

## Notice

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# Unused South Jersey —Its Vast Latent Possibilities

## What Can Be Done With 1875 Square Miles of Tree-Covered Wilderness, With Magnificent State-Built Roads and Great Railroads Crossing It

By ALDEN T. COTTRELL

Assistant Forester New Jersey Department of Conservation and Development

**W**OULD you believe it possible in 1937 to drive across New Jersey for nearly 30 miles, most of the way over a flawless concrete road, and pass only two dwellings?

If you will examine your highway map, tracing the route from New Lisbon, Burlington County, to Manahawkin, Ocean County, you will find this vicinity noticeably blank. You will not pass through a single town or even crossroads settlement. Mile upon mile you will see not only the slender ribbon of concrete straight ahead. On either side you will catch momentary glimpses of endless pine forest and scrub growth as you rise over a knoll. Without warning you will notice a complete and abrupt change in the woodland; in place of normal trees you will find yourself surrounded by dwarf trees three or four feet in height. In a few seconds at the top of a grade, you will see, mainly to the south, the whole limitless expanse of this waste land. These are the famous New Jersey "Plains" 20,000 acres in extent, the object of intensive study by botanists and scientists for nearly a century. After travelling for several miles, you will again enter typical pine woodland and finally arrive at Manahawkin, which in the Indian tongue means "good corn land".

### A Population-Surrounded Wilderness

Few people realize that one of the most extensive unbroken areas of wildland east of the Mississippi lies in South Jersey—at the very door of the most populous region of the United States. It is difficult to convince those unfamiliar with the State, that New Jersey contains anything more than mosquitoes, flat terrain,

The term "Pine Barrens" is somewhat misleading, since the area is by no means barren in the usual sense of the word. The term probably originated with the early settlers who were disappointed with the agricultural possibilities of this area.

### POSSIBLE USES FOR SOUTH JERSEY "PINE BARRENS"

#### 1. Water Resources

Water power  
Potable water supplies  
Recreational use

#### 2. Forest Resources

Production of good timber following  
Forest Fire Control  
Pulp and paper plants  
Chemical research may find use for timber as pulp  
Wood chemical plants  
Destructive distillation products include wood turpentine, pine oil tar, and charcoal. Charcoal markets now good.  
Boxes and crates  
Large demand for agricultural products.  
Sawmills and lumber  
Products include lumber, lath, shingles, siding, boat planking, posts, poles, piling, rustic furniture, cabin logs, railway ties, and fuel wood

#### 3. Recreational Development

Canoe streams, additional lakes and a host of facilities for hunting, fishing, camping

#### 4. Agriculture

Expansion limited because of soil

#### 5. Manufacturing Plants

Predicated on cheap land; availability of labor. Taxes on improved property likely to be lowered when many defaults reduced

point of climate, topography, and flora—and known for years as the "Pine Barrens of New Jersey", (see footnote) "the Pines", "The Jersey Pines", "the Pine Belt", or "the Wilderness"—one must follow the interminable sand roads to comprehend the vastness and wild character of this hinterland. New Jersey, excepting Rhode Island, has the greatest density of population of any state in the Union; nevertheless, we find in "the Pines" countless square miles devoid of human inhabitant or abode.

Millions of travellers annually cross, or skirt the edge of this back country on their way to the world famous shore resorts, without appreciating its significance. Those few who may momentarily forget sun-tan, beaches, boardwalks, and hotels, may ask themselves a few questions. How large is this wilderness? Has it always been a fire-scarred waste with mile after mile of pitch pine sprouts struggling for a precarious existence? What makes it look so devastated? Who owns it? What will become of it? What should be done with it?

### Extent of the Area

This wilderness lies within the physiographic province known as the Coastal Plain (a subdivision of the Atlantic Slope) which is well defined from New Jersey to Florida. In New Jersey, the Coastal Plain includes all the land lying south of a line drawn from Perth Amboy to Trenton. Millions of years ago, this part of New Jersey which had been submerged beneath the sea became sufficiently elevated to form the low, flat terrain characteristic of South Jersey. The Coastal Plain represents about one-half of the land area of New Jersey or 2,000,000 acres (3125 sq. miles). The Pine Barrens 1,200,000 acres (1875 sq. miles) in extent, are restricted to the

a dense population, manufacturing plants and Atlantic City. This wilderness, two hours drive by automobile, and a matter of minutes by air, from New York City, is nearly equal in area to the State of Delaware and one and a half times as large as Rhode Island. More typically southern than northern from the stand-

heavily forested portion of this province and exclude the fertile valley of the Delaware, the coast strip of salt marsh and the narrow sand bars facing the Atlantic Ocean. The Jersey Pines cover more than one quarter of the total land area of the State.

#### Forest Growth Past and Present

Geological evidence indicates that forest growth has existed in the Pine Barrens since the Miocene period, or for at least 10,000,000 years. We are not certain whether the species which now exist predominated in the early forests, but probably conifers (evergreens) covered a large part of the area as they do today. Southern white cedar, the principal swamp tree of this region, however, is not known to have existed earlier than Pleistocene times, which would limit its existence to about a million years. From the petrified specimens of this tree which have been uncovered we are assured that it has existed in this region for at least 500,000 years.

There is less conjecture regarding the composition of the forest within historic

time. The growth on the upland was composed principally of several species of pine, which were better adapted to the light sandy soils than the more exacting deciduous trees. The oaks, the principal deciduous trees of the region, have probably encroached upon the pine, following the disturbance of natural conditions and today occupy a larger area than formerly. In the fresh water swamps, dense and luxuriant stands of white cedar grew to great size and age. Some of these trees exceeded six feet in diameter and were more than a thousand years old.

#### Devastated by Man

The devastation wrought by man's imprudence has vastly changed the character of the forest growth.

Today the cedars are mere matchsticks. Saleable cedar is scarce and many of the swamps after being cut off have grown up to worthless brush. The pines are weak and spindling. The oaks, which have repeatedly sprouted and lost their vigor, rarely attain sawlog size and hence are worth little, except for firewood. The

principal tree of the upland is pitch pine which has been subjected to severe abuse by repeated forest fires. This tree is very versatile. Although principally a tree of dry sites, it is found growing in the low, wet land adjacent to the swamps, and not infrequently in the swamp itself. Shortleaf pine, locally called "two-needle" pine, is almost non-existent in a commercial sense. Scrub oak, which has increased its spread as the result of forest fires, does not attain tree form or size and is absolutely worthless.

It is interesting to note that shortleaf pine reaches the absolute northern limit of its range in New Jersey's Pine Barrens. Southern white cedar reaches the limit of its commercial importance in Southern New Jersey, but isolated stands and occasional trees are found as far north as southern Maine. The principal forest trees of the Pine Barrens are listed in the following table. A number of other species have appeared spasmodically, but botanists have not concluded whether they are native or introduced. They are limited in quantity, and of only academic interest.



*"South Jersey Pine Barrens—one of the most extensive wildernesses east of the Mississippi River"*

## Principal Trees of Pine Barrens

### CONIFERS (evergreen)

Pitch Pine  
Scrub Pine  
Shortleaf Pine  
Southern White Cedar

### DECIDUOUS (broadleaf, or hardwood)

Black oak  
Black Jack Oak  
Carolina Red Maple  
Chestnut Oak  
Holly  
Magnolia  
Post Oak  
Scrub Oak (not really a tree)  
Scarlet Oak  
Spanish Oak  
White Oak

## Economic History of the Pine Barrens

"The Pines" is an old country industrially. As early as 1684, iron was smelted from bog ore at Tinton Falls, in Monmouth County. While this forest region was never highly developed in a modern sense, it did support many thriving towns and industries, which for the most part, have disappeared. The few towns which remain reveal but scant evidence of their former prosperity.

A brief description of two towns will present the picture graphically.

Weymouth, in Atlantic County, was at one time very famous for its iron furnace and forge. The first iron water pipe used in Philadelphia was a product of this forge. The quality of the iron is attested by the iron tombstones, in perfect condition, found in Weymouth churchyard which have withstood the rigors of a hundred years.

This town at its zenith supported 600 people and is today scarcely discernible although a main highway to Atlantic City practically bisects the site of this old town. It is a forlorn spectacle. The half-dozen unpainted houses—broken windows stuffed with card board and potato sacks—hidden by the crumbling ruins of the old paper mill, the ancient church and graveyard, the tiny sawmill which affords employment to the half-dozen men, enabling them to avoid the acceptance of public charity, are all that remain.

### "Ghost Towns," Almost Forgotten

The ruins of the old paper mill at McCartysville, or Harrisville as it now is called, stand as mute evidence of South Jersey's former prosperity; yet in 1850 there were 30 dwellings in this hamlet. Harrisville is one of a hundred ghost towns, almost forgotten, about which

## A FEW FAMOUS TOWNS OF THE PINE BELT

Town	Pop.		Industry, 19th Century
	1830-1850	1937	
Atsion .....	700	50	Furnace, Forge, 3 Sawmills
Batsto .....	800	35	Furnace, Forge
Gloucester Furn. ..	300	0	Furnace
Harrisville .....	150	0	Paper Mill
Lebanon .....	600	0	Glass House
Martha .....	400	0	Furnace
Pleasant Mills ....	200	15	Silk Mills
Weymouth .....	600	25	Furnace & Forge
Woodmansie .....	60	0	Sawmill

whole volumes have been and are still to be written.

Many pursuits contributed to the former prosperity of this vast woodland area. Among the more important was the smelting of iron from bog ore which was abundant throughout the Pines. Thousands of bushels of charcoal, for use in smelting the iron were annually produced by a picturesque and ribald group of colliers. One cannot blame these colliers for celebrating the completion of their work for the season's blast. There is not a dirtier job in the world than burning, "drawing" and "keeling" a charcoal pit. Charcoal had an extensive use as a domestic fuel and thousands of bushels were annually made to supply this market.

This was the age of wood fuel; anthracite coal had just been discovered. Thousands of cords of firewood were shipped from coast and river ports to supply industry, railroads, steamboats and for domestic use. Captain Ogden Gandy of Dennisville, in Cape May County, one of the few surviving sea captains of the old school, remembers seeing 16 sloops piled high with wood, leave Dennisville on a single tide.

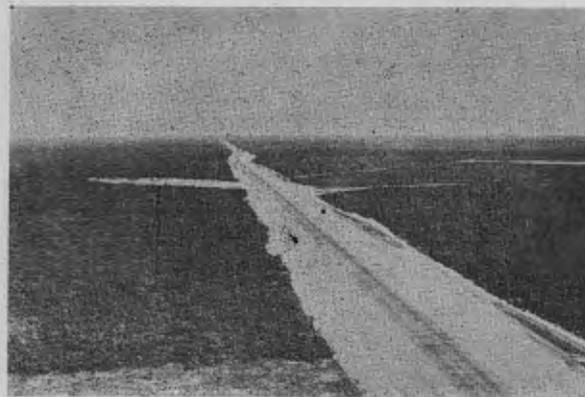
### A Myriad Sawmills

Lumber was cut by a myriad of small

sawmills, scattered over this wilderness, from the stands of pine, oak and the choice growth of white cedar. The pine was cut principally for general lumber purposes. The cedar was utilized for shingles, lath, siding, and boat planking. Oak, of sufficient size was cut into plank and lumber for shipbuilding, while the smaller growth was cut for fuel.

The most unique of all the old industries was the mining of cedar logs. These logs, buried beneath the muck of the swamps for possibly thousands of years, were located, raised and "rived" by hand, into almost indestructible "mud" shingles. **This industry, dormant for years, has recently been revived, on a limited scale, in Cumberland County.**

There were other industries of varying degrees of importance. Glass factories were established here and there, because of the availability of suitable sand and an ample supply of fuel. Paper mills were built at several places, many of them using the local salt hay for pulp. Silk and cotton mills sprang up in various localities. Shipbuilding was an industry of importance, both along the coast and on the rivers, frequently, in remote locations. The shipbuilding towns of Bass River, Mays Landing and Green Bank were at the head of naviga-



"Ghost Towns Flit By"

tion on well known South Jersey rivers. Native white oak, slow growing and therefore tough, had no superior for the construction of sturdy "coasters". Salt Works, where sea water was evaporated and the brine recovered were common. Naval stores were produced in a limited way.

### Why Industry Collapsed

The collapse of industry in the Pine Barrens occurred about 1860 and was due chiefly to three things; the discovery of anthracite coal, the development of richer iron deposits elsewhere in the United States, and the virtual exhaustion of the timber supply. It is axiomatic in forestry, that, to maintain forests perpetually, only the equivalent of the annual growth may be harvested each year. This fundamental principle had been ignored and the result was inevitable.

Other factors contributed in part to the demise of industry in this wilderness. Coastwise shipping decreased with the advent of the railroads; shipbuilding was curtailed and ceased altogether toward the close of the last century. Following the industrial decline, which was precipitous in the case of the iron industry, this region became depopulated with surprising rapidity.

Today, cranberrying, picking wild huckleberries and cultivated blueberries, gathering sphagnum moss, and Christmas greens, intermittent wood cutting, sawmilling, and the manufacture of rustic furniture, constitute the major opportunities for employment in a sparsely settled region.

### Forest Fires

Forest fires have been the greatest single obstacle to the re-establishment of forests in the Pine Barrens. Their devastating effects are not confined to killing tree growth. Very often, they damage the tree which, in its weakened condition, becomes susceptible to disease or insect attack. Forest fires lead to repeated sproutings of both oak and pitch pine. The sprouts become continually weaker, and finally fail to produce trees of any consequence. Forest fires lead to an impoverishment of the soil by the destruction of humus and ground litter. It may take a hundred years to restore the soil to full productive capacity in the Pine Belt. The successful control of forest fires is the fundamental forestry problem of the Pine Barrens—without this it is utterly hopeless to expect the rehabilitation of the forests of this region.

Closely following the industrial slump in the last century came the development of shore resorts, railroads and later highways and more people had access to this wilderness than ever before. Forest fires which undoubtedly existed in some degree during aboriginal times, became increasingly frequent and severe. For years, little attempt was made to extinguish them and they were permitted to burn until arrested by some natural barrier, such as a swamp, stream, road, or perhaps, a shift of wind. The inhabitants scarcely appreciated the devastating effects of forest fires. In fact, fires were often set, for a variety of reasons, by misguided individuals.

The Pine Barrens present one of the most serious fire hazards in eastern United States. The abundance of highly inflammable evergreens, the dry sandy soil, dense underbrush and the high winds which sweep across this broad expanse of level country, make it a veritable tinder-box.

One has only to look at the Plains, barren and forbidding 20,000 acres in extent, to appreciate the effects of severe and repeated fires. The conclusion of all investigators is that the Plains are solely

the result of severe fires. The condition of these areas should have a salutary effect in emphasizing the seriousness of repeated fires; they suggest the future appearance of this entire wilderness, if forest fires are not largely eliminated.

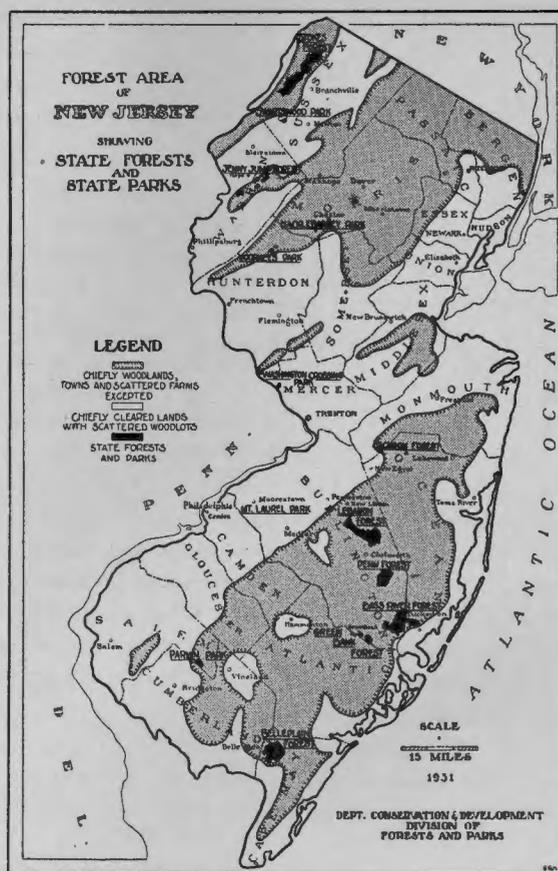
### Forest Fire Prevention

The results attained by the New Jersey Forest Fire Service, which affords State-wide protection in the heavily forested sections, are very encouraging. Prior to 1923 the area annually burned indicated that the forests of the State burned over once in twenty years. Since 1923 the area burned has been so reduced that our woodland now burns over only once in 60 years. This progress has been made in spite of the very marked increase in the number of fires due, of course, to the greater numbers of people who now use the woodlands.

The effective forest fire legislation which now exists has had an important part in reducing the area annually burned.

### Land Ownership

During the heyday of industry, about 1840, ownership of large tracts of land,



"One Fourth—1875 Miles—of New Jersey Unused"

as a necessary adjunct to the various enterprises, was quite common. Records show that many of the old furnaces held as much as 60,000 acres of land "appurtenant to the works". In general, these tracts have been split up into much smaller holdings. Today, the land situation is appalling. The ownership of large areas is unknown; while, on a huge acreage, the taxes have been unpaid for years. Many municipalities are in a desperate financial plight. "The Pines" has fallen prey to every known scheme of land fraud. In devious ways, much of the land has been classed as a "development" and disposed of to unsuspecting buyers, as small individual lots. The owners, located all over the world, realizing the utter hopelessness of developing a home-site or securing improvements, have lost interest and paid no taxes. Many townships would gladly give to the State, if this were legally possible, large areas of this tax delinquent land. They would receive in return the ten cents per acre, which the State pays, in lieu of taxes, for every acre of State Forest land lying within the township.

#### What Are the Possibilities

We cannot hope to solve this problem by attempting to rebuild the old industries; many of them are chiefly of historical interest. Neither can we expect this area, within any reasonable period, to be built up with manufacturing plants, cities and towns. The Pine Barrens may remain wild land for years. But they need not remain unproductive. It is neither common sense nor good business to permit one-fourth of the State to "lie fallow."

The possibilities are: Development of water resources for water power or potable purposes; development of wood-using industries; use of parts of this region for a wide variety of recreational uses; and agricultural use.

#### Water Resources

**Water Power.** The Pine Barrens contain a superabundance of streams, many of them undeveloped, which might be utilized for power purposes.

In 1855, the Millville Manufacturing Company erected a cotton mill at Millville, in Cumberland County, using the Maurice River for water power. In 1879, an affiliated plant known as the Mays Landing Water Power Company was erected at Mays Landing, using the

### AN OLD INDUSTRY'S VIEW

#### The Millville Manufacturing Co., Mays Landing

"This cotton mill, a subsidiary of the Millville Manufacturing Company, was incorporated in 1869 as the Mays Landing Water Power Company. The plant was entirely rebuilt in 1924. At the present time about 30 per cent. of the power we use is generated by the Great Egg Harbor River; the balance is generated by steam. Cotton mills require a humid atmosphere and we are fortunate in having prevailing southeast winds which bring in a great deal of moisture. The labor conditions are good in Mays Landing, which is a pleasantly situated town. The taxes, however, are high when compared with New England."

Great Egg Harbor River for power purposes. Both plants are operating today, apparently successfully, and while not all the power needed is generated by the water supply, a substantial proportion comes from these sources. The water, in both instances, is from cedar swamp sources, as is practically all water in the Pines. Cedar water is extremely soft, therefore desirable for bleaching purposes; but it has to be treated because of its coffee color. It might prove that cedar water has special merit for some manufacturing purposes.

**Potable Water.** Investigation has been made, and the results have been published, showing what might be done with some of these streams for potable water purposes. The supply which might be procured from certain rivers could be used to supply the Camden area, shore communities, or ultimately, perhaps, North Jersey. How soon the potable water from the Pines will be needed can only be conjectured.

The Joseph Wharton Estate of 95,000 acres, which includes the watersheds of the Mullica and Wading Rivers, offers the best opportunity for a large potable water supply. Other watersheds might conceivably add another 100,000 acres. At some time in the future possibly 200,000 acres will be set aside for a potable water supply.

#### Forest Products

Any statement regarding the commercial possibilities of timber culture is prophetic, simply because we do not know what the future holds for the utilization

of wood. Research may be extended to the point, fifty years hence, where the chemical constituents of wood become more important than wood as we understand it today. In that case, species, quality and size may be unimportant and it might be a question of merely producing cellulose.

As we see it at the present time, certain wood-using industries might eventually locate in this region if we can continue to keep fires suppressed.

**Pulp and Paper Plants.** Great progress has been made recently in developing the pulp and paper industry in Southern States. If research indicates the utilization of native trees, or species which may be introduced, pulp and paper mills could be successfully established. This industry requires wood and an ample supply of water. The latter exists in great abundance over the entire region. Present rail transportation would doubtless be improved if a practical and profitable usefulness were shown.

**Wood Chemical Plants.** The distillation of softwood, as now practiced in the Southern States, permits the recovery of a variety of chemicals used extensively in various industries. One of the principal products of the distillation industry is charcoal, which enjoys a wide use for industrial and domestic purposes. In South Jersey, particularly, there would be an excellent market for pulverized charcoal, which is supplied for poultry use. It is fed to the poultry to ward off intestinal disorders. The Toms River and Vineland poultry areas alone would furnish a market for several hundred cars of charcoal annually. In addition, there is the hotel trade along the coast which is using increasing amounts of charcoal for cooking purposes. The use of charcoal is increasing among the general public for cooking at picnics. Charcoal is made today, throughout the Pines in a limited way by the old-fashioned pit method. Because this method is extremely wasteful, it should not, however, be advocated.

**Box Boards and Crates.** The cranberry industry, as well as other branches of agriculture, use hundreds of thousands of crates and shipping containers. The cranberry growers no longer use native pine crates, because of the inferior quality of the wood. If white pine could be successfully introduced, and there is evidence that it can be, box boards now

supplied New Jersey growers from New England, might be produced locally.

There is now, here and there in the Pines, some manufacture of various styles of crates and hampers. The large quantities of peach baskets and other containers produced by basket factories in South Jersey, located outside of the Pine Belt, are made principally from tulip poplar and gum, trees not native to the Pines.

**Sawmills.** There are now in this region many small portable sawmills which operate intermittently and furnish the operator with a meagre living, but nothing like what could be supported if thrifty trees grew in place of worthless scrub. Some hope for the future of the Pine Belt lies in the stabilization of small local wood-using and wood-producing industries which, if timber were available, would bring back a degree of prosperity. Products which might be produced from pine would be lumber, poles, railroad ties and piling. Products from cedar would include shingles, lath, siding and boat planking. There is now a small industry supplying rustic cedar furniture to the metropolitan markets; and logs are furnished for log cabins at various lake resorts both in North and South Jersey. When peeled and treated with linseed oil, these logs present a beautiful appearance. Opportunities exist for the expansion of this industry if a larger supply of cedar were available. Oak would be used principally for fuel.

**Christmas Greens.** The forests of this section have been badly stripped of holly for decorative use at the Christmas season. Under some sort of regulation and a conservative program, the business in Christmas decorations might be enlarged.

### Recreation

The opportunities for all forms of outdoor recreation are almost unlimited. Countless streams could be made a veritable paradise for the canoe enthusiast. Lakes can be very easily and cheaply constructed. The opportunities for lake development are not generally appreciated, for often the most attractive sites lie far off the beaten paths of travel.

The Pines is famous for deer hunting and small game. There are ample pro-

vision for hunting, fishing, camping, hiking, horseback-riding. There are miles and miles of road. Barbed wire fences are unknown. These activities would enable a vast number of people to enjoy the physical and spiritual benefits that accrue from outdoor recreation.

Recreation is a business. One has only to recall what New England and other States have done to realize what a tremendous asset a development along the lines suggested would be to New Jersey.

### Agriculture

Most of the land in the Pines is decidedly non-agricultural. Development in this industry has been limited to the production of cranberries, huckleberries, and recently the cultivated blueberry. The wild huckleberry is scattered over the entire area. The cranberry bogs (**New Jersey produces 35 per cent. of the entire crop of the United States**) cover about 10,000 acres (16 square miles). The acreage is practically stationary, in fact slightly less than it was some years ago. Unless we can induce people to eat more cranberries, we cannot expect any expansion in this field. Blueberry plantations occupy about 1,000 acres (two square miles). This is a new development and some expansion is to be expected.

In the vicinity of Hammonton and Vineland are open spots in the forest cover where better than average soils permit successful farming under good management. The farm products include grapes, peaches, berries, other fruits and garden vegetables. It is very doubtful if additional land of any consequence will be cleared for farming.

It is not probable that agriculture will require the use of more than 200,000 acres (312 square miles) in the Pine Belt.

### A Forest Cover Necessary

One conclusion at least is evident, namely, that 90 per cent. of the whole of the Pine Belt should remain in forest-cover. Forests are essential for nearly every suggestion that has been made regarding the possible future use of this region. Take, for instance, the 200,000 acres suggested for water power or a drinking water supply. Only a relatively small area would actually be in reser-

voirs; the balance is needed to control the sanitation and protect the watershed. Forest-cover helps to regulate the flow of water and to reduce rapid run-off. Forests have a very definite value for this purpose. The experience of the Millville Manufacturing Company bears out this point. They noticed an immediate decrease in their water supply when they followed the practice of selling off certain swamps lands to be converted into farmland. Take the area devoted to cranberry growing. The bogs are covered with water to protect the plants at nearly all times except during the growing season. Water is, then, indispensable to the cranberry grower. Forests are necessary to conserve and regulate the supply which he must use.

### Who Will Do the Job?

Public ownership by the State of a large part of this region is the only possible answer. Abused by overcutting and disastrous forest fires, its rehabilitation is a long and arduous task. Private interests are neither interested nor financially able to hold this land during the long regenerative period. Public ownership is justified, because of the intangible values at stake which, for financial reasons, cannot be considered by private capital. State ownership of large contiguous areas is one way, and probably the only way, to solve the forest fire problem.

The State now owns in the Pines about 40,000 acres administered as State Forests and State Parks. The department urges the initial acquisition of not less than 250,000 acres for timber production, watershed protection, wild life conservation and recreational use to aid in rebuilding this vast wilderness. The properties which have been acquired are proving their worth; approved forestry practice is transforming barren wasteland into productive woodland. Because of the much closer supervision given to the State properties than to the area as a whole, the fire damage has been very slight. This supports the claim that State ownership is the only solution to the forest fire problem.

Unless public ownership becomes a reality and unless the forest fire problem is happily concluded, the Jersey Pines some day will be a worthless waste—a desert as bare as the Sahara.