeat the purpose of such a program.

Good Forestry Is Good Business

What about the landowner's stake in selective cordwood cutting? Let us suppose that he has a stand of 40-year-old second growth. He can cut it all now, and have no further income from it for another 40 years, or he can remove about *half the volume* in the form of the most profitable trees, and come back in less than half the time (about 15 years) for another cut. If the owner feels that he must cut closer he can remove about *half the trees*, which will result in the harvest of nearly all of the merchantable wood, but will still leave a skeleton forest equivalent to a thin natural stand about 20 years of age. In this case he can cut again in about 20 years at which time there will be another 20-year-old crop to be left.

Present knowledge indicates that the yield of Allegheny northern hardwood stands is higher under partial cutting than under clear cutting management. An increase of as much as 50 per cent appears to be possible. Partial cutting provides a more continuous income from the stand. It also permits the owner to keep some of his growing stock for larger and more valuable products: this possibility is removed if he clear cuts for cordwood.

Some chemical wood plant operators who own forests may take the view that they are simply not interested in *keeping them growing* because the conclusion of the war may see the closing of their plants. Even so, partially cut forests will have a correspondingly higher resale value than clear cut ones, or will permit

(Continued on Page 16)

The State Forests of Sullivan County

by R. C. WIBLE
District Forester

THE STATE FORESTS lying within the Wyoming District extend from Laporte to Hills Grove, Sullivan County. Comprising almost 50,000 acres, these forested lands repose in the heart of Sullivan County amid valleys, streams, and mountains. The State Forest Lands are divided into two main units by the beautiful winding Loyalsock Creek. This region, although primeval in appearance, lies surprisingly near centers of population.

The Department of Forests and Waters acquired these properties in 1930 from the Central Pennsylvania Lumber Company who, in years previous, completed a lumbering operation. White Pine was first cut, sawed, and floated down the Loyalsock in huge rafts. Later Hemlock and hard woods were cut and sawed locally, while the Hemlock bark was utilized in nearby tanneries.

In bygone years many families and communities were employed in the various types of wood industries offered in these forests. The depletion of the forest wealth brought about a natural decline of forest industries. As a result, many thriving saw mill towns as well as villages, supported by tanneries, actually ceased to exist. There are, however, a number of those towns which have lived on in spite of the loss of major industries. Today we have such towns as Forksville, Hills Grove, Nordmont and Jamison City which were prosperous and knew no depression.

Upon acquisition of these forest lands, the Forestry Department immediately set up a program for forest management and development. Good roads now lead to these areas from all directions, making

Reprint from Sullivan Review, Dushore, Nov. 12, 1942.

Fourteen

available all the beauties of nature unspoiled by men.

Forest recreation is the most outstanding feature of the Sullivan County State Forests. Whirl's End Park, now famed throughout Pennsylvania and neighboring states, is visited and enjoyed by thousands each year. In addition to this large recreation area, travelers enjoy hiking and sight seeing on practically every acre of the State Forest. All who have visited the high scenic points on the Sullivan County State Forests extol the beauties that may be found at such points as High Knob Overlook, Loyalsock Canyon Vista, and Hoagland Branch View. Views of mountains, stream and valley from these vantage points can always be appreciated by those who have visited them. They leave with you a memory that is never forgotten.

It is not to be considered that State Forest Land in Sullivan County is confined solely to recreational use. Although these forests were severely cut during the height of the lumbering period several decades ago, there still remain a number of stands of excellent quality hard woods as well as Hemlock. In accordance with good forestry practice, it is the policy of the Department of Forests and Waters to undertake the sale of mature timber to make room for younger and faster growing trees. By no means is it intended that mature and picturesque stands of timber in or near recreational areas be cut for timber purposes. It is felt that these mature trees in recreational areas serve the people of Pennsylvania best as part of the background in park areas and they shall never be removed in a lumbering operation.

The Department of Forests and Waters has been engaged, through the Dis-

FOREST LEAVES

trict Forester's Office at Bloomsburg, in carrying on a systematic timber sale operation. Already 2,000,000 feet of timber has been contracted for and removed from these State Forest Lands.

In permitting a lumberman to cut trees on State Forest Land, extreme care is taken in preparing the contract for sale. Only the mature and larger trees are removed. The operator is required to do as little damage as possible to the remaining second growth and younger timber. He is required to trim the tops and branches so that they lie close to the ground, hastening decay and rot.

An inspection of the first area cut—191—will show that much of the remaining woody debris has decomposed and taken its place on the forest floor. A closer inspection will show that literally thousands of young forest trees have already made their appearance as seedlings. Young saplings and larger trees have taken on a more healthy appearance and will soon take their place as dominant trees in the stand of timber. This system of silviculture is known as "selective cutting." With this system in operation, it is possible to expect crops of timber continually on the same tract. On the basis now used on the Sullivan County State Forests, it is planned that a cutting of large trees can be made every twenty-five years on the same tract of land, thus by the gradual removal of forest products, we will in no way risk the destruction of our forest wealth.

For many years Sullivan County has been known and carries a fine reputation for excellent hunting and fishing within its borders. This is especially true of the State Forest where thousands of hunters and fishermen troop annually. A careful estimate reveals that several thousand deer and approximately thirty bears were shot on the State Forest Lands last fall.

BUY WAR BONDS AND STAMPS

MARCH - JUNE, 1943

WOODPECKERS TO THE RESCUE

The dreaded Dutch elm disease is spread from tree to tree by the elm bark beetle and woodpeckers are known to devour these bark beetles. Thus woodpeckers may aid in checking the spread of the disease.

This is the idea of an experiment now under way in Southern Berkshire County, where the Massachusetts Audubon Society and this Association (Massachusetts Forest and Park Association) have cooperated in an effort to build up the woodpecker population and determine whether woodpeckers will cut down the bark beetle hordes.

Houses designed for occupancy by flickers and hairy woodpeckers have already been distributed and erected on the properties of Rodney S. Jarvis, Great Barrington; Mrs. Rodney Williams, New Marlboro; D. P. Morgan, Stockbridge; Rev. Anson P. Stokes, Lenox; and Mrs. Thomas H. Blodgett, Great Barrington.

Surveys are being made of the present woodpecker population. The boxes will be checked from year to year to see to what extent they are used. Planting of food plants favored by the woodpeckers will be undertaken if these are found to be lacking. Further studies will then be made into the insect situation and the value of the idea of increasing the woodpecker population as a means of fighting the Dutch elm disease.

*(Forest and Park News,
Massachusetts Forest and Park Association)*

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Keep Them Growing

(Continued from Page 13)

the owner to continue to produce other forest products, such as pulpwood and logs. Selective cutting provides the owner with an opportunity to cushion himself against unpredictable post-war conditions. In the aggregate, an increase in partial cutting will help a great deal to insure the future of the local forest industries and their resident dependents.

In the planning of selective cuttings, there are a few precautions which the forest owner should observe. The best yield can be obtained from Allegheny northern hardwoods by getting into the stand fairly early for the first selective cutting. Before the age of about forty years the stands show the best growth response to partial cutting treatments. The owner should aim to spread the benefits of selective cutting to all of his timber stands before they pass this pliable stage. The first trees to be removed are the large, branchy, dominant "hold-overs" and those of sprout origin which have gotten above the general canopy level; they are the most profitable trees for cordwood conversion in young stands.

The earliest and most frequent selective cuttings can be made on the best soils and in the thickest stands where the prospects of increased yield are best. Understocked stands are not suited for light cuttings, for it is impossible in them to get a profitable cut per acre and at the same time to leave a good growing stock. Such stands should be left until they fill in naturally.

A New Chemical Wood Tradition

Good selective cutting practices for chemical wood will not be attained on the Allegheny Plateau overnight. However, they represent a goal toward which the industry should be moving. Clearly, the first step in this direction is to leave small trees uncut. It should be possible within a reasonably short time to spread

Sixteen

throughout the industry the thought that cutting small trees delays victory. Undersized trees cause waste of labor time, and undersized wood from small trees wastes space in trucks and retorts. With the present shortage of labor, it is essential to concentrate cutting on the profitable sizes of trees. To make it easier for woods workers to swing into this improved system, the pole skidding method should be instituted wherever it is feasible. Give the woodcutter the mobility that this method affords him to select the war-worthy trees. Leave the small ones in the forest—*keep them growing.*

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Whole Number 315

Community Forests Their Function and Value

by H. GLEASON MATTOON

NO STATE IN the Union offers greater opportunity for rural development through forestry than Pennsylvania, because it is primarily a forest land State with large areas of cut-over land, many wood using industries, dense population, a need for diversification in rural employment, an excellent Department of Forests and Waters, well informed planning agencies and, we believe, a conservation minded public. With these qualifications both the incentive and opportunity for expansion of the community forest idea is apparent.

A community forest is an area of

woodland or potential woodland, owned and operated by a city, township, borough, school district, county, or other political subdivision of the State for the benefit of all persons through production of forest products, conservation of water, protection of wildlife, control of floods and erosion or provision for recreation.

Every so often a community becomes famous for some outstanding achievement. Usually the accomplishment is the result of leadership by some individual, working alone or through an organization, who has the vision to see an opportunity and the tenacity to persist until it is grasped by the community.

In that way will the community forest idea spread. There will be no spontaneous uprising to demand that each community create a forest. On the contrary any progress that may be made will be due largely to the spirit and perseverance of certain individuals.



Students clearing out stumps in preparation for replanting in conifers.

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Students clearing out stumps in preparation for replanting in conifers.



Dedication ceremonies of a school forest.

The establishment of community forests will probably be only one of many developments which may be needed to aid in solving post-war problems, but the idea has merit not only because it will provide local employment during the adjustment period; because it may put to use land from which no tax income has been received for many years and because it will afford an opportunity to prove the value of conservation of our forests in each community, but also because it will create more surely in the mind of the individual the consciousness of ownership with its attendant desire for protection.

Each community must develop a program according to its own needs. If tax delinquent lands are available, the possibility of creating a county forest should be explored. The County Forest Law of 1935, which the Pennsylvania Forestry Association fathered, was written primarily for the purpose of putting to economic use tax delinquent lands.

Whatever the type of forest, whether borough, municipal, township, county

Two

or school, it will present its only problems and offer benefits. Whatever the administrative set-up, the management plan should look toward eventual revenue producing possibilities in addition to its recreational advantages.

It is our hope that much emphasis will be given to the school forest, not because of its economic aspect but almost wholly for its educational value.

It is not easy to teach an old dog new tricks. If our attitude toward forests has been that of carelessness or indifference for twenty-five years, we will not readily change; on the other hand through the school forest the minds of the children may be so moulded that they will forever remain conservation minded.

Then, too, when we look in on some of the rural communities which are plagued with submarginal land problems and see how much these people miss in life because of the absence of pleasant surroundings, the lack of opportunities for recreation, the unwholesome social attitudes which seem to go with rural slum conditions, we realize that anything

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FOREST LEAVES

Friends of the Land

by HILDA V. FOX

WHAT'S IN A name? "Friends of the Land"—could any name be more challenging or more conducive of the best thinking and finest instincts of the Brotherhood of Man?

Some five years ago when a comparatively small band of dreamers (I prefer to call them "realists") organized a "non-profit, non-partisan association to support, increase and unify all efforts of conservation of soil, rain and all the living products, especially Man," Pennsylvania's own Morris Llewellyn Cooke was chosen as president. As meetings were held in first one and then another important city in various agricultural sections of the country—attended always by leading bankers and industrialists as well as by those more intimately connected with the land—the press eagerly carried their message to every afflicted soil-conscious area in the country. With the inspired Louis Bromfield and other well-known authorities on land conservation methods to speak for them, "Friends of the Land" are fast becoming legion.

The first meeting in Pennsylvania was held in Philadelphia on February 25th, 1943 with the following organizations as sponsors: Council for the Preservation of Natural Beauty in Pennsylvania, Dairy Council, Delaware Valley Protective Association, Friends of the Land, Garden Club of America, Horticultural Society of Chester Co., Pennsylvania Economy League, Pennsylvania Federation of Garden Clubs, Pennsylvania Forestry Association, Pennsylvania Horticultural Society, Pennsylvania Land Conservation Association, Pennsylvania Parks Association, Pennsylvania Roadside Council, Inc., Philadelphia Federation of Women's Clubs and Allied Organizations, Quaker City Farmers, Penn-

sylvania School of Horticulture for Women, Schuylkill River Restoration Society. Eleven hundred people filled the ballroom of the Benjamin Franklin Hotel and listened intently throughout the day to the pleas of the brilliant speakers who represented various fields of conservation.

With the Executive Director of the Pennsylvania State Planning Board very appropriately presiding, the "Conservation of Our Rivers" was the first topic for consideration at the morning session. Judge Grover C. Ladner, the indefatigable President of the Schuylkill River Restoration Society, and Ellwood J. Turner, able Chairman of the Interstate Commission on the Delaware River Basin, discussed the present condition of our rivers as compared to what they can and must become. George H. Wirt, Chief of the Division of Protection, Pennsylvania Department of Forests & Waters, sounded a warning note on "Conservation of Our Forests," followed by Dr. Hugh H. Bennett, Chief of the U. S. Soil Conservation Service, with many awing facts and figures on soil erosion, including those of the last 25 years. The over-all economic picture was painted by a master hand, that of Dr. Alfred H. Williams, President of the Federal Reserve Bank of Philadelphia.

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Dedication ceremonies of a school forest.

The establishment of community forests will probably be only one of many developments which may be needed to aid in solving post-war problems, but the idea has merit not only because it will provide local employment during the adjustment period; because it may put to use land from which no tax income has been received for many years and because it will afford an opportunity to prove the value of conservation of our forests in each community, but also because it will create more surely in the mind of the individual the consciousness of ownership with its attendant desire for protection.

Each community must develop a program according to its own needs. If tax delinquent lands are available, the possibility of creating a county forest should be explored. The County Forest Law of 1935, which the Pennsylvania Forestry Association fathered, was written primarily for the purpose of putting to economic use tax delinquent lands.

Whatever the type of forest, whether borough, municipal, township, county

Two

or school, it will present its only problems and offer benefits. Whatever the administrative set-up, the management plan should look toward eventual revenue producing possibilities in addition to its recreational advantages.

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FOREST LEAVES

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and related subjects.

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JULY - OCTOBER, 1943

MUSTERING IN THE WOODLOTS*

When discussion turns on shortages of essential war materials, not so many in the community at large are apt to think of pulpwood. Yet far the greater part of domestically produced pulpwood is devoted to products essential to war-making.

The uses of pulpwood for war purposes are manifold. It is essential to the manufacture of smokeless powder, rayon for parachutes and medical dressings for the sick and wounded. Fibre-board containers are required for overseas shipment of food, supplies and munitions.

As the Army grows in size and the range of its activities increases, demand for pulpwood becomes greater.

The Manpower Commission has therefore declared pulpwood cutting an essential activity. That makes fulltime pulpwood cutters eligible to draft deferment and permits the granting to farmers with whom pulpwood cutting is a part-time activity credits toward draft deferment of farm help.

The threatened 1943 shortage of domestic pulpwood is 2,500,000 cords.

Making up this deficit is an entirely practicable proposition. Donald Nelson, head of the War Production Board, has estimated that it can be done if every one of the 3,800,000 farmers in the 27 pulp-

*From *The Evening Bulletin*, Philadelphia.

wood producing states will devote three extra days this year to cutting pulpwood. There is plenty obtainable from the forests and farm woodlands.

Mr. Nelson has approved the pulpwood production drive of American newspapers as a valued assistance to the efforts of WPB in that line.

The farmer with a woodlot or living near forested regions has a unique chance to serve the nation and turn idle trees into dollars in his community. It is a real salvage campaign, proposing to utilize for war, resources which would otherwise be untouched.

If the cutting is done properly, woodland thinning which will result will add to the value of the forests.

By pointing out these opportunities and by organizing activities which might be overlooked, especially in remoter sections, a substantial contribution to the war effort is being made.

COMMUNITY FORESTS

(Continued from Page 2)

that can be done to raise the standards of living and create a more agreeable social attitude on the part of the people, is worth the effort.

A forest will cost the community money for a few years. There will be those who are so conscious of this fact that they will prefer not to talk community forests. If such a forest did not cost money it would be worth little nor would the people of the community value it highly. Of course, the establishment of a community forest costs money. Those who champion such a project must not pussyfoot on this feature, for if they do, all their effort will be wasted as soon as the city or borough fathers wake up to the necessity for appropriating money.

By no alchemy can a forest be developed without money, labor and material, but it will bring back manyfold the dollars and hours spent honestly upon it. Upon that basis must a community forest be built.

Drastic Forest Regulations In New Omnibus Bill

FEDERAL REGULATION of forest practices on private lands, with great powers centralized in the Secretary of Agriculture, features the new forestry omnibus bill introduced on July 8 by Senator M. G. Wallgren of Washington. Unquestionably the most drastic regulatory measure yet presented to Congress, the bill S. 1330, consists of ten titles, each in effect a separate bill. Title No. 1, devoted to public regulation of private forest lands, would be known as the "Forest Practices Act." The other titles have no connection with regulation.

Referred to the Senate Committee on Agriculture and Forestry, the bill would empower the Secretary of Agriculture to regulate cutting on forest properties, whether in public or private ownership; would create administrative areas, without regard to state or property boundaries; and would control interstate shipment of forest products.

It would invest in the Secretary authority to deal direct with forest operators and forest products industries in establishing cutting rules, would authorize his agents to examine records of forest and mill operators, to inspect activities, and take over the administration of properties.

To advise the Secretary, the bill calls for the establishment of a National Forestry Board of twelve members, to be appointed by the President. Membership would be made up of representatives of industry and labor, from groups representing forest owners, farmers, transportation, natural resource conservation, water conservation and the ultimate consumer of forest products—the public. Area advisory boards would be appointed by the Secretary in the "administrative areas" the proposed act would establish.

The "rules of forest practices which

the Secretary, under the provisions of the bill, would be empowered to set up, have as their objectives:—(A) Providing for adequate restocking after cutting with trees of desirable species and condition; (B) prohibiting premature or wasteful cutting in young stands; (C) providing for reserving for growth and subsequent cutting a sufficient growing stock; (D) preventing the use of logging methods or other practices tending to cause avoidable damage to uncut trees or young growth; (E) regulating grazing and protection of watersheds; and (F) prohibiting clear cutting, or limiting the size of a tract that may be clear cut, in areas where clear cutting will seriously interfere with protection of the watershed, or in order to maintain a suitable growing stock or insure natural reproduction."

The Secretary would also be empowered to include forest practice rules concerning forest fire control, disposing of logging slash, and provisions regarding removal of diseased and insect-infested trees—matters now dealt with under state laws.

Under the law, forest land owners would be permitted to prepare their own working plans provided they are approved by the Secretary and accomplish the objectives set forth in the official rules of forest practices. Recourse to the courts would be possible in the event of an adverse decision by the advisory boards or by the Secretary.

The bill provides elaborate machinery for enforcement. The Secretary may provide for field inspections to determine whether established forest practice rules are complied with; he may require each operator to keep records of his operations, give notice of his intention to cut living timber, and make such other reports as may be called for. Violation of

the provisions of any forest practice rule or failure to carry out the provisions of any accepted working plan would be subject to a \$10,000 fine. Failure to keep the records called for would be subject to fines of \$50 for each omission.

The main weapon of enforcement, however, is set forth in the section making it unlawful for any person "to transport, ship, offer for transportation, deliver or sell in commerce, or to ship, deliver or sell with knowledge that shipment or delivery or sale thereof in commerce is intended, any forest product produced in such state or region unless a certificate has been obtained therefor."

Thus interstate shipments of forest products would have to be accompanied with a "certificate of clearance" testifying that the products in question were produced in accordance with the forest rules of the Secretary of Agriculture. By refusing to issue certificates, the Secretary could in effect prevent the marketing of any forest products cut in violation of any forest practice rule, since transportation companies would be held responsible for obtaining certificates before accepting products for shipment. Enforcement would be obtained by injunction and by a \$10,000 fine.

The bill's definition of "forest land" subject to the proposed regulations is quite broad. It states: "Forest land includes any land bearing a growth of trees of any age, and any land from which the tree growth has been removed by cutting or otherwise and which is suitable chiefly for forest crop production, and any land on which a sustained growth of trees, arborescent growth, or chaparral is necessary for protecting and conserving the water and soil resources and regulating run-off."

Forest lands exempted under the law are: "All small woodlots the forest products of which are wholly or almost wholly (1) used by the forest operator for domestic, non-industrial purposes and (2) not marketed in commerce." The Secretary may also exclude other forest tracts regulation of which for various reasons is not considered essential.

The nine other titles within the omnibus bill, many of which were suggested in the recommendations of the Joint Committee on Forestry in its report of March 24, 1941, deal with Clarke-McNary Act amendments, forest management and utilization extension, forest cooperatives, forest insurance, community forests, forest survey amendments, national forest planting, financial contributions to local governments, and national forest acquisition.

TITLE No. 2 would liberalize the use of Clarke-McNary funds, basis for federal and state cooperation in forest fire prevention, forest planting and other items of forest extension, or permit appropriation of larger sums. One section would extend the use of funds for production of forest planting stock to all classes of forest owners instead of confining them largely to farmers as at present. Appropriations in excess of the \$100,000 set forth in the original act for this purpose would be permitted.

Another section would liberalize the provisions of the original act for giving technical assistance in forestry to farmers and increase the authorization for federal expenditures from \$100,000 to a maximum of \$2,500,000. It is also proposed to amend the act so that broader powers would be given to plan and direct surveys "on any forest land" for the detection and control of insect pests and plant diseases.

Still another section would repeal the provision now in the Clarke-McNary Act requiring that state funds be contributed to match federal expenditures. The funds under the act, if amended, may be expended "upon the basis of such contributions from cooperating agencies as the Secretary of Agriculture may require, in the form of services, materials or otherwise."

TITLE No. 3 would increase federal assistance to forest landowners and forest industries in process of growing, harvesting, processing and utilizing forest products. It provides for cooperation on a financial basis with public and private agencies and with individuals.

TITLE No. 4 would increase the authority of the Secretary of Agriculture to assist in the formation of forest cooperatives among forest landowners to further the growing, harvesting and disposition of forest products. It would also authorize the Secretary to assist in financing such cooperatives in their formative stage.

TITLE No. 5 would establish federal forest insurance against loss by fire or tornado under amended provisions of the Federal Crop Insurance Act.

TITLE No. 6 would appropriate not more than \$750,000 annually to complete the survey of forest resources begun in 1928 by the U. S. Forest Service and to keep it up to date.

TITLE No. 7 would make the Fulmer Act of 1935, giving financial assistance to states in the acquisition of state forests, more workable and authorize an appropriation of \$10,000,000, of which not more than \$2,500,000 would be appropriated in any one year.

TITLE No. 8 would amend the National Forest Planting Act of 1930 to increase appropriations to "such sums as may be required" annually. The original act limits appropriations for restoring to productivity by planting millions of acres on the national forests to a maximum of \$400,000 annually.

TITLE No. 9 would change the basis of financial contributions from national forest receipts to local governments.

TITLE No. 10 proposes two additional bases for purchase of lands to be added to national forests. The first would be to permit purchase of immature or merchantable timber at prices approximately its expected value at the end of a sixty-year period. The second would be an authorization to the Secretary of Agriculture to borrow from the Reconstruction Finance Corporation sums not to exceed \$250,000 outstanding at any time, and at a rate of interest not in excess of three per cent, for purchase of lands, including lieu payments for taxes and other expenses.

Reprinted from "AMERICAN FORESTS,"
Volume 49, Number 9, September 1943.

Threat of Logging in Olympic National Park

MOUNTING DEMAND for the cutting within the boundaries of Olympic National Park of Sitka spruce to be used in airplane construction constitutes the greatest present threat to the integrity of the National Park System. Our information is that Secretary Ickes is still standing firm, and that there are still good opportunities for securing the needed supplies from other areas in the northern Pacific states and from the forests of Alaska and British Columbia. The National Parks Association strongly supports the Secretary's attitude. It must be recognized, however, that if the war lasts as long as is to be reasonably expected, necessity may require that some of the spruce will have to be made available. In this connection it seems appropriate to publish the resolution which appeared in the July-September issue of National Parks Magazine, as follows:—

Resolved that in view of the continued and increasing pressure for the cutting of Sitka spruce and other species of timber suitable for airplane stock within the present Olympic National Park, the National Parks Association hereby reaffirms its unalterable opposition to any commercialization of the resources of the national parks. Only if a point is reached in the war effort when it appears to the satisfaction of the responsible Government authorities that such timber is imperatively required, should any of the irreplaceable forests of the Olympic National Park be sacrificed. In our judgment, furthermore, that sacrifice should be made, not by permitting cutting within the park boundaries, but by permanently excluding certain forest areas from the park. Let no one be deceived by the assertion that so-called selective cutting can safely be allowed within the park. The inevitable result of such logging will be the complete wreckage of the primeval forest.

Conservation of Our Forests

by GEORGE H. WIRT

WHY ARE WE concerned about the conservation of forests? What do we mean by "conservation" when we associate this word with "forests"? Just what is a "forest"? What does such a thing have to do with us or we with it, and why should forests be "conserved"?

These may be trite questions, but nevertheless, until we have sensible answers to them and some definite ideas based on facts and fundamental principles concerning both forests and conservation, our words and our time will have been wasted and our conservation program will be duds.

First, let us clear up our conception of a "forest." There was a time when a forest was any area declared by the King to be a forest, and as such it was subject to forest laws, administered by forest officers and forest courts. It might include wide stretches of bare land, individual homes or whole villages with only a sprinkling of trees. For administrative purposes we have almost the same thing with the exception of the special courts in portions of the National Forests of the West.

But for the most part, those of us here in the central part of the Atlantic seaboard think of a forest as an area more or less closely set with trees. There the common picture ends. Whatever else is added in individual cases results from personal relationship with forests or information concerning them. It is not reasonable to expect that every citizen shall have a complete picture and understanding of the complexity of a forest and of the far reaching part forests play in the life of a people. But at least a large minority must have that understanding and common knowledge before any appreciation of forest values will make itself felt in the life of the Commonwealth. Widespread misinformation and lack of knowledge relating to forests

have been and still are outstanding factors responsible for the drag of sensible conservation programs.

Briefly the following are some of the important fundamental facts which must be included in our conception of the "forest."

1. The forest is a complex biological aggregation composed of plant and animal life and is dependent upon soil, water, air, sun, and time for its existence.

2. The plant and animal life of the forest occupy an area of soil and for practical purposes may be thought of as a crop of the soil.

3. The outstanding and determining factor of the forest association is the tree, individually and in groups, in whole and in part. Without trees there would be no forest and no forest conditions.

4. Tree growth with its attendant conditions is peculiar in that each year's accretion is added to the accumulated growths of preceding years. The total wood volume of a tree at the beginning of a growing season is the working capital upon which the new year's crop is deposited. This corresponds both in theory and practice to the accumulation of a trust fund, the interest being added to the principal and that total becoming the principal upon which the next year's interest is earned. This is the theory of compound interest. Incidentally we learn that Nature is decidedly capitalistic and it is evident that those who would get rid of the capitalistic system will have to do away with Nature.

5. The forest crop as developed by and stored in trees, takes a very small percentage of its volume from the soil. The real natural resources which are caught and stored by the life functions of tree-parts are sun, wind, and rain.

6. Because tree requirements from the soil are so slight, trees and forests can occupy to advantage any land area not

required for food crops, or for other economic purposes.

7. Since it is impossible to harvest each year's crop of wood as such without killing the trees, since Nature has provided for the storage of crop upon crop, since economic use and value increases with size and quality of trees, time is an essential factor in producing and harvesting forest crops.

8. As the laws of living for an individual person differ from the laws of living for a group of persons, so there are laws which affect trees in groups, as well as the ordinary laws of plant growth affecting individual trees.

9. In a primeval forest, and under many conditions in uncared for forests, new growth is offset by decay. It has been proved by several centuries of experience that the accumulated growth of forests may be removed and used, and yet at the same time the forests and forest conditions may be maintained.

10. The sun, wind and rain that come to an acre of soil in one year which is not crystallized into tree growth, never can be picked up.

11. Trees, singly and in groups, mechanically and through their plant functions, react upon soil, moisture and air, and upon plant, animal and human life. The individual who owns forest property in fee cannot restrict the benefits of the forests to himself, nor can he prevent the outflow of malefactions from undeveloped or mismanaged forests.

12. The forces of nature making up a forest can be controlled and guided by man for man's benefit.

There are other peculiarities which need not be recited here.

In recent years there has been a considerable group of people ready to support mistaken ideas such as the following and others like them:

"A few scattered trees constitute a forest."

"Forest protection will result in satisfactory forest growth."

"Planting a tree for each tree removed from a forest will perpetuate the forest."

"One of the post-war projects should be the cleaning out of our forest areas to make them look like the managed forests of Europe."

"Immature trees should never be removed from the forest."

"No trees should be cut at any time."

"Changing the title of forest land from private ownership to State or National Government ownership will accomplish all the blessings a forest can bestow upon a community."

"Christmas trees should not be removed from forests."

To complete the answers to our questions it must be stated here that the forests of our country have been of vital importance to each one of us, and those who have preceded us. Forests offered untold opportunities and at the same time set up limitations for economic development of our people. Wood products and forest influences have made possible our wealth, industry, business, comfort. Without wood in plentiful quantities and without forest influences certainly we could not live as we have been accustomed to live. Without wood in enormous quantities we could not win the war we're in. And without wood and the many benefits of productive forests we shall not be able to maintain our way of life in the future. Even where wood is of minor consequence, forests are essential for the continued welfare of large groups of people.

Now what shall we set up for our understanding of the word "conservation"? In common usage it means "saving," "guarding," or "preserving." In spite of the efforts of Theodore Roosevelt, Gifford Pinchot, and others during the past thirty-five years to impress the people of America with an expanded and deeper meaning of the word, its common and homely meaning seems to prevail. Therefore, if those of us who are interested in sensible, practical, and effective private and public policies with respect to natural resources intend to continue to use the word "conservation," we must learn to use it correctly and with all the

implications that belong to it. It will continue to be our job to make our meaning and intention clear to the rank and file of our people.

Theodore Roosevelt's definition of the conservation of resources, "perpetuation through wise use," and Pinchot's explanation of "the application of common sense to common problems for the common good" are easily understood and just about cover the field.

Now with such a basis for common understanding what is the problem before us with respect to the conservation of forests?

Probably the most obvious problem (or problems) has to do with our supply of wood. Shortly after the establishment of the Massachusetts Colony there were some who predicted and viewed with alarm a scarcity of wood. Their followers have been numerous and are with us today. In spite of these people and their agitation, primeval forests have been eliminated from the face of the country, except for those in the Northwest. Heavy inroads have been made upon the forest growth that has developed since primeval conditions. Millions of acres of land have been made desolate and wood-needs have had to be transported thousands of miles. Yet we still have wood. Nevertheless, five generations of American citizens have developed under a philosophy of waste and greed with respect to wood because the forests of the country were commonly considered to be "inexhaustible."

Paralleling this blissful orgy of waste was another policy which has been more or less peculiar to America. The first settlers who came here and those who succeeded them were given so-called title to land. We are a people of homes and home owners. Not only a man's home was and is his castle, but his land has been his own. He could do with it as he pleased. Up to now we are a free people and most of us still believe that we can do as we please with our own property. Land is plentiful and when

one piece ceases to be productive it has been easy to move and to be established somewhere else.

Both of these policies and developments have produced tremendously beneficial results in the life and prosperity of our country, but nevertheless, we have paid and will pay dearly for the damage that has been done. It is our job now to bring about a reasonable adjustment between the land policy which is an essential part of our liberty, and an almost complete reversal of our attitude to forests as the source of one of the raw products without which we cannot maintain our liberty.

There are millions of acres of land which must be put to use as rapidly as the economy of the times will permit. The productive powers of Nature must be harnessed and directed. Our needs for wood can be supplied and our uses of wood can be greatly expanded, in fact, the forests of the future will be the source of all kinds of power. But above all, we need the facts of the situation.

Forests must be maintained upon millions of acres of land for reasons other than the production of wood and many other important tree products. Soil must be stabilized and rebuilt. Water must be stored and filtered. Opportunities for the use of labor must be developed. Land values must be increased. Wild life must be retained. Favorable climate must be continued. Beauty of country must be maintained. Individual and community health, wealth and welfare must be guaranteed.

The war in which we find ourselves is in itself a most conclusive proof of the "godless and soulless lust for power" both on the part of individuals and those in control of peoples. As a free people with initiative and the spirit of cooperation we must develop our resources so as to maintain our liberty without the possibility of dictatorship or of establishing any policy even closely approaching such a catastrophe.

Pennsylvania Nut Growers' Association

A Practical Body of Nut Growers Whose Aim Is to Stimulate Greater Interest in Nut-Tree Planting



Black Walnut Kernel

Annual Winter Meeting of Nut Growers Notice! Notice!

A Round Table Conference of
THE PENNSYLVANIA NUT
GROWERS' ASSOCIATION

will be held at the regular winter rendezvous with the Farm Show program. Farm Show exhibits, of course, are out for the duration. But as a sacred ritual to the sincerity of those who "love the soil" a framework is held together by farm groups gathering to discuss "a way to victory." No, I'm not thinking of the war. Wars are lost in either victory or defeat because the spirit that attempts to solve problems by war creates turmoil wherever found. Hence, there's no peace for war makers.

We, the aristocrats of creation (soil dwellers), should gather together to discuss profitable nut growing and thereby keeping OUR end up. Date—

THURSDAY—ALL DAY
JANUARY 20, 1944

Come with your problems and we'll discuss them together. We hope we have some interesting speakers present—BUT no set program will be prepared.

Location will be announced later.

JOHN W. HERSHEY, Secretary

Exploring the Shagbark Species

by J. RUSSELL SMITH

I HAVE 40 or 50 varieties of grafted shagbark trees (*Carya ovata*) in a hillside pasture where I am observing the variations, not to say the vagaries of a species of which we need to know a great deal more than we now do. Perhaps I need scarcely say that a variety is composed of the trees produced by growing the buds or grafts of one tree. Thus all the qualities of the parent tree are perpetrated.

As my shagbark trees begin to get established it is astonishing what a variety of appearance they present. Some are very dark green, with heavy leaves. The top is compact—almost a solid ball of foliage. Others are long, rangy, rather open-topped, with leaves of lighter hue. At a distant view one would scarce think of them as being the same species.

This species varies in several respects as much as it does in over-all appearance. It is well-known, of course, that while the flavor of the kernel is delicious, most of the trees bear nuts of such a form that the kernel can only be secured in small pieces. Occasionally, however, there is a wild one with the interior structure somewhat like that of an English walnut, permitting us to get the meats out in complete halves.

It is such trees as these that have been the object of search for many years by the Northern Nut Growers Association, and there are now some 50 to 75 that have been named and are under test in several places. What would happen if these best known trees were crossed with each other? Here is an interesting field for some plant breeder. He can use my trees if he wishes.

Not only do shagbarks vary in quality of the nut, but they also vary in quantity of crop and in the age at which they begin to bear. Some of them settle down and go to bearing by the time their

(Continued on Page 15)

More and Better Walnuts

FOR FORTY YEARS individuals and associations with vision have attempted to find better varieties of black walnuts. The few varieties now known are chance discoveries made by nursery men and others who happened to notice their superiority over the common run of black walnuts. That they are improvements cannot be denied, yet in percentage of kernel and ease of cracking they are far from the optimum that should be expected.

For the purpose of finding superior varieties a walnut contest, open to everyone, is now inaugurated by leaders in farm and nut circles. Commenting on the contest Wheeler McMillen, President of the National Farm Chemurgic Council said:

"As our natural mineral resources become increasingly costly to exploit, the hope of abundance grows brighter in the nation's laboratories. Organic chemistry and plant genetics, functioning with other sciences in the spirit and concept of chemurgy, are yielding unbelievable results. New materials, often better than the things displaced or supplemented, and even things entirely new to man's use, are appearing.

"The grand old American black walnut has an important part in this picture. The shell is known to have over 32 uses. The kernel, aside from being one of the best foods, has potential values as a source of oil, said to be better than linseed oil. The hull is used in medicines and cosmetics, while the timber has proven one of the best investments ever known.

"It has lifted a mortgage and prevented bankruptcy.

"The benefits of trees and their products accrue to those who keep planting trees or seed. Modern selection makes available the fastest growers and those that bear the thinnest shelled nuts."

Said John W. Hershey, Secretary-Treasurer of the Pennsylvania Nut Growers' Association:

"Science has shown remarkable progress in improving the quality of the common flock or herd by introduction of better males and females.

"History tells us the wild hard-shelled almost inedible nut of Northwest India evolved into our present strain of English walnut by always planting a better nut. All the remarkable varieties of the pecan sprang from nuts planted by some farmers who thinking—'this nut is so fine it's a shame not to have more like 'em'—planted them.

"And so it is, in the great American black walnut family. Nature did a little selecting, man caught them through contests. Research has proven the seedlings from improved varieties, especially the Thomas, have better nuts than the common run seedlings of the wild sometimes superior to the Thomas itself. Yes, by making 'better nut plantings' a family ritual each year we have evidence we can raise the cracking quality of the American walnut to the standard of the English walnut or pecan."

Said M. Glen Kirkpatrick of the FARM JOURNAL, leader in America's Farm editorial field:

"Native nut trees are more valuable than ever because of the need for food, feed, lumber, essential oils and other products that trees can supply. Trees of this kind can be grown on land too rough for cultivated crops. That makes trees all the more valuable. Unlike some other types of woodland trees, walnut trees provide more than a single source of income. While producing cash crops for the farmer, they're growing timber for the children's children. Time shows, trees planted today are mortgage lifters. Those not planted are gully washers.

"We can count on the tree crop experts making more progress. Their progress would be even more rapid if farmers would back them up with a genuine interest in tree planting. If farmers would plant the nuts, acorns and fruits from their most desirable crop trees, there would be a broad base of tree crop improvement on which the tree crop spe-

cialists could operate much more effectively."

PROCEDURE

Sunday School Teachers, School Teachers, 4-H Club Leaders, County Agents, Scout Leaders and Parents

1. Instruct your group to ask questions. This will locate the best tree in your community. If you can find a grafted tree, by all means use nuts from it.
 2. Hull them when the nuts fall. The owner will be glad to cooperate in giving you some of the nuts to plant. Often you can gather and hull the crop on halves. The autumn social rating should be gauged by heaviness of walnut stains on the hands, as walnut stain should be the earmark of good citizenship.
 3. Let them dry a few weeks in the shade protected from squirrels, rodents, or sisters who love to make nut goodies.
 4. Stratify—use a cigar box or one larger, put a layer of sand in the bottom then a layer of nuts, alternate until box is full.
 5. Sink in garden—top with ground level. Cover with fine wire to prevent rats or squirrels from stealing.
 6. In early spring bring nuts out—go along fence, near streams, hillsides, open spots in the wood lot. Make holes two inches deep with a blunt stick, forty feet apart, drop in nut, then tramp with heel.
- Do this year after year in the Boy Scout's Nut Planting Week. Replant missers in previous years planting. Make a record how young trees are doing, note age they bear and quality of nuts. When they're extra fine, report to the Pennsylvania Nut Growers' Association, the Director of Rural Scouting, or your farm paper. And, as young trees bear better nuts than ever grew before, plant them.

And as Lowell Thomas says on his news broadcast, "Here's an item just in." Nut Tree Culture in Missouri Bulletin

No. 454 by T. J. Talbert, Chief of Horticulture in that great nut state. Address him for a copy, University of Missouri, Columbia, Mo.

Not only can I say without reserve "it's a GOOD bulletin untainted by typical departmental caution and lack of clarity that leaves the reader wondering what it was written for." I, personally know Prof. Talbert and his work which started working on nut culture his program has been "how to make nut culture profitable in Missouri." Yes, his bulletin is interesting reading.

R. E. Hodgson, University of Minnesota, reports to us that he gathered a crop of Thomas walnuts on the University Farm this year which were of fine quality.

Startling is the information that's come to this desk on the volume of nut trees sold in the spring of '42.

One nursery in Tennessee sold 50 thousand Chinese chestnut trees. A nursery in Arkansas sold a few thousand Thomas walnuts. A nursery in Oklahoma sold two thousand Thomases. All this besides the many smaller nurseries' sales make it look like—yes, people are starting to Plant for Meat.

"Us Northerners" better wake up or the South will steal the ball in walnut and chestnut planting as they did with the pecan.

Other points of interest:

Two nation wide magazines carried articles recently,

"Tree Crop in a Permanent Civilization"—Country Life.

"How to Grow Meat on Trees"—Better Homes and Gardens, October issue.

Farm Journal is now running a monthly column on "Tree Crops."

Two other nation wide magazines volunteered the information they want to do more for nut trees.

The Chemist Looks at the Wood

NEW CHEMICAL treatments that virtually endow wood with the properties of a plastic and give it added strength, wearing qualities, hardness, and warp and swell resistance were described by Dr. J. F. T. Berliner of E. I. du Pont de Nemours & Company.

Treatment, by these new chemical methods, develops such unusual properties that "actually we are no longer dealing with wood," he declared in a recent address before the Eastern Lumber Salesmen's Association at the University Club, Philadelphia.

Describing the new treatment by which poplar, for example, can be made as hard or harder than maple and given form stability and other desirable properties, the speaker said:

"It has been found that when wood is impregnated with a resin solution such as lacquer, the resin may fill the wood cells but the properties of the wood are not fundamentally altered. It will still shrink and swell with changes of humidity, and the grain will raise when a sanded face is exposed to moisture.

"However, if the wood is impregnated with resin-forming chemicals capable of reacting with the wood cellulose, and the resin then produced within the wood, the properties of the wood are profoundly altered. When sufficiently treated, the wood is dimensionally stable under varying humidity conditions, does not show grain raising, is hardened, can be highly polished, has increased wearing qualities, and has markedly increased compressive strength as well as much higher strength in tension across the grain. In fact, the tensile strengths in all directions tend to be the same, a most unusual property for wood."

Soft maple thus treated may even be used to replace dogwood in textile shuttles, Dr. Berliner stated. Here the compressive strength of wood as well as its hardness and resistance to moisture can

be so increased that treated wood may be substituted for steel in certain textile machinery parts where wood has hitherto been unusable.

The speaker noted the post-war possibilities of dimensionally stable lumber to eliminate the sticking drawer, door or window, and of finishes formed in the wood so that beautiful woods like cypress could be used for purposes other than paneling, siding, shingles and tanks.

An important development of the war period has been the production of large composite beams, arches, boards and the like from small, readily produced, easily dried sections by gluing, he said. Boards and sections in sizes unobtainable from natural sources are now in regular production.

"You do not have to have a big tree to get big timbers, structural members, or boards," he stated. "Heretofore one had to seek long and far to obtain a 12 by 12 inch side-cut oak timber and then wait several years to condition it for use. Now, however, small sections of oak may be cut and fabricated into a 12 by 12 inch in a matter of a week or so."

He described the introduction of chemicals which allow wood to be readily bent and shaped like a plastic as follows:

"Wood is impregnated by soaking the green wood in a water solution of urea or by subjecting the wood to heat and pressure in the presence of urea. The urea-treated wood when heated by temperatures near the boiling point of water becomes plastic and is readily bent. On cooling, it regains its original rigidity and retains the shape given it while hot. On heating, it may again be softened."

The speaker enumerated five divisions into which wood treatments may be classified, as follows: preservation, including flame, insect, rot, and chemical proofing; reassembly, or making plywood, plastics, paper, paperboard and such products from wood; chemical con-

version of wood into rayon, cellophane, sugar and alcohol, explosives, distillation to form charcoal, methyl alcohol, acids, and conversion of lignin to adhesives, plastics and vanilla flavor; drying or seasoning; and altering mechanical properties such as hardening, increasing strength, bending and dimension control.

These advances Dr. Berliner ascribed to the chemist's attitude toward wood as a raw material, the properties of which he considers may be altered as desired. The chemist is challenged by the assumed limitations of wood, such as slow drying; its tendencies toward splitting, checking and warping during drying; flammability; rotting; swelling and shrinking with humidity changes; that it does not grow fast enough, tall enough or thick enough.

By removing the handicaps of unalterable properties and dependence on logging certain size trees for certain dimensions, chemical science has gone far toward reestablishing the position of wood in competition with other materials.

Plastics and metals for years had been pushing wood from fields which it had possessed exclusively. This was because the other materials were fashioned to conditions demanded of them, even to the point of simulating wood in appearance.

Now wood has a new start. The lumber industry is contributing magnificently to the war program. The Army alone is using more than 800 separate items of wood. The uses for lumber in both war and in the peace to come are being extended by the united effort of the lumber and chemical industries.

EXPLORING THE SHAGBARK SPECIES

(Continued from Page 11)

branches have grown 3 or 4 feet outward from the center pole, provided you start with an 8 or 10 foot tree, as I did in my test planting. In contrast with this, one well-known variety much touted by the early experimenters has scarcely been known to bear a pint of nuts in a quarter of a century.

I suspect that if the shagbark species grew only in some such far away place as China or Manchuria it would have been heralded across our country years ago as a beautiful ornamental, which indeed it is. Three or four of these trees would lend distinction to almost any lawn, and lots of nuts for the family.

There is one more quality in which shagbark trees vary—i. e., speed of growth. Some of them resemble the tortoise in the way in which they almost seem to stand still. Others, while not exactly rivaling the silver maple, are good growers, and I have had one variety to make a central twig 4 feet long in one season in my experimental nursery. They respond well to fertility.

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FRIENDS OF THE LAND

(Continued from Page 3)

ecutive Secretary, Pennsylvania Farm Bureau Federation, Dr. Ralph D. Hetzel, President, Pennsylvania State College, P. A. Waring, Pennsylvania Land Conservation Association, and George Pfeiffer 3rd, Philadelphia Junior Board of Commerce. The program was climaxed by the showing of the documentary film "The River," leaving the majority of the audience eager to enlist and serve this all-important cause.

And so a Pennsylvania Chapter of "Friends of the Land" was born.

Under the direction of an impressive list of farmers, industrialists, bankers, educators, editors and civic-leaders who will be responsible for the functioning of the organization in Pennsylvania, the realization of the need for conservation methods should eventually be brought home to every resident of the state. For, indeed *everyone* is affected! It is the intention of this group:

1. To focus public attention, especially of urban residents on the problems of the land.
2. To unify the efforts of all groups interested in specific phases of conservation, such as wildlife, birds, plants, water, soil, forests, so that, through unity of purpose, conservation in its broadest sense can be promoted more effectively.
3. To develop, through unified educational, informational and promotional efforts, a better understanding between rural and urban groups.
4. To serve as a clearing house for the dissemination of pertinent information on all phases of conservation relating to the land.

All of this will be accomplished by the following means:

1. Encourage the teaching of conservation in the schools.
2. Sponsor conservation forums and field days.
3. Provide competent speakers.

4. Prepare and distribute literature, bulletins, newsletters.
5. Purchase and distribute prints of motion pictures.
6. Supply timely articles to newspapers and magazines.
7. Sponsor educational radio programs.
8. Develop visual aids, museum exhibits, etc.
9. Inform the public of erosion and related conservation problems, legislation, etc.
10. Cooperate with local, state and federal agencies.

Fortunately Pennsylvania has many residents already aware of the various related problems in connection with the conservation of natural resources. The varied specialized organizations through which they have been at work on them in the past are fully aware of the potential benefits of a more unified effort. Through a strong, vigilant Chapter of Friends of the Land all conservation-minded groups and individuals will be able to channel their efforts and receive the additional help such unity will provide.

We have a *bigger war* to fight than the present global one in which we are now embroiled. The war against waste and exploitation of natural resources must continue long after the more apparent destructive conflict is over. Civilizations rise and fall according to land reserves and the more thoughtful realize that "it can happen here."

Arise, all ye faithful "Friends of the Land."

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FOREST LEAVES



THE PENNSYLVANIA FORESTRY ASSOCIATION

NOVEMBER-DECEMBER
1942

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Founded in June, 1886

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County Forest Possibilities in the Anthracite Region*

by R. D. FORBES and C. W. BECK

THE COUNTIES OF the Anthracite Forest Region of Pennsylvania have borne their full share of the economic and social ills from which the region began to suffer long before the depression. National defense activities may make possible in some counties a partial and temporary recovery from these ills. But a permanent cure for unemployment and crippled public services can be achieved only through planned development of all basic natural resources and of industries dependent on them.

Among these natural resources none has been more abused and neglected than the forests. The nearly 2,600,000 acres of forest land in the region comprise from 20 to 84 per cent of the individual counties. Over-cutting of the timber, and forest fires, have reduced vast areas of once highly-productive forest to scrub oak, aspen, and grey birch. Practically none of the remaining acreage is fully productive. Tens of thousands of acres, mostly denuded, are today in county hands as the result of tax delinquency, and in some counties are rapidly becoming a major problem.

In Table 1 are shown forest properties of 50 acres or more which have been in county ownership as a result of tax sales for longer than the period allowed for redemption. There are 343 of them ag-

gregating 63,000 acres, with an average size of 184 acres. They are distributed among 11 of the 15 counties as follows:

Table 1. FOREST PROPERTIES OF 50 ACRES OR MORE IN COUNTY OWNERSHIP AND NO LONGER SUBJECT TO REDEMPTION.

County	No. of Properties	MAY 1, 1941	
		Avg. Area Acres	Total Area Acres
Carbon	43	198	8,528
Columbia	17	119	2,027
Dauphin	15	161	2,413
Lackawanna	5	152	759
Luzerne	13	177	2,304
Monroe	21	270	5,669
Northumberland	6	94	563
Schuylkill	178	191	34,043
Susquehanna	30	125	3,757
Wayne	2	82	165
Wyoming	13	213	2,773
Totals of Averages.....	343	184	63,001

Table 2 shows the distribution of over 57,000 acres of forest land, in properties of 50 acres or more, which were sold to the County Commissioners at recent Treasurer's sales, and are still subject to redemption by the former owners. There are some such properties in every county of the Anthracite Forest Region except Lebanon.

The Counties' Opportunity

When forest lands become tax delinquent and pass into county ownership, it is likely to be because they have been wrecked by over-cutting and fire. Income from wrecked land is negligible. The long time required to restore them to pro-

*An excerpt from Anthracite Survey Paper No. 3. Issued by the Allegheny Forest Experiment Station.

ductivity, the cost and unfamiliarity with the forestry practices involved, discourage the individual land owner. Sale by the county to the State is sometimes possible, either for State Forests or State Game Lands. The properties must generally be of considerable size, or adjoin land already in State ownership, to be attractive to the Department of Forests and Waters or the Game Commission. At present only the Game Commission has funds for land purchases.

Table 2. FOREST PROPERTIES OF 50 ACRES OR MORE IN COUNTY OWNERSHIP BUT SUBJECT TO REDEMPTION. MAY 1, 1941

County	No. of Properties	Avg. Area	
		Acres	Total Area Acres
Carbon	10	363	3,634
Columbia	13	87	1,136
Dauphin	8	189	1,511
Lackawanna	28	159	4,445
Luzerne	107	118	12,651
Monroe	21	168	3,539
Montour	3	96	289
Northumberland	11	90	996
Pike	9	150	1,348
Schuylkill	47	209	9,807
Sullivan	45	135	6,068
Susquehanna	89	79	7,081
Wayne	21	115	2,414
Wyoming	9	259	2,335
Totals of Averages.....	421	136	57,254

Fortunately there is legislation in effect to enable the counties themselves to approach constructively the problem presented by these lands. The County Forest Act of 1933 (P. L. 30) provides that tax delinquent lands may be continued in county ownership and managed as county forests. Under public control restoration of the forest for one purpose or another is economically possible.

Forest restoration requires intensified protection against fire, insects, and disease, and artificial planting of the worst-denuded land with trees or other useful vegetation. Here is work for the unemployed—work, moreover, that does not compete with private enterprise. Weeding, thinning, and pruning of the young forest, wildlife management, and proper harvesting of the timber as it matures, will continue to provide jobs in the woods.

When fully restored these county-owned forests will prove attractive as a source of raw material to permanent local industries. Substantial cash returns to local governments in many parts of the world result from sales of wood in community forests. Even today county forests will provide nearby communities with healthful outdoor recreation; they will prevent soil erosion, lessen floods, and safeguard local water supplies. These benefits will in turn be reflected in new sources of public revenue, improved public health, and larger private payrolls.

The rather small average size of the county-owned properties, and their scattered distribution, which have lessened their attractiveness for State ownership, need not debar them from consideration as county forests. An official of one county recently suggested that custodianship of small areas could be added to the duties of certain county employees at little or no additional expense. Chambers of Commerce, service clubs, and other community groups—such as organized sportsmen—have already shown an interest in the development of local forest tracts. By crystallizing such interest into effective measures adapted to local conditions the problem of protecting and administering relatively small areas may be solved.

FORESTRY WHEEL OF FORTUNE

As a center spread, Forest Leaves is reproducing in this issue the Forestry Wheel of Fortune prepared by Dr. Joseph Risi, Director of the Forest Products Laboratory, Quebec, showing the products derived from wood and the several chemical processes involved.

Copies of this interesting study, suitable for use as posters (twice the present size) will be supplied at \$1.00 each on application to the Pennsylvania Forestry Association, 1007 Commercial Trust Building, Philadelphia (2).

PENNSYLVANIA "The Dogwood State"

by H. GLEASON MATTOON

ADOLF MULLER, public spirited citizen of many interests, died on July 30, 1943, but his contagious zeal for making Pennsylvania the dogwood state lives. During his lifetime he distributed over 300,000 dogwood seedlings to organizations, school children and individuals to be planted along the highways, on lawns and in the countryside.

Whether his enthusiasm for the dogwood was aroused by the fine specimens at Valley Forge Park in which he was intensively interested, is not known. In any case, the Park has become a mecca for visitors during the display. In 1938, a year of unusually fine bloom, nearly 1,000,000 persons traveled there to behold the beauty of the flowering dogwood.

This truly American tree is considered by many to be the finest flowering tree in the world. *Cornus florida*, for that is its botanical name, is native to over one-half of the United States but it reaches the zenith of perfection in Pennsylvania. It is attractive in the autumn also when the rich reds of its foliage blend with the scarlet of its clustered fruit. In late fall when the birds migrate, they stop to feast on the fruit. In that way are the seed scattered to increase the profusion of trees.

The flowering dogwood occasionally reaches a height of 35 feet, but as a specimen with ample room in which to develop it seldom becomes more than 20 feet tall. It prefers open woods, the edge of a forest or the fence row where the soil is rich but well drained. In coves or along the bank of a stream it thrives especially well. It is a freedom loving tree that dislikes the regimentation of dense woodland conditions.

That which we call the blossom of the dogwood is actually bracts or leaves.



Mr. Muller's Favorite Valley Forge Dogwood.

In the center of these four large petal-like leaves are the true flowers—a cluster of them—small yellow-green and inconspicuous. The bracts are not always white. Occasionally a tree with pink or rose red coloring can be found growing wild. The pink dogwood which is sold by nurseries has no doubt been propagated by a cutting or graft taken from a wild tree or the descendent of a wildling. The first pink dogwoods to be used for propagating purposes came from the south which may account for the fact that some are more susceptible to winter injury than is the native tree.

Before the war we knew every suburban lawn, country lane and woodland border where the dogwood grew. In early May our itinerary took us over highways and byways wherever the loveliest displays were to be found. Some day we shall again travel in early May. So let us plant flowering dogwoods now that there may be many more lovely displays—living memorials to those who die that the peoples of the world may live in freedom.

FOREST LEAVES

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NOVEMBER - DECEMBER, 1943

COUNTY FOREST POSSIBILITIES IN THE ANTHRACITE REGION

When this war is at last over and the war factories are dark, when money will buy steaks and gasoline and coupons are but a memory, then men will be begging for jobs and strikes will no longer make the front page. When that time comes public agencies will propose elaborate programs of public works to provide jobs and to ease the country again into a less feverish, peaceful mode of life.

Presumably these made-work programs are now being studied and perfected by many public agencies, with federal and state plans coordinated and integrated—at least it is hoped that an exchange of ideas, plans and procedure is taking place. And it is also hoped that in the unified program a large place will be given to the manifold needs of our renewable resources, particularly the forest lands and those areas that should be in trees. There is much needed to be done that will make Pennsylvania a pleasanter, healthier State with greater opportunities for useful, congenial employment.

County, township, school and municipal forests for revenue, recreation and watershed purposes should be well up on the agenda for consideration. The forest stock survey of Pennsylvania should be started and pushed to completion.

Four

Reforestation of abandoned fields, submarginal lands and clear-cut forest lands should not be overlooked as a constructive made-work project. A billion trees could be planted in the State without exhausting the sites more suited to trees than agriculture. But if such an extensive planting program is to be undertaken, seed must be gathered and sown now in order that nursery stock in such quantities will be available. Moreover, if such a planting program should include those areas of heavy deer population, some means of protecting the seedlings against browsing will have to be found, otherwise the effort and stock will be wasted.

Other projects might include the creation of a system of fire breaks, particularly in the areas of greater forest fire hazard, and other fire prevention measures. Stand improvement cuttings on the State Forests should not be overlooked while consideration might be given to more comprehensive insect and disease control. As an example, intensification of the gypsy moth eradication work in the anthracite region might eliminate this pest from Pennsylvania.

Possibly of greatest social value to large numbers in the State would be an elaboration of the forest recreation areas. In the western part of the State there is definite need for a forest park and recreational area within fifty miles of Pittsburgh. Allegheny County, in North Park and South Park, has two fine large county areas but these are not adequate for the needs of that densely populated section as is indicated by the thousands who drive on weekends to Cook Forest Park, 100 miles away.

Near Philadelphia the facilities are no more adequate although completion of Hopewell between Warwick and Pottstown would provide an interesting, attractive forest park within 40 miles of the city.

There is no dearth of useful, constructive projects. The need lies in coordinating the plans and being prepared.

H. G. M.

FOREST LEAVES

Farm Use for Tree Crops

*by H. GLEASON MATTOON

WOOD AND OTHER tree crops for farm consumption and cash income are so numerous and so easy to produce it is incomprehensible that so few farm owners give thought to them. All of the ways in which trees, singly and in groups, can make for better living for the farm owner, cannot be discussed here, but I hope this taste will whet your appetite for more information.

Perhaps indifference to trees on a farm has come down through generations from the early settlers who were confronted with limitless forests which they had to cut and burn in order to create a clearing in which to build a house and produce food. And the fight continued for years

*Prepared as address before Quaker City Farmers,
January 6, 1944.

after the clearing had been made because in the deep, rich soil new seedlings sprang up each year, necessitating repeated grubbing out. It became a continual fight to prevent the forest from retaking the land. So it is easy to imagine a subconscious antipathy to trees.

But this condition is changed. We are now exhorted to conserve our timber resources and to replant marginal lands and eroded hillsides. Timber stumpage prices in the northeastern part of the country are fifteen times those of forty years ago. No State in the northeast is currently producing as much wood as it consumes. Pennsylvania, which is still considered a forested State, imports 80% of the wood products used within her borders in peacetime.



Norway Spruce Planting, ready to cut for Christmas Trees.

NOVEMBER - DECEMBER, 1943

Five

FOREST LEAVES

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and related subjects.

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Five



Black Locusts, 6 feet tall, two years from seed.

In the Keystone State there are about 3,600,000 acres of farm woodlots which properly managed should grow 300,000,000 cubic feet of wood a year to be used for fire wood, dimension lumber and pulp wood. Because most of them are understocked and poorly managed, I doubt whether they yield 30% of that amount. Too frequently the 10% to 20% of the farm acreage which is taken up by the woodland is used as a repository for dead animals, broken machinery and refuse, and yields only fire wood.

Some owners have opened trails for riding or walking through the woods. This utility is not to be minimized because the uneconomic and intangible values of a woodland are a real part of the joy of country living. But it is not necessary to neglect or mismanage one of the valuable assets of the farm in order to enjoy the beauties of its fall coloring.

A 40 acre woodlot should provide periodic income in addition to fire wood and lumber needed for upkeep of buildings and construction. I know of two woodlands of about this acreage that are a little over two miles apart, both of which had excellent stands of trees twenty years ago. The owner of one has received \$5,300 in cash from timber sales, in addition to fireplace wood for his home and fuel wood for two other houses. And at no time has more than 20% of the volume of timber been cut from it. That woodland today is composed of clean, straight, tall trees which will be ready for another cut in five years

and never in the twenty years has the woods been thin or unattractive.

In contrast, the owner of the other tract has been little interested in planning even a year ahead so far as his woodland is concerned. When fire wood is needed he cuts the handiest trees leaving large openings which soon fill with briars and inferior species, until there is today less than a 50% stand with no more than twenty trees in the 40 acres straight and large enough to produce good lumber. It takes no more physical effort to improve a woodland than to ruin it. The difference lies in knowing the potentialities and sticking to a definite program.

Grow Fence Posts, They Are Cheaper

The fact that farmers buy metal fence posts instead of growing their own is a tribute to the power of advertising. Black locust posts will outlast metal ones and cost only half as much to produce. Posts made from other species such as catalpa or honey locust will last nearly as long but take somewhat longer to grow in the eastern part of the country. One acre of good soil will yield more fence posts than a 500 acre farm will use.

To illustrate that statement may I tell you of the experience of one farm owner in Maryland. In 1930 an irregular piece of land of about three-quarters of an acre resulted from straightening the side of a field adjacent to woods, to do away with short rows. This land was planted with black locust seedlings which were bought from a nursery for \$5.00 a thousand. Spacing them four feet by five, 1,500 were planted in the plot. The total cost of stock and planting was \$21.50.

In 1941, 200 fence posts were cut from the stand for use on the farm. The following winter 300 more were cut and sold for 30c each. Another cut was made early in 1943 amounting to 350 posts, 100 of which were for farm use while the balance was sold for \$80.00.

The total cost of cutting and shaping 850 posts was \$62.00. By adding the cost of stock, planting and care to this

and estimating the taxes on that three-quarters of an acre for the time required to grow the trees, we arrive at a total cost of \$123.60 or 14½c a post. In addition to the posts used on the farm, the cash income amounted to \$170.00 and there are remaining in the stand 1,000 posts ready to cut with others developing as suckers from stumps of felled trees and as seedlings.

As long as the farm is operated, that plot, if given a little care, will continue to produce fence posts at not more than fourteen cents a piece. Other instances could be cited but this should be enough to encourage you to grow your own fence posts.

Stock Feed

Not always will there be the scarcity of stock feed that has existed for the last few months, but the amount of money a farmer makes on beef cattle or hogs will always be in inverse ratio to the cost of feeds. Concentrates are usually expensive so any means found to reduce their cost makes the possibility of profitable beef or pork production so much greater.

Feeding of hogs on mast is not new. Acorns, walnuts, chestnuts, persimmons and other tree seeds have been used as hog food for generations in this country and abroad. During the last twenty



Saw Timber from Farm Woodlot.



Improved Black Walnuts 15 years old.

years research has been carried on with the object of increasing the mast production per tree. One of the valuable results is the development of varieties of the honey locust which produce an amazing amount of food that is not only relished by beef cattle and hogs but also produces high quality beef and pork.

Another interesting result is that the growing of these honey locusts in a pasture actually increases the growth of grass and lengthens the grazing period. This is due to the light shade which reduces searing of the grass roots in hot, dry weather and to the fixation of nitrogen in the soil, a characteristic of legumes. One of these varieties will produce as much as 300 pounds a year in the form of seed pods. Fifteen trees per acre will yield two tons of concentrates having 12% to 13% protein and 30% to 38% carbohydrates. The former is found in the seed while the latter appears as gelatinous material in the pod. Since the pods drop gradually over a period of three or four months no time is consumed in gathering and feeding them.

For pork production some farmers have worked out a tree food plan involving varieties of mulberry, persimmon, honey locust and sweet acorned oaks which provides food from early June to January. Tree crops are becoming increasingly important in low cost meat production.

(Continued on Page 10)



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(Continued on Page 10)

Seven

Farm Use for Tree Crops

(Continued from Page 7)

Nut Trees as a Money Crop

My conviction that the improved varieties of our common black walnut have money making possibilities as great as any other crop that can be grown in many sections of this country is based upon experience. In a farm program which depends for success on several cash crops, black walnuts should have a definite place. Only within the last twenty years have the public and the bakery and confectionery trades begun to appreciate the many uses of these nuts which retain their flavor when cooked, a characteristic of no other nut. There is an unverified rumor that some of the surplus of English or Persian walnuts has been mixed with synthetic black walnut oil and sold for black walnut meats. Whether true or not it is an indication of the demand for black walnuts which has not been met.

Several varieties are being grown, each of which has its merits, but in the Middle Atlantic States the Ohio, Thomas, Ten Eyck and Elmer Myers, from the standpoint of growth and yield, appear best. Some varieties start to bear when they are three years old and the yield increases until production reaches 5 to 10 bushels per tree.

Nuts may be sold in the shell, but greater profit results from cracking and selling the kernels. The present wholesale price of No. 1 meats is \$1.00 a pound while smaller pieces sell for 75c a pound. Since well filled nuts of any of the varieties mentioned will have from 10 to 12 pounds of meats per bushel, the gross return will range from \$7.00 to \$10.00. The cost of hulling, cracking and picking out the meats will run \$1.00 per bushel.

These thinner shelled, easier cracking varieties need plenty of space in which to develop, so it is best to plant them on 50 foot centers. This leaves ample space for intercropping until the trees come into production. Soy beans, lespedeza

Ten

or other crops may be grown and harvested in such two story farming.

While nut production is the reason for planting these improved varieties, nevertheless the trees are growing into valuable timber which commands a good price in war or peace. In other words, the nuts provide immediate return while the trees are building an estate for the next generation.

Christmas Trees

An acquaintance who owns a farm located about 30 miles from a city, planted part of his holding to several species of evergreen trees in 1930. By 1939 they had grown large enough to sell as Christmas trees, so he inserted the following classified ad in three or four nearby newspapers:

CHRISTMAS TREES

Beginning Dec. 1st, from 9 to 5 Christmas trees will be sold in all available sizes for \$1.50. Come and pick out your trees. No deliveries, no Sunday sales and no dealers.

The first year he sold 3,000 trees and since that time the yearly cut has ranged from 4,000 to 5,500 with buyers turned away each year. For the first four years he averaged \$5,900 gross and a handsome net profit each year after deducting all costs including the taxes on the entire farm and the cost of replanting.

On a twelve year rotation a farm owner can plan on the sale of 200 trees per acre a year. At \$1.50 a tree, which is a low price for 5 to 8 foot trees, the gross return will be \$300 per acre. Cost of stock, replanting, subsequent care and cutting will amount to not more than 60c each, leaving a net of \$180.00 per year. Is there any other crop which will yield that amount year in and year out?

These are but a few of the income producing tree crops. The list is susceptible of considerable expansion. To it might be added those which contribute to a fuller and richer farm life, such as food plants for game birds and animals, habitat groups for insectivorous birds and animals, the home orchard, the wind-break and other plantings. Incidentally

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the danger of planting too large an orchard for home use with subsequent neglect is apparent from the number of dilapidated fruit trees that may be seen in a trip through any farming community. Some of the old apple trees which are now breeding places for insects and diseases, should be sold. The current price is \$40.00 a thousand board feet, Doyle rule, for sound apple logs from 3 to 8 feet in length and at least 12 inches in diameter. This price is for logs at the farm. To permit neglected trees to use good farm land is poor management.

To create a farm plan which exemplifies balanced, abundant country living requires study and integration of the program so that there will not be too much or too little of any component.

Injury to English Elms As A Result of Banding

by C. R. RUNYAN

SOME WEEKS AGO the writer was asked to look at a number of English elms (*Ulmus procera*) growing on the grounds of an institution in Cincinnati. Most of the trees are large, mature specimens with diameters of two feet or more, but with a few of smaller size. While the foliage was somewhat sparse and the leaves showed the effects of the elm leaf beetle, the trees at first glance appeared in fair shape with the exception of two trees about twelve inches in diameter. These were dead.

Closer examination of the living trees disclosed many areas where the outer bark was loose. This could be detected by the hollow sound produced by tapping on the bark. When the bark was pulled away, large areas were found where the innerbark has been killed and had disintegrated. Some of these areas were only a few inches in diameter, others a foot or more. The two dead trees had been completely girdled by the injury.

Removal of the outer bark exposed a

mass of matted fibrous roots in many of the injured areas. These roots originated from the healing cambium of the upper edge and extended through the decaying innerbark to the healthy tissue at the bottom edge of the injured area. In many cases this mass of roots filled the space between wood and outer bark.

Further examination revealed that in every case where the injury was found, the tree had been banded with "Tanglefoot" applied directly to the bark and that the injury occurred only where the banding had taken place. The bands were not fresh but were old applications and in some cases only traces remained. The bark had been smoothed and additional bands applied during the present season, but as yet no injury had occurred as far as could be determined by superficial examination.

With the evidence at hand and a history of the treatment these trees had had in the past, the only logical conclusion seemed to be that the damage was caused by either the shaving of the bark, the application of the "Tanglefoot" direct to the bark, or both. If these trees can be preserved the effects of the more recent bandings should prove interesting.

The development of the adventitious roots from the healthy tissue raises the question of whether there is anything in the banding material that would have the effect of inducing root development or whether the root development took place merely because of moisture and the absence of light.

Since the trees seemed to be doing the best they could to recover and heal the injury by bridging over the damaged areas, the following suggestions were made; that

1. The large injured areas be bridge grafted in order to induce more rapid healing.

2. While it might be too late to do any good, the fresh "Tanglefoot" be removed from the trees as far as possible by mechanical means.

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Forestry Bills In Congress

FOUR IMPORTANT forestry bills are now before Congress for which immediate support is essential. They have to do with cooperative forest fire control, forest management, the completion of the Forest Survey and forest taxation. The present status of each is given below.

1. S.45. Authorizing an increase for cooperative forest fire control under the Clarke-McNary Act from \$2,500,000 to \$9,000,000. This measure which has already passed the Senate, was reported favorably by the House Committee on Agriculture on December 10, 1943, with the following amendment:

"Provided, That the appropriation under this authorization shall not exceed \$6,300,000 for the fiscal year ending June 30, 1946 and \$8,300,000 for the fiscal year ending June 30, 1947."

2. S.250. To promote sustained-yield forest management, etc. This bill has also passed the Senate and was reported favorably December 16, 1943, by the House Committee on Agriculture with an amendment which would authorize expenditures from regular management and protection funds available for federal lands for purposes of the act plus additional special appropriations not to exceed \$150,000 for the Department of Agriculture and \$50,000 for the Department of Interior for a single year.

The above amendments are considered an acceptable compromise. It is therefore urgently requested that you wire immediately your Representatives in the House urging their favorable action and your Senators to agree to the House amendments on both these bills.

3. H. R. 1456—Randolph—An Act to increase the authorization for appropriation for the Forest Survey. The House Committee on Agriculture report-

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ed favorably on the principle of this but with certain desirable modifications in provisions for appropriations, reading as follows:

"There is hereby authorized to be appropriated, out of any money in the Treasury not otherwise appropriated, not to exceed \$750,000 annually to complete the initial survey authorized by this section: Provided, that the total appropriation of federal funds under this section to complete the initial survey shall not exceed \$6,500,000. There is additionally authorized to be appropriated not to exceed \$250,000 annually to keep the survey current."

A substitute bill was introduced (H. R. 3848) by Congressman Randolph covering these changes. It is urgently requested that you communicate with Representative Randolph of West Virginia and your own representatives in Congress indicating support of H. R. 3848.

4. *Forest Taxation.* On December 14 the Senate Committee on Internal Revenue reported favorably on certain desirable features of the Forest Industries Committee proposal to amend the Internal Revenue Code to correct inequalities in federal income and capital gain tax on timber, the House having previously acted unfavorably upon it. It is urged that you first wire your Senators favoring the proposal and then address communications to your Representatives so that if Senate action is favorable the House will concur in it.

Please get in touch with your Congressman and Senators urging support of these bills.

H. GLEASON MATTOON,

Secretary

FOREST LEAVES

Pennsylvania Nut Growers' Association

A Practical Body of Nut Growers Whose Aim Is to Stimulate Greater Interest in Nut-Tree Planting



Black Walnut Kernel

NUT TREES OF THE UPPER CONESTOGA VALLEY

FOR YEARS AND years the patrons of nut trees have toured the country to observe the wonders of some fine old nut trees preserved from the axe. Now comes the thrill of standing in awe at the renewal of this heritage in young trees of improved varieties starting to bear.

The Conestoga Valley is in truth one of the birth places of fine walnuts and shellbarks. Their part in the history of the Pennsylvania Dutch has been profound for the wily emigrants from the Rhine Valley seeking a new home free from sword and strife held dear the traditions of their ancestors and abided by it seeking a haven in Penn's famous woods. "Never settle where the cedars grow, and where the walnuts and oaks thrive there will you find the deepest soil." Thus came the forefathers of that valley trekking slowly westward from the port of Philadelphia, noticed the cedars peter out on the highlands surrounding the head waters of the Conestoga and the walnut, shellbark, and oak take over in the valley.

They plowed their soil well and kept it, while the balance of America plowed it and surrendered it to the sea. Ever watchful of better things showing on the horizon, the introduction of improved nut trees was to their liking. They loved their nut trees in the fence rows, meadows, and ridges, but these exclusive

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monarchs of the forest resented transplanting. When improved methods made it possible to do this a Conestoga farmer planted a few. Then another and another.

One day in August we took a trip to Isaac Frederick's farm on route 23 below Goodville. As we traveled several miles through this breathtaking garden spot of fertility we noticed here and there a hybrid shellbark and here and there a pecan, hican or grafted black walnut, and a four foot chestnut on a front lawn bending down with burrs. But the greatest thrill of all was found in Isaac Frederick.

Using Nut Trees in a Balanced Farm Program

Mr. Frederick's farm of 55 acres sits on a knoll pushed up from the floor of this great valley. On one side his fertile fields slope into a rock pasture. Sprinkled over this are several native walnuts, butternuts, and shellbarks. Here he tries his hand at grafting the younger trees. And like all beginners his luck makes the nurserymen envious.

Scattered nursery trees spot the edges, two Korean pines, a "big shellbark" and several improved honey locust. In one corner in the semi-shade of larger trees is a little nursery where Chinese chestnuts and Wm. Penn Burr Oaks are growing to be set out on a steep slope next spring. In one corner a small bee yard adds to the Pennsylvania Dutch completeness. Along his fence row one finds a heartnut, Jap chestnuts, Chinese chestnuts, several varieties of black walnuts and a butternut he grew from English walnut seed. This tree is indeed interesting because it shows no influence of English in its appearance. I wonder what nut it will bear. Around the barn, chicken house and garden we find pecans, hickories, walnuts, persimmons and along the highway a short row of filberts.

He showed me his young flock of black leghorn and Hampshire red chickens and houses of laying hens. Then we met his wife, son and daughter, all interested in

Thirteen

"making a living program." Jumping in his Ford we bounced back to a clover field across the road which lies straddle a higher limestone knoll. His love for the soil was expressed in a few words as I looked the fields over and reflected, "What gullies if a Tennessee farmer farmed this field." Said he "Now the soil on this slope is thin. I can do pretty well if I grow grass or small grain but if I grow corn, it washes enough to make you sick."

"Here," said he, "is the place I'm going to put the chestnuts now growing in the nursery." Carefully he explained that he is going to plow contour terraces and plant the trees on them. By the side of the field I was introduced to two of Dr. J. Russell Smith's hardy Chinese persimmons. Are they hardy? Well, he pulled the amateur trick of planting these questionably hardy trees in the fall and after the hardest winter in twenty years for trees, these are starting nicely.

Turning around I saw for the first time in my life my dream of intelligent, plow-crop use of the soil. On the rocky outcroppings in this field he has planted Chinese chestnuts, three here, five there, as needed to use each knoll unfit for plowing, with more persimmons and honey locust on the fence rows.

This project is about three years old with nothing bearing yet. And what is more, nothing cultivated, but as a busy farmer he's giving them the best care possible. Living close to nature and not a money hog, time isn't so important to him. He keeps sowing and planting and leaves the increase in the hands of God, to come in due season.

In the agricultural world there has been a philosophical expression "how much is a hog's time worth" as a retort to one haranguing about forcing hogs for quick returns. As I reviewed Isaac's program of letting his trees grow, fast enough to prevent runtiness and slow enough to insure hardiness of the tree, the thought came to me, how much is a tree's time worth.

Fourteen

It is not he that talks about planting, not he that wishes he had planted, but he that planteth gets nuts. Therefore, plant that ye may obtain.

NUT CROP REPORT

by E. C. RICE Abisher, Kentucky

ABOUT THIS YEAR'S walnut crop. Generally speaking I have a light crop. Some trees are carrying a good crop but most of them are not bearing at all or at best light crops. As usual Thomas is ahead, though most of the others have a few nuts. The Stambaugh is a regular and sometimes a heavy bearer. None of my Carpathian English walnuts are bearing yet. My Schaffer English walnut tree got frost bitten this spring as well as most of the other hardy English walnuts. The Tuttle catalogue I had, claimed the Schaffer, a late vegetator, located in a frost pocket and never had been killed by frost. But mine caught it in the neck this time.

About Jap persimmons, they are no good with me. They bore some fruit but all were killed in the severe winter of 1939-1940. I am starting over this spring with a variety sent me by a Mr. Herschi of Oklahoma City, Oklahoma. Of course, I don't know how they will do.

You might be interested to know that the filberts I got about nine years ago failed to bear this year for the first time since they became of bearing age.

It might be of interest to you also to know that practically all my walnut grafting this time was Thomas, just a few Stablers and a variety or two for trial. My interest in the Stabler has increased since my oldest trees began to bear. They are slower than Thomas to bear but don't they crack fine.

I have a few trial trees of Elmer Myers, not yet bearing.

My 1943 walnut crop will be one-half what the '42 crop was. All wild walnuts I have noticed are a failure or near failure.

FOREST LEAVES

CHESTNUT DOINGS IN MARYLAND

Mr. John W. Hershey,
Downingtown,
Pennsylvania
Dear Mr. Hershey:

These 150 chestnut trees have been planted about 10 years. I had about 250 and the United States Department of Agriculture instructed me to set them where the native chestnuts had done well, even if the ground was quite poor. On the back of my farm were dead chestnuts more than 7 ft. across the butt; and I thought I had the ideal spot, not realizing at that time that these old dead trees were probably 250 years old and had started their growth before the greed of the white men had filled the fields with gulleys and washed away the top soil. I gave these trees good care for about four years but they refused to grow and I became disgusted with them and quit. The next year I took up some of these trees and planted them on good ground, and they have done well enough to suit anyone. We had trees this year that yielded 30 to 40 pounds of nuts. We could not begin to supply the demand.

These are Chinese chestnuts, two varieties, some are small, about like the best of our old native nuts and large nuts. There is quite a difference in the shape of the trees and also in the shape of the burrs and nuts. Some of the trees are beautiful, and one tree produces four nuts to most every burr. I am past 70 years of age and should think of dying rather than plant trees, but I am going to plant 200 this spring just the same; they will probably do someone some good.

With best regards,
VAN REYNOLDS

"The Thomas black walnuts bear marvelous crops of high quality. The Chinese chestnut trees have borne good crops for the last several years and bid fair to repeat their performance."

JOHN E. CANNADAY, M.D.
Charlestown, W. Va.

NOVEMBER - DECEMBER, 1943

Pollination of the Broadview English

by J. W. GELLATLEY

REGARDING BROADVIEW pollination. The parent tree is undoubtedly self-pollinating, for there is no other nut tree within a reasonable distance of value as a pollinator. I have had some trouble with young trees of all kinds dropping the young nuts when the size of peas.

But I have had a good set on my Broadview trees by saving their own pollen if it came ahead of the female flowers, and applying it with the rubber on the end of the ordinary pencil. I employ high school girls for this work. Last year paid 20c per hour, this year 30c. Looks like a good crop again this year. Sold eating nuts at 60c a pound wholesale.

In pollinating I had four girls working on 18 foot ladders. I moved the ladders and did the highest limbs myself by standing on top the 18 foot ladders. I know we cannot keep that up as the trees get larger but then they may steady down to better balanced cropping of their own accord. Or other trees may produce pollen at the blooming date of Broadview. I have a lot of correspondence praising the hardiness and other good points of Broadview walnut and if it lives up to present reputation, I will always feel I made a good contribution to northern nut culture when I propagated and introduced this variety of walnut.

"The Thomas black walnut I bought in 1931 is of fine size and bearing well. The McCallister hican I bought is handsome and beginning to bear. The Bixby hican I bought later, started very slowly but is doing well now."

RAYMOND L. WRIGHT
Clayton, Delaware, R. D. 1

Fifteen

Timber War Project in Pennsylvania

Foresters from many public agencies met in Lewistown recently under the aegis of the War Production Board to implement a State wide drive to increase lumber and pulpwood production. Specifically the Pennsylvania Timber Production War Project was initiated with H. B. Rowland, Assistant Chief, Division of Protection of the Department of Forests and Waters as Director.

This is a W. P. B. plan but the details of administration will devolve upon foresters of the U. S. Forest Service, the Pennsylvania Department of Forests and Waters, the Forestry Department of Pennsylvania State College, the Extension Foresters, District Foresters and their Assistants and the Cooperative Farm Foresters. In addition to personnel of the agencies mentioned, representatives of W. P. B. and the Bureau of Plant Industry were present at the meeting.

The principal effort will be devoted to aiding everyone engaged in lumber and pulpwood production in the State. All are to be visited, giving them assistance—if needed—in filling out the multitudinous forms and reports that have become more and more complicated. Help in carrying on correspondence with the various agencies will also be given. When lack of labor is a limiting factor in production, an attempt will be made to secure the necessary help, either men or women. When essential help is to be drafted, the good offices of members of the Project may aid in getting a deferment.

Although it is believed less necessary, if called upon, assistance will be given the timber owner in arranging a satisfactory contract for the cutting of timber. Unusual markets for special timber products will also be probed.

Similar projects have been set up in neighboring States. The War Production Board hopes that the entire north-

eastern section of the country will be blanketed with such projects by spring, as an aid in stepping up production of lumber and pulpwood to meet war needs.

INJURY TO ENGLISH ELMS

(Continued from Page 11)

3. The root masses forming under the outer bark, if alive, be allowed to grow and the trees thereby do as much healing for themselves as they would.

4. The banding method be discontinued or the material applied on cotton, or on paper bands with cotton beneath.

5. Sprays be substituted for banding for control of the leaf eating insects.

Reprinted from ARBORIST'S NEWS, November 1943.

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