NUMBER TWO: History of Industrial Forestry
In the South

By Frank Heyward
In 1956 the Industrial Forestry Association made a grant to the College of Forestry to provide a series of lectures in industrial forestry. This gift was presented as a memorial to the late Colonel William B. Greeley, who was one of the pioneers in industrial forestry and a founder and director of the Industrial Forestry Association. In making use of the grant, which extends over a five-year period, it was decided to select speakers from various sections of the country who could speak on the development of industrial forestry in their areas.

The first lectures covered the development of industrial forestry in the Northwest and, because of his pioneer work in industrial forestry and his interest in it throughout the years, Mr. Axel J. F. Brandstrom was selected as the first Colonel William B. Greeley lecturer.

The Southern Pine Region, with its tremendous development in industrial forestry during the past two decades, was chosen as the second area to be covered in this series of lectures. Because of his intimate relationship with industrial forestry during this period, Mr. Frank Heyward, Jr., was chosen as the second Colonel William B. Greeley lecturer.

Mr. Heyward was born in Savannah, Georgia, and received his bachelor's degree in Forestry from the University of Michigan in 1929, and his master's degree in Forestry from the University of California in 1930. During the seven-year period following his graduation from the University of California, Mr. Heyward served throughout the South with the Southern Forest Experiment Station of the U.S. Forest Service. From 1937 to 1939 he served as state forester of Georgia. In 1939, when the Southern Pulpwood Conservation Association was set up, he became its first forester and general manager, and served in that capacity until 1945. During World War II he served as pulpwood specialist of the Southern Region for the War Production Board. In 1946 and until the present time, he has been director of public relations for the Gaylord Container Corporation, a division of Crown Zellerbach Corporation, at Bogalusa, Louisiana. During the Korean crisis he was chief of the Pulpwood Branch of the Pulp & Paper Division of the National Production Authority in Washington, D.C.

Mr. Heyward's knowledge of industrial forestry has not only been gained through his employment, but also through his twenty years as the owner and operator of a 6,800-acre tree farm in Georgia.

This publication embodies the material which was presented by Mr. Heyward in a series of three lectures given at the University of Washington College of Forestry on February 27, 28, and March 1, 1958.

GORDON D. MARCKWORTH
Dean of the College of Forestry
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History of Industrial Forestry in the South

By Frank Heyward
Gaylord Container Corporation
Division Crown Zellerbach Corporation
February 1958

PART 1

EARLY ACTIVITIES OF WOOD-USING INDUSTRIES

Most people think of the South as the land of cornbread and cotton. Few regard it as one of the great forested regions of the world. Yet the harvesting of the original timber, the problem caused by the resulting denuded land, and the reappearance of the pine forests are integral parts of the industrial and economic history of the South. In spite of the fact that Dixie has for generations been known as an agricultural section, six out of every ten acres of its land area are in forests.

The original timber of the region was of four general types (Fig. 1). Outlining the coastal areas was the maritime pine belt in which pure stands of longleaf and slash pines prevailed. Next inland were forests of loblolly and...
shortleaf pines, either pure or mixed with hardwoods. Still farther inland occurred mixed forests of upland hardwoods. Bottomland hardwoods, the fourth type, stretched along the banks and flats adjacent the numerous creeks and rivers. By area, pines and hardwoods were approximately equal.

The forests of the maritime belt were distinctive in appearance and beauty. Trunks of longleaf and slash pines, although rarely exceeding three feet in diameter, were exceptionally straight and well formed. Their wide spacing and bright orange bark conveyed a feeling of openness and color, more like park than forest. The subtropical sun, pouring through the scattered foliage, likely as not reflected the bronze iridescence of wild turkeys feeding on the succulent pine mast. Lack of underbrush permitted unobstructed view of a resting deer two hundred yards distant. In the spring, the air carried the delicate aroma of yellow jessamine or the bold fragrance of magnolia and sweet bay. High in the tops of the tall pines the soft sighing of the wind accompanied the cheerful call of the bobwhite.

Virgin longleaf pine, Washington Parish, Louisiana. This fine timber, which averaged 25,000 board feet per acre, was cut by the Great Southern Lumber Company, Bogalusa, Louisiana, about 1912.

Inspiring in beauty, the southern pinery was awesome in its vastness. Interrupted only by an occasional bottomland swamp, the pine forests stretched from Virginia to Texas in what to early settlers appeared to be an endless expanse—a distance of nearly 1,500 miles. Had anyone suggested the possibility that this enormous supply of wood might some day be consumed, he would have been considered crazy.

The nine coastal states from Virginia to Texas, plus Arkansas, Tennessee, and east Oklahoma, produce approximately one third the nation’s lumber, 60 per cent of its pulpwood, all of its turpentine and rosin, and vast quantities of other forest products such as poles, piling, cross ties, veneer stock, and cooperage. Of the 484 million acres of commercial forest land in the United
States, 193 million acres or 40 per cent are in the South (Table 1). Moreover, 98 per cent of the region’s forests are classed as commercial. The growth of southern yellow pines exceeds the combined growth of the rest of the nation’s softwoods. As a group these pines account for 30 per cent of the entire country’s sawtimber growth.

### TABLE 1

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### THE NAVAL STORES INDUSTRY

One of the earliest and most colorful industries in the United States is the naval stores industry. During colonial days, the British navy eagerly sought tar and pitch obtained in abundance from pines extending from the Cape Fear River in Virginia southward along the coast. Naval stores were so important to the early colonists that turpentine, tar, and pitch became recognized standards of value and were used as media of exchange in sales transactions. The industry owes its unique name to use in the early days of its products for treating the rigging and caulking of wooden sailing vessels. The resinous heart wood of pines, especially longleaf pine, was burned in shallow pits dug in the forest. The molten rosin or tar was drained off for use. The term “tar heel” as a cognomen for North Carolinians, had its inception in the early days when naval stores production was of such importance.

Collecting crude gum on a naval stores operation in Florida. Wagon will convey gum to a nearby turpentine still. Production of naval stores is one of the oldest industries in the nation, dating back directly to colonial times.
The industry is still an important one in the Southeast. Its two basic products, rosin and turpentine, are either derived from the distillation of gum obtained from the living tree, from distillation of virgin longleaf pine stumps, or as a byproduct in the manufacture of Kraft pulp.

The last two methods of producing naval stores, both products of the skill of the modern industrial chemist, had little in common with production of rosin and turpentine from crude gum gathered in the forest. No other industrial operation comprises as definite a link between colonial and modern times as this. Heart of the industry until World War II was the turpentine camp. During the late 1930's, there were about 12,000 of these camps scattered throughout the maritime pine region. In appearance and operation they were without counterpart. Located within a privately owned or leased forest which might vary in size from one to many thousands of acres, the camps consisted of houses for a woods rider and a camp manager, a commissary, meeting hall, quarters for labor, and a still. Both woods rider and camp manager were masters in the art of handling turpentine negroes. These men knew negro labor as no other white men did. They could tell when a woods hand was playing sick or when one half crazed with liquor was about to run amuck. They knew how to slip into a rival turpentine camp under cover of darkness and entice with honeyed words a good chipper from his employer.

The turpentine negro was different from all others of his race. He was a real product of the piney woods. Simple, happy, and carefree, he was content to work ten or twelve hours a day in the woods by himself, pausing now and then to give vent to a strange but melodious half cry-half yodel, clearly heard for a mile or more. He liked, too, the free and easy atmosphere of the camp quarters. Here his credit at the commissary was most elastic. This was his home—a home he kept well stocked with sprawling children and “fice” dogs. It was a home far from sheriffs and jails. There the law was provided by men who understood him and whom he in turn understood. He was as much a tar heel as his “boss man” and could probably trace his lineage directly to one of the colored slaves who gathered wood three hundred years earlier for the first tar pit on the Cape Fear River.

It was the woods rider’s responsibility to see to it that the “gum was made.” On horseback he zigzagged through the forest inspecting in detail every tree worked. Cups and gutters were nailed to the trees. Gutters were metal strips which directed the gum from streak to cup. Each week from March through October a streak from ½ to ¾ inch deep was cut, or “chipped,” into the tree above the gutter by means of a sharp tool called a hack. By the end of the chipping season, the streaks formed a continuous face extending almost half way around the tree and 18 to 24 inches high. After several seasons, a face might extend up the tree 8 feet or more. After a tree had two high faces, it was generally considered to be “worked out.”

About once a month the gum, known as dip, was transferred from cup to dip bucket and then to dip barrel. Mule drawn wagons conveyed the barrels of dip from woods to still where distillation of the crude gum yielded turpentine and rosin. The clean, delightful aroma of a turpentine still in operation, if once experienced, was never forgotten. The charge of gum in the still was judged properly cooked entirely by sound. The stiller simply placed his ear against the jacket of the still and listened for the distinctive rumble indicating completion of the distillation process.

The thousands of small crude stills which were once such common land-
marks throughout the coastal region of the South now have been completely replaced by a few dozen large centralized stills of modern design and operation. Competition from wood rosin and by-products of the Kraft pulp mills has resulted in a great decrease in the quantity of timber worked for gum naval stores. Furthermore, attempts to mechanize the production of gum from pine timber have not been as fruitful as those to mechanize logging for other forest products. It was, therefore, inevitable than an industry as dependent on hand labor as the gum naval stores industry should fall behind competitively. As a result, the turpentine camps and the Tarzan-like cries of woods laborers are now largely restricted to southeast Georgia and northeast Florida.

THE LUMBER INDUSTRY

Having equal rank with naval stores both as to antiquity and importance in early colonial times was production of masts for sailing vessels and also ship timbers. Masts were carefully selected from the most perfect pine trees to be found, whereas the timbers were obtained largely from oak. Indeed, the first recorded use of southern hardwoods was in 1797 when the United States frigate “Constitution” was built from live-oak timbers cut by a sawmill on St. Simon’s Island, Georgia.

It seems likely that the nation’s first sawmill was located in the South when Jamestown was settled by Captain John Smith in 1608. In one of his earliest letters to the president of the Virginia Company for which he worked, Smith mentions “the countrey most overgrowne with pynes.” When the second supply ship was sent to the colony, it carried eight Poles and Dutchmen who were to erect sawmills. Although documentary evidence is lacking, it seems probable that a sawmill was soon placed in operation because the records reveal that the first export shipment from America that year consisted of “pitch, tarre, clapboard, and waynscott.”

Early growth of the lumber industry was slow as logging operations spread gradually from Virginia into the Carolinas. Transportation for a heavy commodity such as lumber was generally lacking. This accounted for the common use of hewn timbers and even boards during the antebellum period.

The southern lumber industry first developed along the Atlantic Coast, extending from Virginia through the Carolinas into Georgia.

Active large scale exploitation of the South’s pine timber did not begin until the end of the Civil War in 1865. After the redoubtable Paul Bunyan had performed his legendary logging feats in the Lake States, the industry moved into the South in a big way. Lake States lumbermen migrated in two fairly distinct movements. One, east of the Mississippi River in Alabama and Mississippi, was in position to cater to the central states, and the other into Missouri, thence southward to Arkansas, Louisiana, and Texas, serving markets for southern pine in the prairie states.

It was in the middle ’80’s that a retired sawmill man named White built a fine residence on swank Michigan Avenue in Chicago. The “Georgia Pine,” old trade name for dense-grain southern pine, used for interior trim created a mild sensation in the city and became popular immediately. Also about that time a lumber agent of the Illinois Central Railroad succeeded in convincing his company that southern yellow pine was superior to Norway pine from the Lake States for car decking. This immediately opened a new market for the southern wood.

In 1884 southern yellow pine received some effective publicity when two million feet, exported from Mobile, Alabama, were used to build the Antwerp exposition in Belgium. Similar publicity was furnished in 1893 when a number
of buildings at the Chicago World's Fair were constructed of southern pine.

The nation's lumber production reached an all time peak in 1909 with a total of 443 billion board feet. Of this great total 45 per cent was produced by southern mills. Southern yellow pine began replacing northern white pine as the common lumber for housing and became world famous as one of the finest construction materials available. The South maintained leadership in lumber production until 1930, after which it relinquished first place to the West.

James D. Lacey, who became so well known to the industry and to the forestry profession through his timber estimating firm, deserves much credit for developing an interest in yellow pine lumber by northern investors. He came South in 1879 and at once saw the great opportunities offered by the vast expanses of pine forests. Lacey traversed hundreds of thousands of acres on foot, mule, and horseback and blocked up large areas in Louisiana, Mississippi, and Florida, as well as other states, for sale to investors. Sale of these timber tracts was not easy because of the vast difference between the qualities of southern pine lumber and white pine with which Lacey's northern contacts were familiar.

The era during which southern pine became nationally important was one of great building and expansion. Giant industries were being organized. Railroads were stretching out to penetrate new territories. New communities were established along the newly constructed railroads. Communities became towns. Towns became cities. The great nation, destined to become the greatest within only a few years, was flexing its youthful muscles. Lumber was in great demand, and a veritable flood of southern pine streamed into eastern centers via the Atlantic Seaboard and into the Mid-West via the Mississippi Valley. Housing and other structural features for a giant nation were being built at a rapidity never dreamed of before in the world. And one of the important factors contributing to the speed of this enormous building program was tremendous quantities of excellent lumber and structural timber, nearly half of which was derived from southern forests.

During the lush days of the southern lumber industry, hundreds of large sawmills were built. Usual procedure was for a company to acquire a block of virgin timber and build a complete town. The populations of these towns varied from a few hundred to several thousand.

One of the largest of the old sawmill towns which is still in existence is Bogalusa, Louisiana. At that location, the Goodyears, fresh from successful sawmilling operations in Pennsylvania, bought several hundred thousand acres of virgin longleaf pine and organized the Great Southern Lumber Company. In 1906 a town was built consisting of a number of large buildings, more than 700 dwelling houses, and a gigantic sawmill. Within a matter of months a thriving community of 8,000 population was carved from the forest wilderness. The great mill, which began operating in 1907 with capacity of a million board feet of lumber daily, was acclaimed the world's largest. During the peak of its 30-year operation, about 1,900 employees worked in the mill, company hospital, and commissary, and between 800 and 1,000 in the logging camps. The company later constructed a paper mill in Bogalusa which ultimately employed another 1,000 workers.

Like other big sawmills, the Great Southern Lumber Company owned its own railroad. Railroads were essential to move logs from forests to mill and finished lumber into the channels of trade. These logging railroads were con-
nected with main trunk lines, many of which were constructed for the sole purpose of serving lumber towns. The New Orleans Great Northern Railroad, from Slidell, Louisiana, north 151 miles to Jackson, Mississippi, was built to serve the Great Southern Lumber Company at Bogalusa. This is now the main line of the Gulf, Mobile and Ohio Railroad between New Orleans and Jackson, Mississippi. Between 500 and 600 miles of the Seaboard Air Line Railroad in the Carolinas, Georgia, and Florida were originally laid out primarily to handle shipments of lumber. This railroad built an additional 1,400 miles of track through sections where forest products furnished a major percentage of the freight hauled. It is generally recognized that the South's original timber was an impelling factor determining the location of many of the first railroads in the region.

Usual life of a sawmill town was 20 to 25 years. After the mill cut out, the community became a "ghost town." Some exceptional towns existed for longer periods. One of the most interesting of these was Bagdad, a quaint little community on Blackwater River near Pensacola, Florida. In 1828 a sawmill was erected near Bagdad with slave labor. During the War Between the States, the Confederates burned both mill and lumber yard to prevent their falling into the hands of the Unionists. Rebuilt after the war, the mill continued to operate for many years. Under the name of Bagdad Land and Lumber Company, the mill attained its highest production in 1912, cutting about 40 million board feet of pine lumber. Between 600 and 700 workers were employed in the mill, and more than 1,000 men worked in the woods in logging and naval stores operations. Finally, its timber supply exhausted, the company cut out in 1939. After liquidation of the company, the town lapsed into a mere shadow of its former self. Its chief source of revenue and only major industrial payroll gone, Bagdad's population today is less than the number formerly employed within the sawmill.

During the period of great activity within the lumber industry, sawmills sprouted up in every wooded section. They comprised veritable chains along many mainline railroads. For instance, on the Kansas City Southern between Lake Charles and Shreveport, Louisiana, some mills were almost within sight of their next door neighbors. This prompted one author to write, "if one had forgotten to blow its daybreak whistle calling its laborers to work, the blasts of its neighbors on either side would have stirred it to wakefulness." Along this same railroad there were 30 sawmills in Arkansas alone.

By the late 1920's, hundreds of sawmills had cut all their available timber and ceased operations. In their wake were left "ghost towns" or towns able to maintain only a feeble existence. The most successful mills had already made plans for one last migration as they cast covetous eyes on the remaining great body of virgin timber in the United States—the forests of the Pacific Coast. Many southern companies moved to the West. The greater number liquidated. For all practical purposes, the pine had disappeared from Dixie. Industry thought so, and the federal government said so. In the Capper Report of 1920, the U.S. Forest Service made the following statement: "In 15 years the South will become dependent for its own needs upon large importations of lumber from the Pacific Coast." With this dire prophecy from official Washington, with ex-governor of Pennsylvania Gifford Pinchot and other conservationists loudly predicting a national timber famine, it is hardly surprising that many lumbermen decided to liquidate and sever their
ties with a doomed industry. Yellow pine in commercial quantities was relegated to the past with the passenger pigeon.

During this time, a few foresters and men in industry were calling attention to the fact that second growth pine forests made extremely rapid growth. But their claims were regarded with skepticism by some and with obvious lack of interest by others, who believed that lumber from second growth pine would be too inferior in quality for acceptance by the trade. Furthermore, there was no great demand for pine timber except for lumber, the southern paper industry then being in its infancy.

THE CUT-OVER LAND PROBLEM

At the turn of the twentieth century, millions of acres of bleak cut-over land, apparently useful for no gainful purpose, cursed and shamed every state in the South. Instead of attracting more people, the sawmills left “ghost towns,” equalled in their bleakness and spirit of desolation only by the surrounding expanse of sun-baked land. People simply moved out, fading away with the lonely wails of the mill whistles which echoed for the last time over the endless land of stumps.

The magnitude of the cut-over land problem was brought out in a survey made by the Southern Pine Association in 1919. This survey recorded 92 million acres of land from which the bulk of the timber had been removed. This equalled the combined areas of Alabama, Mississippi, and Louisiana. Not all this vast area was barren stump-land since all sawmills did not practice the same degree of timber utilization, nor did all make use of steam skidders, a form of logging which caused great damage to any timber left standing. However, by far the greater percentage of this stupendous land area was not capable, and probably never would have been capable, of

Cut-over and burned-over land was once a problem in every southern state. Although not all land was as barren and destitute of timber as that illustrated, a survey made in 1919 recorded a total of 92 million acres from which the bulk of the timber had been stripped.
producing revenue from any means whatsoever without help from man. Cut-over lands were a man-made problem and required a man-made solution.

Many lumber companies despaired of finding a profitable use for their cut-over lands and permitted them to revert to the state through nonpayment of taxes. Others strove valiantly to solve their perplexing land problem, spending large sums of money for this purpose. Expenditures by the entire industry ran into the millions. Every conceivable type of agriculture and horticulture was investigated and tried. The most popular type of land use from the beginning was livestock, both cattle and sheep. Neither was successful.

A number of lumber companies tried to develop the growing of pecans and Satsuma oranges with singular lack of success. A real-estate agent in Gulfport, Mississippi, advertised, “Let the Pecan Tree take the place of the Pine.” It soon became apparent, however, that making an impression on the millions of acres of cut-over lands by planting orchards was comparable to an attempt to build the great pyramids of Egypt with poker chips.

Land departments were formed by many companies for the sole purpose of selling cut-over lands. Colonization attempts were widespread. After laying out subdivisions of model farms, many companies chartered trains for prospective buyers from other sections of the country. Most of these promotional schemes were entirely bona fide. However, a few unscrupulous promoters sold lands to unsuspecting buyers who hoped to put them to uses for which the lands were entirely unsuited. On one such occasion the legendary black soil of the Mississippi River Valley was falsely exploited. A group of Slavic farmers was brought from the Middle West by special train to Mississippi, but many miles from the river bottom lands. The unsuspecting prospects were shown crawfish mounds and urged to feel the “black loam” with their fingers. Any native farmer could have told them that crawfish mounds were always found on land too poorly drained for farming! The lands purchased for farming were soon abandoned.

The Mississippi Land and Development Association was formed by lumbermen to introduce settlers from other sections of the nation to the state’s cut-over lands. Land sales were numerous; but the big majority of new farms failed, and the owners moved away leaving the lands again to desolation.

Further indication of the prevailing thought of the time was the following information presented in true Chamber-of-Commerce fashion on the back of the letterhead used by the Cut-Over Land Department of a company in Louisiana. “Cut-Over Lands Near Fast Growing City and Railroad. Cut-Over Lands Sold, 60,000 acres. Cut-Over Lands on Hand, 57,717 acres. Timber removed from an additional 50 acres per day. Will grow corn, cotton, cane, peas, potatoes, hay crops, and all the vegetables. Prices and Terms Reasonable.”

All these experiments and schemes were monotonous in the similarity of their results—cut-over pine land was entirely unsuited for the types of land utilization attempted, at least by methods then practiced.

During this period the railroads began to see freight movements decrease alarmingly throughout sections where lumber shipments had provided such handsome revenue in years previous. As a help towards solving the perplexing cut-over land problem, several railroads, under the leadership of the Seaboard Air Line and Atlantic Coast Line, formed the Southern Settlement and Development Organization in 1911. The purpose of the organization
was to make the cut-over lands productive of tonnage for the rail carriers. Field and truck crops were promoted, as were poultry, hogs, beef, and dairy cattle. Although this leadership and inspiration resulted in better agricultural practices, they were completely and hopelessly ineffective as a means of making even a sizeable dent on the cut-over land problem.

In 1917 the Cut-Over Land Conference of the South was held in New Orleans. The conference was sponsored by the Southern Settlement and Development Organization and Southern Pine Association, an active and progressive lumber trade association. Present were representatives of railroads, lumbermen, specialists in all lines of agriculture, farm implement companies, real-estate firms, and foresters. Of the 340 people registered, however, it is noteworthy that only four were foresters. Although timber growing was recommended in several speeches as the solution of the cut-over problem, the sentiment of the meeting was definitely in favor of livestock.

During this period there was widespread condemnation of the lumbermen for stripping the land. In 1904 Gifford Pinchot, U.S. Forest Service, stated, "It is evident that never before has forest destruction been so rapid as at present, that we have never been so near to the exhaustion of our lumber supply and that vigorous measures have never been so urgently required as now."

There can be no denial that the lumbermen stripped the virgin timber from the land with abandon. However, it is only fair to mention certain factors contributing to this severe land treatment. To begin with, the early operators had no intention of returning to the lands logged over. Why should they have had? The trees cut were from 150 to 250 years old. It was clearly beyond human capacity to conceive of a means whereby private capital might restore timber whose age at maturity was reckoned—not in decades—but in centuries.

Secondly, the logging methods used by the large mills in the early days precluded certain activities commonplace today. Interest charges and depreciation on equipment, especially railroads, made impossible the cutting of a portion of the timber from any area with the expectancy of returning for a second cut in later years. Therefore all merchantable timber was cut. This meant all trees that would make one good-sized saw log. Thus the land was literally stripped of its timber.

Finally, local taxes were one of the most perplexing problems confronting early sawmills. As the standing timber was cut, the tax levy was increased on the remainder. This prompted the mills to even greater efforts to liquidate their timber. The taxing body reciprocated by raising its levy still higher. Such an unfortunate race could have only one result—liquidation by the owners. Regrettable situations such as this were widespread and were one of the major factors responsible for the cut-out and get-out policy of mill operators.

THE LUMBERMEN'S VIEWPOINT

One of the first glimmerings of the early thinking of the lumbermen on the possibilities of growing more timber on the South's cut-over lands shows up in a report of the Forestry Committee of the Southern Pine Association in 1920. In the first place it is worthy of note that the pine industry had such a committee as early as 1920. In its annual report for that year the committee said, "There is no disposition on the part of the thinking people to hold the lumbermen responsible for the condition [speaking of forest depletion] because it is recognized by those who gave the matter open-
minded consideration that the public itself, which consumed the lumber, is as much responsible for the cutting of the forests as those who engaged in the business of satisfying the public's demand.” This argument, of course, was wishful thinking, because surely thoughtful people never judged themselves to be responsible for forest depletion. However, the report cited one sound reason why private interests could not practice forestry. It stated, “So long as excellent tracts of fine, virgin yellow pine conveniently located to the mills could be purchased from $3 to $6 per thousand feet, it was of course manifestly impossible for any individual to give serious consideration to the encouragement of second growth.” The validity of this statement is obvious. The report concludes that “... the stage has not yet been reached which would justify any direct outlay of money in cut-over lands in behalf of the young timber which may now be growing.”

During the same year, A. L. Clark, president of the Southern Pine Association, wrote, “But on account of the difficulties which the nonresident landowner would labor under, I do not believe that under the present conditions and laws he can successfully reforest his large areas, which are of necessity unprotected either by police powers or from burdensome taxation which is economically on the wrong basis for such a purpose. An annual tax on an annual crop is one thing, but an annual tax on a 75- to 100-year crop is quite another thing. Therefore, I believe that large comprehensive reforesting on large areas can only be done by the State or National governments under present conditions.”

Further insight on the thinking of the early lumbermen is a statement by F. H. Farwell, general manager of the Lutcher Moore Lumber Company of Orange, Texas. In a letter written in 1922, Farwell said that the lumbermen should be given credit for building up industry and homes. He raised the question of why government should not issue bonds to finance the purchase of cut-over lands, grow a new crop of timber, and sell the new stumpage to industry just before the bonds matured.

The period 1900 to 1925 was one of great uncertainty for southern wood-using industries concerning their future operations. Was the new forestry business, advocated by the government, practical for private interests, or was it merely the pipe dream of visionaries? Was there likelihood of development of a pulpwood market for small-sized trees? What would be the future attitude of taxing bodies regarding the growing of trees? How was it possible to grow a new tree crop when, in every state, forest fires annually burned millions of acres of land? Decisions had to be based on assumed answers to these and many other pertinent questions. They were difficult decisions for executives to make.

Viewed with the sagacity of hindsight, it may seem strange that lumbermen as a whole closed their eyes so completely to the one form of use for which their cut-over lands were positively known to be suited—the growing of pine trees. In addition to fires, to tax uncertainties, and the long period required to grow timber to maturity, there was an even more compelling factor which delayed the adoption of forestry. This was the almost complete lack of knowledge on the subject of tree growing. Criticism of the lumbermen for failure to practice forestry presupposes that these men knew the meaning of forestry. This was not the case. No one, in either government or private employment, could definitely state that a lumber company could reforest cut-over land, grow a merchantable crop, and stay in business. None had tried it.
EARLIEST FORESTRY EFFORTS

The first large scale forestry project in the South was initiated in 1890. George W. Vanderbilt planted several hundred acres with white and shortleaf pines on his baronial estate near Asheville, North Carolina. Objects of the planting being erosion control and beautification of cut-over land, it provoked little interest in the lumber industry of that day. After all, Mr. Vanderbilt was not dependent on harvesting his planted pines for his livelihood as a lumber company would have been.

In 1898 the Atlantic Coast Lumber Company at Georgetown, South Carolina, proposed bringing into the area Scandinavians to purchase and reforest cut-over lands. Arrangements were made to buy sufficient pine seed from Florida to reforest 5,000 acres. However, these plans were never executed.

The first steps in private forestry in the South, other than widely scattered efforts on small holdings, were probably projects of naval stores operators. The industry as a whole deserves little praise because no practice was more ruinous to a pine forest than the typical early-day naval stores operation. In such an operation all trees down to eight inches in diameter were faced and worked so severely that subsequent growth was negligible. Many trees were broken off at the face by wind. Many others fell prey to insects. As a means of safeguarding from accidental fire their cups and metal gutters attached to trees being worked, grass and pine needles were raked from around the base of each tree. The entire forest was then set on fire in such a manner that the fire burned against the wind. The flames thus held low and, each tree protected by its individual fireline, the working trees were not burned; as a result they and the hardware used for gum collection were to an extent reasonably safeguarded against accidental fires for one to two years, after which the burning process was repeated. Of course, this practice of frequent burning was entirely incompatible with growing another crop of trees because all reproduction was destroyed.

But there were many progressive men in the naval stores industry, and they were among the first to undertake on a commercial scale the growing of new timber crops. These men learned how to minimize damage from their intentional fires and had developed prescribed burning to a considerable degree before the forestry profession as a whole would admit that this practice was possible, much less practical. In this development they were years ahead of the U.S. Forest Service and state forestry agencies.

About the turn of the century, the U.S. Forest Service began receiving requests for advice on timber growing from lumber companies and individuals widely scattered about the South. The first forest management plan resulting from these queries was probably one made in 1901 for the Sawyer and Austin Lumber Company of Arkansas. This company liquidated many years ago and its lands are now owned by International Paper Company. Also in 1901 written recommendations were made covering the 6,000 acres owned by the University of the South (now called Suwanee) in Tennessee. Early timber management plans by the Forest Service were also prepared for the Okeetee Hunting Club in coastal South Carolina, lands of the Kirby Lumber Company and Houston Oil Company in Texas, totaling some 800,000 acres, E. P. Burton & Company of South Carolina, Linville Improvement Company of North Carolina, Tennessee Coal and Iron Company of Alabama, and Kaul Lumber Company of Alabama. As a result of Forest Service recommendations the Kaul Lumber Company left seed trees on one of its tracts of land and the
Burton Lumber Company began its first fire protection measures. However, the Kaul Lumber Company did not adopt a general forestry policy for all its lands until many years later, and the Burton Lumber Company sold its timber holdings.

In 1905 the Forest Service took over from the Interior Department the administration of the National Forest Reserves and cooperative management work declined for many years owing to limited personnel. However, in 1906 the Forest Service made an examination of the lands of the Carolina Fibre Company of South Carolina. This company, no longer in existence, was one of the earliest to undertake fire protection measures.

The first specific forest practices to be undertaken in the South had to do with fire protection. These were largely in the form of sporadic efforts by individual land owners and companies widely scattered throughout the vast region. As already pointed out, naval stores operators were well represented in this class of progressive landowners.

The first large scale attempts to control fire were on national forests. This work began when a purchase unit was established in Oklahoma in 1906. By 1914 purchase units had been designated in nine of the twelve southern states. These projects were of great value in proving to many doubting minds that organized fire protection was both possible and practical.

In 1913 the City of Asheville, North Carolina, undertook the first efforts to prevent fires on its 17,000-acre watershed. The same year the Tryon Township Forestry Club, also in North Carolina, began fire protection on 10,000 acres. The following year in Virginia, the Clinchfield Coal Company built three fire towers as its initial work to control fires. These were among the earliest attempts at fire protection by private interests in the region. In 1915 state forest services were established in Virginia, North Carolina, and Texas. Louisiana followed in 1918. In each of these states this was the action which set in motion real attempts to practice forestry by private interests.

In every southern state, however, certain enterprising wood-using companies began fire protection activities prior to establishment of a forest service in their respective states. For example, in Louisiana the first fire tower in the state was built by the Great Southern Lumber Company. The second was built by the Urania Lumber Company. These towers were deeded to Louisiana in 1918 when the state's forestry organization was first established. In South Carolina the West Virginia Pulp and Paper Company erected the first fire tower in 1924; likewise the Dantzler Lumber Company erected the first tower in Mississippi. In both instances the towers were turned over to the state forestry agencies when they were organized in later years. In Arkansas, The Crossett Lumber Company (now The Crossett Company), Union Sawmill Company, and International Paper Company had made substantial progress in fire protection some years prior to the establishment of the Arkansas Forestry Commission.

The Southern Pine Association, with headquarters in New Orleans, was very active in lobbying for legislation to establish state forestry agencies. Representatives of that association attended dozens of planning and organizational sessions for this purpose throughout the South.

A project which awakened much interest in early fire protection was the caravan of the American Forestry Association. Beginning in 1929, a fleet of five trucks invaded southeast Georgia to begin a three years' crusade for fire protection. Equipped with moving pictures and literature, the trucks roved
the hinterlands of Mississippi, Florida, Georgia, and South Carolina—states selected because of the severity of their fire problems.

The fire caravan was well received, and its 7,370 lectures and moving-picture shows began the forestry education of an estimated 3 million people. This project was one of the pioneer efforts of its kind in the nation.

But progress in fire protection was slow. Accustomed to annual fires burning through cut-over land, thereby burning nothing but stumps, people were hard to convince that such fires prevented the starting of a new tree crop.

FIRES A PART OF THE SOUTH'S HISTORY

The indifference of the rural South to woods fires is not difficult to explain when the historical occurrence of fires is considered. There had always been fires. To old residents, the occurrence of woods fires in the fall was just as natural as the honking of migrating geese or the appearance of crimson foliage on the sweet gums.

In 1585 Sir Francis Drake recorded the occurrence of a great fire extending along a large portion of the Florida coast. Four years later, parties attempting to locate Sir Walter Raleigh's lost colony wrote of their confusion caused by fires. The rescue parties landed only to find "no man nor sign that any had been there lately." In 1607 George Percy, landing on the shore of Chesapeake Bay, noted "great smokes" of burning woods. De Vries, writing in 1632, mentions the firing of forests by Indians while hunting. This use of fire, fortunately now rare, still persists in some areas. A ring of fire, enclosing perhaps 30 or 40 acres, is set, only a narrow gap being left unfired. Deer, panicked by the flames, attempt to dash through the gap, and are shot by the concealed hunters. In 1724 Hugh Jones mentions Indians' fires causing openings in the forests along the Atlantic Coastal Plain. Both Bernard Romans and William Bartram record the occurrence of fires in Florida about 1775. One of the most interesting of the early references to fires cites a North Carolina law which, in 1731, required burning of the native grasses every March to render the new grass succulent and fresh for cattle. Both Andre Michaux, in 1801, and Sir Charles Lyell, about 45 years later, mention forest fires in the South being started by settlers.

From these historical considerations, it is not surprising that the solution of the South's fire problem has been a long and vexing one. In a study made by the Forest Service, the presence of charcoal in thousands of soil samples collected throughout the region indicated the widespread occurrence of fires in years past. Indeed, even today, nine of every ten forest acres burned in the nation occur in the South. But the problem is definitely being solved, and the time has arrived when tree farmers, in most sections of the South, need no longer worry about their crops being wiped out overnight.

The State Foresters and U.S. Foresters of the Branch of State and Private Forestry deserve great praise for their extended and courageous fight against fires on private lands the past 30 years. Literally, the solution hinged upon changing the thinking and philosophy of the great majority of the South's rural population. C. F. Evans, retired, was the first Clark-McNary inspector of the U.S. Forest Service in the South. No one has given more time and thought to the fire problem than he. His contribution in this field was outstanding.

The South's earliest forestry efforts sputtered and backfired much like the Model T automobile typical of the times. First one company would try fire
protection for a few years, only to give up in disgust when an incendiary fire wiped out all the efforts of the past years. Then another company might try a seed tree cutting only to find the local taxing body unsympathetic and adamant in its appraisal of the land as "virgin" forest because of the presence of a few of the original trees.

What the region needed was some clear-cut example of the successful production of a crop of second growth timber by an active wood-using company. Lumbermen who knew much about methods of timber harvesting and nothing about timber growing would never be convinced by mere words, no matter how eloquent, that forestry was practical. This they had to see with their own eyes. Then, too, they needed leadership—leadership by a man as successful in business and as stubborn in character as they. Then, and only then, would they believe.
Henry E. Hordtner, 1871-1935, president of the Urania Lumber Company of Urania, Louisiana. Hordtner is generally regarded as the “father” of private forestry in the South.

Although not the first southern company to show an active interest in forestry, Hordtner’s company was the first to adopt a definite sustained program.
It was in 1908 that an event took place which was to provide the greatly needed spark of leadership for the South's industrial forestry development. Because in that year Henry Hardtner, lumberman, as a delegate from Louisiana, attended President Theodore Roosevelt's Governors' Conference on Conservation. The views of President Roosevelt and Chief Forester Gifford Pinchot on conservation had a profound effect on Hardtner. From that year until his death in 1935 he provided a stubborn, courageous, and practical leadership to his fellow lumbermen that was destined to affect every section of the South. It is doubtful whether any man other than a lumberman could have pierced the barricade of doubt of the early lumber industry as to the practicability of forestry. But Hardtner was the man for the task. He is justly entitled to be called "The father of southern forestry."

The year after he attended President Roosevelt's Conservation Conference, Hardtner requested Chief Forester Pinchot to send professional forestry guidance to his company, the Urania Lumber Company, of Urania, Louisiana. W. W. Ashe of the Forest Service visited him as the result. Ashe had written several bulletins on forest conditions of North Carolina and was one of the few individuals at that time having any professional forestry knowledge of southern conditions. His bulletin published in 1915 on loblolly pine is still regarded as authoritative.

Hardtner became active in the lumber industry at the age of 21 when he invested $1,000 given him by his father in a sawmill venture. The Urania Lumber Company was organized six years later with Hardtner as president. In 1904, six years after Hardtner became president, the Urania Lumber Company began buying cut-over land—this at a time when most other lumber companies were trying to sell theirs. Hardtner was called crazy by some lumbermen—a faddist by others. Writing of a speech he gave at a lumbermen's meeting urging adoption of a measure of forestry, Hardtner said two men seated nearby asked, "What is the fool talking about?" The men were Col. W. H. Sullivan and R. H. Hallowell who, within a few years, were also to be recognized with Hardtner as progressive leaders well ahead in their thinking to that of other forest industry executives.

As a member of the legislature Henry Hardtner successfully piloted through a number of bills which were of the utmost importance to his state's early forest development. In 1912 the Urania Lumber Company began its forestry program in earnest. Cut-over lands were fenced against razor-back hogs—deadly enemy of longleaf pine seedlings—and fire protection measures were undertaken. Since that year, the company has never waivered in its policy of sustained yield. Today, 23 years after the untimely death of Hardtner, the company is cutting selectively in beautiful stands of loblolly and shortleaf pine timber that it has grown from seed. The entire South is proud of its first example of sustained industrial forestry, a fitting reminder of the courage and clear thinking of Henry Hardtner.

The Urania Lumber Company was important to the South's forestry development for still another reason. It was on this company's lands, in collaboration with Henry Hardtner, that Professor H. H. Chapman, of the
Yale School of Forestry, performed much of his experimental work which formed the basis for his conclusions on southern pine management. No other forester has written more on southern forestry. In 1907 Chapman made an examination of the pine lands of the Louisiana Central Lumber Company in the Ozarks of south Missouri. The following year he made a management plan for the Kaul Lumber Company of Alabama. During the next ten years, he examined the properties and made management recommendations for the following companies: Thompson Brothers Company of Texas; Louisiana Central Lumber Company of Clarks, Louisiana; Crossett and also Southern Lumber Company of Arkansas; Great Southern Lumber Company of Louisiana, and Vredenburg Sawmill Company of Alabama.

Of the many technical contributions made by Chapman in the field of southern pine management, none exceeds in importance his work developing the proper use of fire in the growing of longleaf pine. In a working plan prepared in 1908 for the Kaul Lumber Company, Chapman advocated the planned use of fire to obtain longleaf pine reproduction. In this field he was at least 25 years ahead of the forestry profession as a whole.

In 1928, H. H. Chapman and Henry Hardtner began a series of experimental burning studies at Urania, Louisiana. The U.S. Forest Service began active research in this field in 1931 and a few years later recognized prescribed burning, under certain conditions, as a desirable practice on National Forests. State forestry agencies have been far more reluctant to recommend prescribed burning, although today the practice is accepted by the majority of professional foresters.

Probably the first large scale planned use of fire as a management tool in the South was on lands of the Carolina Fibre Company of South Carolina. In 1930 the company adopted prescribed burning as a definite part of its forest land management.

GREAT SOUTHERN LUMBER COMPANY AND OTHER EARLY PIONEERS

The Urania operation was visited by dozens of industrialists and foresters. One of the visits which had far-reaching results took place in 1920 when the entire board of directors of the Great Southern Lumber Company, Bogalusa, Louisiana, spent two days going over Hardtner's operations. Regarding that visit Hardtner had the following to say in a file memorandum: "Officers of the Great Southern Lumber Company on arrival at New Orleans gave to the press information that they would at once commence growing trees for paper manufacture, in order to keep their mills at Bogalusa running perpetually. The solution of the forestry problems seem near at hand, and the cut-over lands are to be put to work."

After this visit to Urania, Great Southern officials were so impressed that they immediately adopted a bold program of their own. They would reforest by hand-planting a vast area cut over by their Bogalusa operations, believing that waiting for natural pine regeneration as Hardtner had done would entail too much delay. The company was operating at Bogalusa a tremendous sawmill with a rated capacity of a million board feet per day which gave it a claim to being the world's largest. Also at the same location was the Bogalusa Paper Company, a wholly-owned subsidiary of the Great Southern. Under the leadership of A. C. Goodyear, president, and W. H. Sullivan, general manager, the Great Southern began its artificial reforestation work in 1920.
This was the first large scale planting project undertaken in the South and one of the first in the nation. The program resulted in 30,200 acres being hand planted. Gaylord Container Corporation, which succeeded the Great Southern Lumber Company in 1937, continued the program until 1955. After that, as a Division of Crown Zellerbach Corporation, Gaylord maintained the previously established planting rate of 12- to 14,000 acres per year. As a result, a total of 161,731 acres has been planted by the company in Louisiana and Mississippi. These plantings, in the aggregate, comprise the largest industrially owned man-made forest on the continent. To hundreds of visiting foresters and executives from other wood-using companies, the man-made forests have been a great inspiration.

The same year of the Urania visit by Great Southern officials, W. B. Greeley, chief, U.S. Forest Service, wrote Hardtner as follows: “Since leaving you we have had an opportunity to see the work and progress by the Great Southern Lumber Company at Bogalusa, the conservative cuttings of Mr. Batson at Millard, Mississippi, and a tract in Goose County, Alabama, which was cut over by the Kaul Lumber Company between 1900 and 1910 under suggestions furnished by the Forest Service. . . . I believe that the time is here when the timberland owners of the South generally will recognize the growing capacity of their lands as one of its valuable assets. Certainly your splendid demonstration at Urania should convince any of them.” The Batson property referred to by Chief Forester Greeley was eventually liquidated as cut-over land, but has since been completely reforested by planting by the Gaylord Division of Crown Zellerbach.

In 1915 the Pfister-Vogel Land Company, owner of 85,000 acres of mountainous lands in Georgia, employed Bonnel H. Stone as land manager. Stone was a graduate forester, the first to be engaged by any private company in the South. Under his management the Pfister-Vogel timber holdings showed a great reduction in area burned. This property was a convincing example in proving to other private interests that forest fires could be controlled. After Stone’s death, the land was sold to the federal government for National Forest purposes. The 15,000-acre property of the Martha Berry School, located nearby the Pfister-Vogel operation, was also placed under protection in 1915.

About the same time, the Dantzler Lumber Company, Moss Point, Mississippi, began leaving seed trees as a general policy on its own lands, under the supervision of the late P. N. Howell. Howell, or Posey, as he was affectionately known in every section of Mississippi where pine trees grow, began preaching the doctrine of forest fire protection in the late 1890’s. One of the first examples of cutting to save seed trees in the region was begun in 1913 by the Malvern Lumber Company of Arkansas. Timber marking for selective cutting by the company was initiated in 1926.

A splendid example of longleaf pine management is the Tennessee Coal, Iron and Railroad Company in southern Alabama. This company, a subsidiary of United States Steel Corporation, began acquiring land for a “forest reserve” in 1917. Within a few years, 50,000 acres had been purchased and initial steps to prevent fires were taken. Progressive forest management has continued from that period and the forest today is recognized as being one of the finest stands of second growth longleaf in existence.

One of the most progressive of the South’s hardwood operators is the Anderson-Tully Company of Vicksburg, Mississippi. This company has been
cutting conservatively on its fee lands since 1913. It began active fire protection seven years later. As a result of scores of years of good management, Anderson-Tully has done an outstanding job of building up the growing stock on its fee ownership.

Among the highly productive forest properties of the region are those in South Carolina owned by the West Virginia Pulp and Paper Company. The company began land acquisition in 1924 and, as a result of good management and adequate fire protection, today owns several hundred thousand acres of well-stocked forests outstanding in quality. West Virginia has for years been most active in forest research as an integral part of its land development.

The distinction of being the first industrial forester employed in the South belongs to W. J. Damtoft, treasurer, The Champion Paper and Fibre Company. Damtoft began his distinguished career with Champion in 1920 as a young forester. He has guided his company's progressive forest policies actively since that date and is widely recognized for his many major contributions to the South's forestry development. Perhaps his most important accomplishments have been in the role of spokesman and leader for industry programs.

Unquestionably the factor which sold tree growing to more hardboiled lumbermen than any other was the rapid development of the second growth pines which sprang up by the thousands on most cut-over lands where fires were excluded. Data obtained by foresters on rapid tree growth caused the raising of many an executive eyebrow, but it was the trees themselves which were forestry's best salesmen. From various sections of the South emanated stories of second growth timber stands which had attained sawlog size during the period of operation of the sawmill owning them. B. A. Mayhew, president of the Fordyce Lumber Company in southern Arkansas, related a story which illustrates this point. In 1908 his company purchased timber cutting rights on a 10,000-acre tract. The owner reserved the right to buy back the cut-over land for 50 cents an acre. Mayhew's company cut all merchantable timber and gladly sold the land back to the original owner, breathing freely in the belief that this was one piece of cut-over land disposed of at a profit. However, in 1924 sufficient timber had grown to permit a second cut. But the story does not end there. In 1938, thirty years after the first timber was cut, the Fordyce Lumber Company paid the landowner $50,000 for the timber of sawlog size on this identical tract of land previously cut twice. The company then tried unsuccessfully to buy the land which had proved to be so productive.

Another illustration of the aggressiveness and rapid development of second growth pines was on property owned by the Southern Pine Lumber Company in east Texas. In 1917 the company decided to convert 20,000 acres of cut-over land into pasture. Mexican labor was imported to cut or deaden by girdling all hardwood trees. Protected from fire, the land was soon covered with thousands of seedling pines. There was no economic means of removing them, especially as it was obvious that others would quickly replace them. Inasmuch as the volunteer pines grew to heights of 12 to 15 feet by the time they were only 5 years old, the company wisely decided that the land rightfully belonged to the pines which were carefully protected from that date.

Then, too, a few sawmills, quite accidentally cut their virgin timber in such a manner that sufficient trees were left standing for one or more subsequent logging operations. W. T. Neal, president, T. R. Miller Mill Company,
Brewton, Alabama, writing of his company’s early forestry work said, “We have never had a cut-over land problem. I might say that we have done selective cutting from the beginning of our operation, which was about the year 1878. . . . In this kind of operation we did not cut down any trees that wouldn’t float and didn’t cut any smaller trees than would make a 30-cubic-foot average, so in the beginning our set-up was selective cutting by accident.” In common with a number of other sawmills, this company floated its logs down streams from inland forests to mill sites on or near the coast. T. R. Miller Mill Company’s lands for many years have been a splendid example of enterprising forest management.

The Jackson Lumber Company, Lockhart, Alabama, was another progressive company that never experienced a cut-over land problem. Beginning in 1908 this company cut to a conservative diameter limit, thereby leaving adequate timber to make additional growth for later harvesting.

Finally, the passing of the steam skidder and the advent of the automobile age exerted a marked influence on the development of southern forestry. Power skidders were as efficient in their destruction of small residual trees on a logging operation as they were in yarding the logs cut. Their use was responsible for much of the devastation which characterized the typical logging job in the early days.

Already mentioned was the fact that logging by railroads meant cutting all merchantable timber from every acre available because of high capital investment and depreciation on equipment. Logging by trucks changed these conditions overnight. Investment in a whole fleet of trucks was less than investment in a railroad. So it was that when foresters advocated cutting only one third the volume of a stand of timber the first cut, leaving two-thirds for future growth, loggers found this entirely practical. However, most of them were very stubborn about accepting this change from clear cutting.

AUSTIN CARY

By 1920 the South, with respect to its forests, was a pitiful spectacle. Remnants of the splendid virgin stands were spotted here and there like hair on a mangy dog. Tens of millions of acres of stumpland, with what little timber remained, were burned over at least every two or three years. Where the proud pine had once reigned in majesty, there roamed scrawny piney woods cattle or razor-back hogs intent in their search for one last longleaf seedling to uproot. The big sawmills were cutting out as fast as possible, many adding insult to the already injured land by moving as far away as they could—to the Pacific Coast. Although a man named Hardtner in north central Louisiana maintained that growing second growth pine was good business, he was still too new in the game to have proved his point to doubting lumbermen. Only at widely scattered locations were a few individuals and companies attempting to practice the new fangled idea of forestry. At Bogalusa, Louisiana, the Great Southern Lumber Company had announced its intention to reforest by hand planting thousands of acres of its cut-over lands. However, lumber industry executives in general believed that this project was entirely impractical, and many public foresters considered it purely a publicity stunt.

Such were the forest conditions of the South in 1917 when Austin Cary made his first visit. If Henry Hardtner is referred to as “the father of Southern forestry,” as indeed he should be, then Austin Cary must be called
“the godfather.” When Cary, a shrewd, New England businessman-forester, first visited the pinelands of the South in 1917, it was a lucky day for southern forestry. Quick to perceive the timber growing advantages of the region, Austin Cary dedicated the last 19 years of his life to awakening southern wood-using industries to the possibilities of timber growing. He was successful to a remarkable degree, and his accomplishments in the fields of fire protection and forest management comprise the greatest contribution by any single person to southern forestry. Handicapped by not too robust health and continually plagued with insomnia, Cary conducted his field work in the
South from fall to spring, returning to New England for the balance of the year.

Gary was always willing to extend a sympathetic ear to the lumbermen’s points of view. With some he agreed. With others he disagreed but never in such a manner as to offend. The following excerpt from a letter by Gary to the “American Lumberman” in 1925 is typical of his thinking and also well displays his unique method of expression. In the letter he voiced approval of an article which “tells how, instead of finding out what they [lumbermen] can do and doing that thing, men often close down on positive thinking and go to harping on certain ideas—taxation, the fire menace, etc.,—and in the matter of actual achievement do nothing... How true it is, however, that men’s minds get set in certain lines; that they run around in circles oftentimes; that consequently, those men fail to see things in the right and progressive light, fail to take advantage of opportunity sometimes. ... Of the rightmindedness of the lumbermen I feel perfectly sure; of course, too, I understand some of the limitations of their position. My idea is this! When things can’t be helped, to spend no time bemoaning the fact; to recognize the inevitability of the damage sustained; to go to work in lines that promise to be productive.”

Austin Cary was one of the first foresters to realize that, under certain conditions, fires have a place in the management of southern pine. It is possible that his thinking on this subject was influenced by H. H. Chapman of Yale for whom he had great admiration and who in turn had profound respect for Cary's viewpoints. To the Stephens Lumber Company, Jacksonville, Florida, in 1923 Cary wrote: “I believe myself there is a measure of truth in the idea that fire at certain seasons and in certain conditions may be a means of protection for timber already started. Of this, on the other hand, I feel equally sure that growth of young timber is checked and that new growth cannot get a start under conditions of repeated and untimely fire.”

He emphatically stated his opposition to federal acquisition of forest land in a memo to the Washington office of the Forest Service in 1932 as follows, “I do not myself sympathize with the idea of extensive acquisition of forest land in the South by the national government, outside of truly protective areas... Timber growing as a business makes stronger appeal in our southern states than in any other part of the world, as far as I know. I’m for giving freedom and opportunity to it.”

Cary was a real force in the naval stores industry. Much of the later progress made by that industry towards modernizing its woods work and also forest practices was due to his influence. In 1924, at the request of the industry, he was sent to France by the Forest Service. There he observed the work of the French government in managing the maritime pine for naval stores.

When Austin Cary died in 1936, on the Campus of the University of Florida, the forestry profession lost a great leader. As a result of his common sense approach, his sincerity, and his unswerving faith in timber growing as a business, forest management was initiated on properties in the South aggregating several million acres.

SOME OTHER EARLY FORESTRY ACTIVITIES

One of the many large forest properties whose early development was greatly influenced by Austin Cary was the Sessoms Land and Timber Company in southeast Georgia. President of the company was Alex K. Sessoms,
naval stores operator and former lumberman. As president of the South Georgia Land Owners Association, Sessoms had attended the Cut-Over Land Conference of New Orleans mentioned previously. After cutting all his available saw timber, Sessoms entered the cattle business, fencing in thousands of acres of cut-over pine land for pasture. Failing to make a reasonable profit with cattle, Sessoms sold his herd in 1920. During the previous years, the woods range had been intentionally burned over every other year to facilitate grazing, a local custom handed down from colonial times. When Sessoms sold his cattle, he stopped going to the trouble of burning the woods. Within two years, he noticed that slash pine seedlings by the hundreds of thousands had restocked his former wild pasture lands. Absence of fires had made natural regeneration possible. From that time Alex Sessoms was convinced that growing pine trees was the best way to utilize his 84,000 acres of cut-over land.

Because of the spectacular natural reproduction of slash pine which immediately followed exclusion of fire, this property became one of the early show places in the region. Its successful development was a potent force in building up support for fire protection.

The chain reaction of forestry progress triggered by Austin Cary was further illustrated by the Industrial Lumber Company of Elizabeth, Louisiana. At Cary's suggestion, R. M. Hollowell, president, joined him in Bogalusa in 1924 to inspect the Great Southern Lumber Company's spectacular planting project. Hollowell was profoundly impressed and made immediate plans to undertake similar operations at Elizabeth. As a result his company planted with slash pine some 25,000 acres of cut-over longleaf land during subsequent years.

The International Paper Company began its far-flung southern operations in 1921 with the opening of its first mill in Bastrop, Louisiana. This progressive company now owns or has under long term lease more than 4 million acres of splendidly managed land in the South. It employs 235 foresters and has had a finger in a majority of the more important forestry activities within the region the past 25 years. In 1927 a newspaper release pertaining to the operation of the newly opened International mill at Camden, Arkansas, referred to the company's "timber farm." The article quoted the late J. H. Allen, an old-time logger recently converted to paper manufacturer by International. Allen became a tradition in the paper industry as he promoted the construction of mill after mill.

Probably the first large property in the South to be purchased and managed for profit solely from timber growth was the Suwanee Forest of the Superior Pine Products Company, of Fargo, Georgia. This 208,000-acre tract was purchased as cut-over land in 1925. The company was originally a subsidiary of the Paper Makers Chemical Company. I. F. Eldredge, with a rich background of many years with the U.S. Forest Service, was the forester in charge. Under Eldredge's guidance the Suwanee Forest became a proving ground for many forest practices including planting, thinning, and prescribed burning. Eldredge was succeeded in 1937 by his former assistant, W. M. Oettmeier. Oettmeier, an enthusiastic "ham" radio operator, installed his first shortwave radio for fire protection in 1932. Successful from the start, this installation was one of the first of its kind. Oettmeier continued to be active in the development of shortwave radio for fire protection and, with
his spirit and ingenuity, made a real contribution in this. The Suwanee Forest is now under long term lease to the St. Regis Paper Company.

On the Suwanee Forest, the Sessoms property already mentioned, land of the Brunswick Peninsula Company, and on a tract owned by H. M. Wilson, progressive naval stores operator of Jacksonville, Florida, there took place probably the first large scale prescribed burning on a sustained basis as a definite part of slash pine management. All these large properties were systematically divided into compartments by permanent firebreaks renewed annually. Fires were restricted to desired compartments depending upon character of the timber stand. An effort was made to burn each every three or four years to prevent a build-up of highly inflammable fuel.

A spectacular project that did much to awaken interest in tree planting was the pioneer work of James Fowler of Soperton, Georgia. Fowler, a naval stores operator, began planting slash pine on abandoned agricultural land in 1925 and continued until he created a man-made forest on 5500 acres. In years past, hundreds of visitors sampled Fowler's hospitality while inspecting his impressive planting achievement. All departed convinced that planting slash pines was sound business.

One of the best-known forestry developments in the South is The Crossett Company, of Crossett, Arkansas. The first sawmill operation began in 1902. Immediately after the mill opened, the decision was made to cut to a minimum 14-inch stump diameter limit. In 1922 the first forester was employed and fire protection efforts were initiated. In 1935 fire protection efforts were intensified and a policy of selective cutting undertaken.

Today, Crossett's modern sawmill, pulp and paper mill, and chemical plant comprise one of the finest examples of complete utilization of the forest resource by any single company in the nation. The company's half million acres of highly productive forest lands are visited by hundreds of foresters annually to see one of the truly outstanding industrial forestry projects in existence.

Reference has been made already to the destructive nature of early naval stores operations. By the end of the 1920's this situation had changed greatly. Provided technical guidance by the Southern Forest Experiment Station of the Forest Service and led by the dynamic Austin Cary, the industry made great progress towards improving its woods practices. More conservative methods of chipping were adopted; efforts to control wild fires were intensified; prescribed burning was done with more understanding as to its effect on young growth; planting of slash pine increased greatly; and young stands too small to be worked for gum were thinned. As a result, on dozens of properties aggregating hundreds of thousands of acres, a new and well cared for growing stock was established.

One major problem still plagued the naval stores industry, however. This was lack of a market for the millions of cords of trees worked out for naval stores and too small for use as sawlogs.

In concluding this summary of early forestry activities in the South, another pioneer forester should be mentioned. This was the late W. R. Mattoon of the U.S. Forest Service. "Matty," as he was widely known, devoted most of his attention to small owners. He was the author of numerous bulletins on pine forest management. His writings and hundreds of personal contacts made him a potent force in the early education of land owners.
SOUTHERN FORESTRY UNDER THE “NEW DEAL”

During the early 1930’s several events took place which definitely influenced southern forestry. In the first place the depression gloom spread over the forest industry despite the progress made during previous years. In a number of instances wood-using companies elected to sell part or even all of their timber holdings to the federal government for national forest purposes. No pressure was brought to bear on these companies to influence their decisions towards selling their land. This is a fact which should be remembered when private groups criticize the government for national forest ownership in the South.

A second situation which developed was the federal regulation policies of the New Deal. F. A. Silcox, chief of the Forest Service, and his assistant, Earl Clapp, were actively crusading for a tremendous land acquisition program on one hand and control of cutting methods of all privately owned timber through public regulation on the other. In his annual report for 1933, Chief Forester Silcox wrote, “The overwhelmingly major trend in private forest land ownership is toward progressive deterioration in the character of the forest, the value of the stand, the replacement through growth, and the productive capacity of the property.” As a solution the Forest Service recommended immediate inauguration of a land acquisition program calling for “eventual public ownership of approximately 395 million acres out of a total of 670 million acres of commercial and non-commercial land . . .”. A large percentage of this land was to be acquired in the South because the federal government already owned vast acreages in the West. Industry and all state forest services were violently opposed to both the tremendous land acquisition program proposed and to federal regulation of timber harvesting on private lands. The Forest Service went so far as to propose a so-called “quid pro quo” relationship with respect to cooperative fire protection appropriations. Under this proposal only those states which passed regulatory bills approved by the Secretary of Agriculture would be granted cooperative funds available under Section 2 of the Clark-McNary Law. There was much bitterness between high government officials of the New Deal on one hand and industry, state forest services, and most private foresters on the other hand. The accusations and recriminations from both sides were heated. This open attempt by the federal government to gain complete control of the nation’s forests was not a pretty picture. But neither was industry’s monument of millions of acres of cut-over land. It is well that both pictures belong to a bygone era.

Another New Deal activity during the depression was extremely beneficial to forestry. This was the Civilian Conservation Corps organized in 1933. On both private and federal lands CCC youths constructed thousands of miles of truck trails, permanent firebreaks, and telephone lines. They also planted millions of seedlings and performed other silvicultural practices, including cull tree control. Even more beneficial, perhaps, than the physical improvements on forest land was the acquiring of an appreciation of the meaning of forestry by the thousands of boys in the CCC and the members of their families. Construction access roads and firebreaks, and also the direct use of the willing boys in fire fighting enabled forest fire protection to make tremendous gains throughout the entire region.

The year following establishment of the CCC saw the adoption of “Article X” of the National Industrial Recovery Act. This was the conservation
article of the Lumber Code which legally committed the lumber industry
to sound principles of conservation and the sustained production of forest
resources. Although the entire act was declared unconstitutional by the
Supreme Court after having been in effect for only one year, Article X marked
the adoption of the first forestry measures by hundreds of companies. It
is to the credit of some that they retained a measure of these constructive
activities even after the law requiring them was invalidated.

THE FOREST SURVEY

Still another potent factor stimulating interest in forestry during the early
'30's was the Forest Survey of the Forest Service. Selected in 1932 to head
this formidable task was I. F. Eldredge, popularly known as “Cap” in every
section of the South from tidewater Carolina to the Texas prairies. “Cap”
Eldredge brought with him to the survey years of experience gained with
the Forest Service in several sections of the nation. He had also served with
private interests as manager of the Suwanee Forest as mentioned previously.
After the first survey was completed, “Cap” Eldredge retired, secure in the
knowledge that his survey reports for every timbered section of the deep
South were proving to be a much needed and firm foundation for the future
development of the region. As a forest consultant after retirement, he had a
guiding hand in the location of a number of new pulp mills and in the
expansion of several already established in the South.

The forest survey was more than a gigantic timber cruise. Equally as
important as total volume of wood by individual species was information on
industrial use, mortality, and net growth. For the first time each state knew
the ratio of growth to drain. The survey removed any guessing as to highly
important conditions of supply, use, and mortality. Industry for the first time
had factual data pertaining to the timber resource. It was soon to make
dramatic use of this information.

DR. CHARLES H. HERTY

Another significant forestry event of the early '30's was in the form of a
personality. Dr. Charles H. Herty, industrial chemist, was a native Georgian.
He was already well known in the naval stores industry for his brilliant work
30 years previously which had revolutionized the method of extracting
resin from the living pine tree. The Herty system involved use of a clay cup
attached to the tree into which the flow of gum was directed by means of
metal strips. Previously, no cup had been used; rather resin was collected
in a “box” actually cut into the base of the tree. Not only was the tree greatly
weakened mechanically by the box, but its death warrant was positively
signed should the highly inflammable resin catch fire.

One day as Alex Sessoms was showing Herty the fabulous stand of young
slash pines on his south Georgia property, he remarked that the trees would
slow down in growth rate unless thinned. How to thin the bulk of 84,000
acres of pines, the density of which rivalled that of the neighboring sugar
cane fields, was a problem the two men discussed at length. Immediately
afterward, Herty began his research on the pulping of southern pine for
newsprint.

A remarkable showman and a most accomplished public speaker, Herty
lost no time pointing out the tremendous industrial development possible in
the South if newsprint could be manufactured from southern pine competi-
tively with Canadian spruce. Herty soon passed over his first technical hurdle by corroborating a previous finding of the Forest Products Laboratory that high resin content of southern pine applied only to heartwood—not to sapwood. And the young pine forests of the region were all sapwood. He constantly emphasized the crying need for more adequate fire protection throughout the South and repeatedly stated that public apathy towards forest fires was the only major obstacle to development of a great southern paper industry.

One of Dr. Herty's most dramatic demonstrations was the manufacture of newsprint from planted slash pines only seven years old. This immediately captured the imagination of the press—always alert to news regarding newsprint—and resulted in some of the most effective publicity ever accorded the South's forests. There can be no doubt that, through his effective salesmanship in selling dirt pine tree forestry to the public, Herty did much to stimulate the interest of a number of Kraft paper manufacturers in southern pine, although his researches were directed towards newsprint production as he himself pointed out many times.

Dr. Herty died in 1938. His hundreds of speeches and articles, all extolling the virtues of the South's forests, together with his magnetic personality, entitle him to a high rank in the annals of southern forestry.

RUMORS OF INDUSTRIAL EXPANSION

As the depression of the 1930's abated, rumors began to circulate throughout the South of possible interest in locations for new pulp and paper mills. Most foresters thought the rumors were too good to be true, but none could refrain from saying a fervent prayer of hope that they would materialize. After all, it is one thing to try and convince a landowner that he should undertake to grow sawlogs involving a time interval of at least 30 to 40 years and quite another to grow pulpwood in half that time. However, some foresters who were familiar with the South's few existing pulp and paper mills were not too sure that they cared to see many more mills constructed. Landowners rarely received more than 50 cents a cord for stumpage, and the young forests bought were stripped of everything that grew on a stump larger than six inches. Of course there were only a few pulp mills in the South at that time. The industry was well established in Virginia and Louisiana only. For that reason pulpwood markets were extremely local.

If, and it was a big "if," the paper industry should develop to one of importance in the South, and "if" young pine stands could be thinned at a reasonable profit for pulpwood, from a forestry standpoint what a veritable promised land the South would be! Austin Cary, confined in Maine by illness, once wrote in his quaint manner to a southern friend, "I sit in the office these days, but in every slack in attention my mind goes off to the South, to the friends and acquaintances I have there, to its problems, to repeated thought over its wonderful advantages. Some day its people are going to realize these last in the timber line, and then what a timber garden it will be! No portion of the earth's surface seen anywhere in my life, and after death perhaps, that I have had the privilege of working in as I have, and in some measure to stimulate its forward movement."

Yes, the South had its share of problems and many of them looked unsurmountable. Its forest area burned each year was 90 per cent of the nation's
total; only second growth timber to match in competition the West’s virgin pines and fir; lack of capital; and lack of industry. But it had one thing clearly revealed by the Forest Survey. As a result of the preachments of Hardtner, Cary, Herty, Eldredge, and others, the South had the greatest expanse of fast growing long fibre forests on the earth’s surface. Although the land was producing at only one third its potential, it contained an enormous quantity of wood. Could industry afford to overlook this great source of raw material so conveniently located with respect to the dense centers of the nation’s population? It could not.
The paper industry in the South was very small in size until the late 1930's when it expanded dramatically. Now this industry uses 60 per cent of the total pulpwood produced in the nation.

Shown here is the International Paper Company's large mill at Springhill, Louisiana. This plant, producing at capacity, consumes in excess of 3/4 million cords of pulpwood per year.
Between 1934 and 1940 there occurred the most significant industrial event in the South since the invention by Eli Whitney of the cotton gin. This was the expansion of the paper industry. For a number of years northern companies had been casting about in Dixie, some making timber surveys, some locating mill sites. The millions of acres of fast growing pine forests whose long fibre wood was so well suited for manufacturing Kraft pulp were beckoning tantalizingly. The second growth pine forests, although unimpressive as to volume per acre, were spread over a tremendous area. Their presence was due largely to a benign and tolerant nature. Man had helped but little. Stands were understocked and scattered, but their obviously great potential was evident, even to the uninitiated. It was this potential as much as the standing timber that sold the region to the paper industry. The thought of growing pulpwod in 15 to 20 years throughout the entire South was irresistible. Sooner or later the mills had to come. Two events hastened the day. These were completion of the forest survey and Dr. Herty's one-man campaign extolling the virtues of southern pine for newsprint. The survey by the U.S. Forest Service revealed great quantities of fibre and, even more important, pinpointed its occurrence by survey units within each state. And when Herty manufactured ground-wood pulp from seven-year-old slash pine planted by a young farmer, the giant paper industry flexed its muscles and prepared to spring.

Then, like the pent-up waters sweeping through a break in the dam, the mills came. Within the brief period between 1935 and 1940 at least one new pulp and paper mill was constructed in each of nine southern states. Florida alone had four. Most of the mills were to manufacture Kraft pulp for heavy grades of wrapping paper and box board. Also included were plants to make rayon, wall board, and finally newsprint. There was a rush by paper companies to option mill sites or buy timber lands in every section of the southern pine region.

The paper industry had long operated in the South with manufacturing plants widely scattered from Virginia to Louisiana. But the total output of these operations was so small that, as an industry, pulp and paper making was of minor importance. Probably the first successful attempt to make paper from southern pine wood pulp took place in 1878 at the Marietta Paper Manufacturing Company near Atlanta, Georgia. Shortleaf and loblolly pine groundwood was mixed with rags. The first continuous production of pulp from southern pine was accomplished in 1891 by the Carolina Fibre Company of Hartsville, South Carolina, using mechanical pulp.

The sulphate or Kraft process had its inception in the South on a commercial basis in 1909 at the Roanoke Rapids Paper Company of North Carolina. Two years later the Yellow Pine Paper Mill Company of Orange, Texas, made its first run of Kraft paper from southern pine.

Prior to 1930, the 12 or 15 small paper mills operating in the South had a total wood requirement barely equal to that of one of the large mills operating today. With the expansion of the industry in the late '30's, the entire South felt the shock. And it was the shock destined to arouse the sleeping giant of that region's forest production potential.
The effect on forestry of the revitalized paper industry's expansion was amazing. In their rush to acquire timber land, companies sometimes made purchases under the very stacks of their competitors' mills. Prices of forest land soared and have kept soaring. Moreover, competition for stumpage within certain localities became keen. Practically overnight a regionwide market for thinnings developed (Fig. 2). The value of pine saplings too small for sawlogs increased from nothing to 50 or 75 cents per cord. Within two or three years, these prices doubled. Today $5.00 per cord is a common price. Casual interest of landowners in their timber ceased to be casual because a quick profit on capital invested in tree farms was assured by new market for small trees. In the Southeast, naval stores operators no longer deadened by axe-girdling the nonturpentine yielding species—pond and loblolly pines—electing to remove these trees from their turpentine stands at a profit for pulpwood. And at last a market was available for worked-out naval stores trees up to that time practically worthless.

For the most part, little or no thought was given to forest practices when cutting pulpwood. The main idea was to satisfy the gargantuan appetite of the big mills which ran 24 hours a day seven days a week. As a result many privately owned timber tracts were stripped as thoroughly of their second

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Each dot represents an average of 5,000 cords.

PULPWOOD PRODUCTION
ALL SPECIES, FOR THE SOUTH, 1956
(Adapted from compilation by U.S. Forest Service)

FIG. 2—Creation of a market for thinnings sold at good profit for pulpwood has made tree farming possible in the South.
growth pines as had been the original virgin forests by steam skidders. There was an immediate outcry from the public, the press, and public foresters. Was the South again to see its forests reduced to waste stumpland?

During this period sobering queries were raised by responsible sources as to the adequacy of the South's pinelands to supply the greatly expanding pulpwod industry. This is illustrated by a letter written in 1936 by J. C. Nash, one of the leaders of the naval stores industry and president of Columbia Naval Stores Company of Savannah, Georgia. Nash directed the following thoughts to I. F. Eldredge, director of the Forest Survey, and the foremost authority on the South's forest resources: "With all this activity [for pulpwod] a naval stores man thinking of the future must naturally have some apprehension about his source of supply during the next decade. . . . Do you think that with all the demand for pulpwod in this section we have a sufficient timber reserve to insure a crop of gum turpentine for the next five years?" The Naval Stores Review, trade journal for the industry, carried a complete exchange of correspondence between Nash and Eldredge over a period of several weeks.

State Forester H. A. Smith of South Carolina stated, "Therefore, unless conservation of timber is practiced, the standing supply will be exhausted in about 18 or 20 years, or the mills will have to close."

Decrying wanton destruction of young stands of timber, F. A. Silcox, then Chief of the Forest Service, stated in the "Annual Report of the Chief," 1937, "And if such a practice continues, the land, the farmer, and the whole social and economic set-up must inevitably suffer. The South stands now at the crossroads."

Lumbermen were extremely vocal in condemning the newly developed competition. Furthermore, it was soon apparent that much of the criticism of the paper industry was justified. Public foresters were unanimous in their feeling that, depending on the industry itself, it could be either a blessing or a curse. If some semblance of order were directed to the procurement of pulpwod so as to encourage the utilization of thinnings and timber stands worked out for naval stores, the answer to the prayers of every forester and timber grower would be provided. If, on the other hand, pulpwod procurement continued as it then existed, the industry would be a curse. Moreover, such action would invite the passage of legal cutting restrictions then being so strenuously advocated by the Forest Service. Chief Forester Silcox rightfully pointed out that the time was one of crisis.

**ACTION BY THE PAPER INDUSTRY**

But the paper industry answered the challenge of its critics with its Southern Pulpwood Conservation Association. Organized in 1939, purpose of the association was to build up the forest growing stock through self regulation of harvesting practices in pulpwod procurement, and through public education and fire protection in collaboration with public forestry agencies.

The industry's conservation program lost no time in getting under way. The minimum cutting practices adopted through collaboration with public foresters were demonstrated to thousands of landowners and pulpwod operators. Marking of timber prior to cutting was stressed. Dozens of young foresters and timber markers were soon making real progress educating the
Southern pulpwood production skyrocketed from 1 1/2 cords in 1936 to 20 million cords in 1957. By cubic measure, pine pulpwood consumption is approaching the volume used for lumber. Shown here is part of the planted slash pine forest of the Gaylord Division of Crown Zellerbach Corporation. This 32-year-old stand has already been thinned three times for pulpwood.
public and pulpwood operators alike in basic principles of good forest practice.

Under the program of the Southern Pulpwood Conservation Association, the expressions "seed trees," "timber marking," "partial cutting," "periodic returns," became common parlance to landowners, pulpwood operators, and company executives. At cutting demonstrations landowners were shown examples of proper and improper methods of harvesting timber. A program was rolling destined to make the pulpwood market a blessing and not a curse.

**FORESTRY IN THE SOUTH TODAY**

With the expanding market for pulpwood, foresters have found tree growing progressively easier to sell to the public. Legislators have become more hesitant to use forestry as a whipping boy when trimming their over-all budgets. The Forest Service again made a significant contribution by completing its reappraisal of the timber resources of the region in 1946. The timber statistics were encouraging and offered proof of the success in the over-all drive by public and private interests to encourage timber growing.

When the Tree Farm project sponsored by industry was adopted, the South quickly assumed the lead in number of farms and total acreage involved. As of April, 1958, 6,240 of the nation's 11,623 tree farms were in the South. These comprised 29 of the national total of 45 million acres in tree farms.

Another great contribution to southern forestry by the U.S. Forest Service was the *Timber Resources Review*, generally referred to as the T.R.R. Published in 1956, one part of this monumental work, which was conducted on a national basis, comprised the most complete appraisal of the South's timber resources ever made. The project was unique inasmuch as the state forest services and industry actively cooperated with the Forest Service in conducting the field work. When the preliminary report, prepared exclusively by the Forest Service, was published in 1956, some foresters expressed the belief that the old "timber famine" idea was again being developed. Currently the majority of foresters are inclined to accept the report as being the most complete and accurate survey ever compiled, although they reserve the right to question some of its conclusions and predictions.

One of the fields in which the T.R.R. provides valuable statistics is in the ownership of forest land. The South differs greatly in this respect from other regions of the nation, especially the Northwest.

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<td><strong>OWNERSHIP OF COMMERCIAL FOREST LAND</strong></td>
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<td>per cent</td>
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<td>Northwest</td>
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Table 2 shows that more than 90 per cent of the South's commercial forest land is privately owned as compared with less than 9 per cent in government ownership. This indicates that, from a practical standpoint, "forestry" and "private forestry" in the region are literally one and the same thing. This is not true for the Northwest, for example, where 50 per cent of the
The South leads the nation in tree farms, both by number and area. Rapid growth of valuable forest species assures the timber grower a good profit. The tree farmer photographed has thinned for pulpwood several stands of slash pine which he himself planted. Other products from his forest are sawlogs and poles.

commercial forest lands are owned by the federal government, 7 per cent by state, county, or municipalities, and only 47 per cent by private interests. The T.R.R. gives a further breakdown of southern commercial forest land in private ownership. Public agencies own 16½ million acres; wood-using industries, 33½ million acres; private holdings of more than 5,000 acres in area total 15 million acres, and the amazing total of 128 million acres in private ownership is comprised of tracts of 5,000 acres or less. This enormous acreage of small ownerships is owned by approximately 1,825,000 different
owners, and of these 81 per cent own less than 100 acres; only 1 per cent
own in excess of 500 acres. The largest percentage of these owners are
farmers, but many are nonresident owners having only little interest in their
woodland.

The great importance of this 128 million acres of commercial forest land
in the South owned by “the little fellow” can hardly be over-stressed. Not
only does it present the key to success or failure of the region to develop
into one of the permanently great sources of wood fibre in the world, but it is
of outstanding significance from the standpoint of national welfare. Because
this 128 million acres exceeds in area all the commercial forest land in all
classes of ownership west of the Great Plains. Truly, its future will be a
potent factor in the entire nation’s forest development.

Inasmuch as two thirds of the South’s forest land is owned by the “little
man,” it is not surprising to find that more than half the current forest growth
is on this class of land; moreover, more than half the potential growth is
predicted for lands of the small owner.

But there is still another fact which emphasizes to even greater extent the
importance of the small owner to Dixie. This is that industry obtains the
bulk of its wood from the “little man.” The pulp and paper industry cur-
rently obtains three fourths of its pulpwood from this source. There is no
reason to believe that a comparable figure would not apply to saw logs and
other forest products. What is equally important, estimates made in 1952,
based on more than 90 per cent coverage of the industry, indicated that the
paper industry expected to obtain more than half of its pulpwood from the
small owner in future years.

These considerations, although they pertain to the small landowner, are of
great importance as regards the future of industrial forestry in the
South. Clearly, industry and the small owner are destined to walk side by side. It is
extremely pertinent to know, therefore, the extent to which the “little fellow”
is practicing good forestry. Again the T.R.R. provides an answer. This source
revealed a close relationship between size of land ownership and interest in
forest management. Table 3 shows that National Forests and private land in
large and medium ownerships were all characterized by far better forest
practices than land in small tracts. On only 34 per cent of the land in small
ownership was productivity-rated as high; on 66 per cent, productivity
varied from slightly to far below a reasonable standard of productivity.

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<th>Ownership class</th>
<th>Proportion by productivity class</th>
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<td>High</td>
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<td>National Forests</td>
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<td>63</td>
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<td>Small Private</td>
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The importance of the small owner is now fairly well recognized by all
forestry agencies. Public agencies are doing far more effective work in
timber marking and management than previously. Within recent months
the Forest Service announced a series of meetings to discuss means of intensifying its work on small holdings. Tree Farm families, whereby a wood-using company provides technical forestry guidance to landowners who agree to sell their wood to the company, are proving to be entirely practical. And the Southern Pulpwood Conservation Association continues to render effective service to this class of landowners. For example, in 1957. Association members gave forestry assistance to 23,000 landowners involving 6,100,000 acres, an average of 265 acres per owner. The paper industry also distributed to landowners 58½ million free seedlings that year.

RELATIONSHIP BETWEEN PINE GROWTH AND USE

The ratio of net growth to use is a most important one when appraising the forest resource. If growth exceeds use, the forest condition is healthy and assures a firm raw material base for industrial expansion. If use exceeds growth, a critical examination of the forest resource is in order to determine remedial measures.

According to the T.R.R., pine growth in the South for 1952 was 47.4 million cords as compared with a total use of 40.5 million cords. These figures indicate a sizeable surplus of growth for that year.

It is extremely likely, however, that this growth surplus will decrease in the near future. The Stanford Report predicts for the South a 16 per cent increase in lumber use by 1975 over the 1952 use. Even more important is the almost certain large increase in pulpwood consumption. Actual use of pine pulpwood for 1957 was approximately 16% million cords of which 16 million cords were from the growing stock and 1 million from mill residues. Use of the historic 4 per cent increase per year for estimating increased pulpwood consumption gives a total of 25½ cords for 1968. Allowing for a possible 2 million cords to be derived from mill residues, this indicates a drain on the growing stock of approximately 23½ million cords for pulpwood alone.

Although net pine growth will continue to increase, there appears no reason to believe that there will be a marked surplus of pine growth over use in the foreseeable future. Only by a continuance of its present aggressive forestry program in coordination with state and federal efforts can industry maintain its supply of raw materials.

Actually, however, a close balance between growth and use, as may be expected with respect to southern pine in the future, is a condition which should stimulate forest production. If a large surplus of wood should develop, market prices would be depressed, and the public's desire to grow more timber would diminish. On the other hand, if demands by industry crowd the supply, prices favorable to tree growers will prevail, and the public will respond by growing the wood needed by industry. This is the condition which has stimulated tree farming so greatly the past 15 years.

The South has the land area and growing conditions to increase its net growth greatly. The T.R.R. estimates a realizable annual pine growth of approximately 100 million cords. This is slightly more than double the 1952 growth and indicates the tremendous quantity of pine the region is capable of growing. The South has the facilities to satisfy any demands of its wood-using industry well into the foreseeable future.
SOUTHERN HARDWOODS

Although the South is best known for pine, hardwoods exceed pine in cubic volume by 10 per cent and in area by 16 per cent. However, pine use far exceeds hardwood use. For lumber the ratio is about 2 to 1 and for pulpwood about 6 to 1. Prices paid tree farmers for pine timber are two to three times greater than those paid for hardwood. Because of these conditions hardwood management has never received as much emphasis as pine forest management.

On the other hand, hardwoods have several advantages over pine, and their use by industry is definitely increasing. In the first place, possibly the fastest growing forest trees in the country, if measured from seed to merchantable size, are cottonwood and willow. The valuable cherry bark oak also grows extremely rapidly as do several other important species. Then, too, hardwoods as a group are available in enormous quantities. This fact alone would appear to make safe the prediction that their future use by industry is inevitable. Industry can hardly fail to recognize a raw material so plentiful that its availability at attractive prices seems assured for some time to come.

Production figures for the past two decades reveal a definite increase in hardwood use. Whereas southern pine lumber production declined nearly 6 per cent for the period 1947-1956 as compared with the previous decade, southern hardwood lumber production increased 24 per cent for the same period. Likewise, although negligible quantities of hardwoods were used for pulp manufacture in 1936, 495,000 cords were used in 1946, and slightly more than 3 million cords in 1957.

As the demand for hardwoods increases, prices will also increase. Just as these same conditions brought about active interest in pine tree farming, so they inevitably will for hardwoods. Hardwood forest management today is comparable to pine management of 20 years ago. But it seems likely that a real awakening to the possibilities of hardwoods will take place in the near future.

SOUTHERN FOREST FIRE CONFERENCE

A highly significant recent event in the South's continuing war against woods burning was the Southern Forest Fire Conference held in New Orleans in 1956. Conceived by the American Forestry Association, in collaboration with the Louisiana Forestry Association, and financed and expedited by the entire wood-using industry, the conference was attended by 1,200 citizens representing every southern state. The theme was "wild forest fires must go." The spirit at the conference was unique. One prominent speaker stated that never in his experience had he attended a meeting at which those in attendance were so completely dedicated to a common purpose.

The conference did much to emphasize the importance of forestry and the need for better fire protection in the minds of many legislators, members of the judiciary, and law enforcement officers. Beyond doubt this was one of the most important forestry meetings ever held in the southern states.

THE SOUTH'S FOREST FUTURE APPEARS BRIGHT

Progress in over-all forestry in the South during recent years has been phenomenal. Table 4 shows the great steps made in fire protection and
A factor which has had a great deal to do with the splendid progress in southern forestry is the close harmony which has always existed between public foresters and industry. When official Washington was trying to sell federal control of forest lands to the public, there was hardly any more enthusiasm displayed by the majority of Forest Service men in the southern region than by their co-workers in the ranks of industry. When professional men, dedicated to a common cause, work side by side for its attainment for years, there is bound to be a mutuality of feeling, even though their source

nursery production. The past planting season, the winter of 1957-58, the combined production of public and private nurseries was an even billion seedlings! In spite of this enormous output, unfilled orders in South Carolina, Georgia, and Mississippi alone totaled 249 million seedlings!

TABLE 4

<table>
<thead>
<tr>
<th>Year</th>
<th>Land Under Fire Protection acres</th>
<th>Total Expenditures For Fire Protection dollars</th>
<th>Seedlings Produced number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1926</td>
<td>42,581,000</td>
<td>$297,362</td>
<td>117,000</td>
</tr>
<tr>
<td>1930</td>
<td>59,125,000</td>
<td>983,223</td>
<td>3,879,086</td>
</tr>
<tr>
<td>1940</td>
<td>87,922,000</td>
<td>2,083,843</td>
<td>53,069,000</td>
</tr>
<tr>
<td>1950</td>
<td>133,971,000</td>
<td>8,691,985</td>
<td>204,384,000</td>
</tr>
<tr>
<td>1957</td>
<td>164,033,000</td>
<td>16,865,381</td>
<td>780,857,000</td>
</tr>
</tbody>
</table>

A factor which has had a great deal to do with the splendid progress in southern forestry is the close harmony which has always existed between public foresters and industry. When official Washington was trying to sell federal control of forest lands to the public, there was hardly any more enthusiasm displayed by the majority of Forest Service men in the southern region than by their co-workers in the ranks of industry. When professional men, dedicated to a common cause, work side by side for its attainment for years, there is bound to be a mutuality of feeling, even though their source
of employment may differ. And so during the trying days of the expansion of the paper industry, when devastating harvest cuttings were the rule rather than the exception, there was an unusual degree of tolerance on the part of public foresters in the region. These men recognized the difficulty of the job at hand and joined their efforts towards its solution with intelligence and understanding which was far more effective than any threats of regulation would have been. The paper industry responded and quickly put its house in order. By doing so it made a friend of the lumber industry, a friendship that proved mutually profitable when, in 1956, for the first time, sizeable quantities of sawmill residues were used as a raw material for pulp. During that year nearly three quarters of a million cords of mill residues were chipped. This has been a most welcome additional source of revenue for many sawmills during the sluggish lumber market of the past two years.

With landowners receiving $5.00 per cord for pulpwood stumpage for trees 18 years old, and $30.00 per thousand Scribner scale for small sawlog trees 35 years old, they are increasingly eager for forestry knowledge. There appears to be no reason why these prices should decrease. Nor is there reason to believe that the current strong demand for forest products should lessen. As a result of these conditions bare land, where available, is selling for $35.00 to $40.00 per acre. Tree farming is booming in Dixie!

The South is blessed with natural resources other than forests. But long
The tree farmer owner of this 16-year-old planted slash pine forest received $35.00 per acre for seven cords of pulpwood thinnings at age 14 years, and $20.00 per acre for four cords more at age 16 years. Volume left after second thinning was approximately 12 cords per acre. Two additional thinnings for pulpwood will be made at intervals of four to five years after which sawlog harvest will begin.

after the richest oil field goes dry, and the last ton of sulphur is mined, its forests will flourish. Gone are the days of "cut out and get out," and of ghost towns. Instead there are now thriving tree farms, permanent industry, and prosperous communities. More than 550,000 workers, drawing wages and salaries in excess of 2½ billion dollars, are employed in the manufacture of
lumber, paper, and furniture alone. An estimated 200,000 woods workers representing tens of millions of dollars additional payrolls, tend the forests of Dixie, growing and harvesting its products. The paper industry alone employs more than a thousand foresters.

With the farm value of the southern cotton crop now roughly one seventh of the 2-billion-dollar 1919 crop, it is obvious that many farmers have incurred a great cash loss. How to replace cotton as a cash crop and as a source of farm employment is a vexing but important economic question. At least a partial answer is furnished by the largest type of pulp and paper mill which has a labor requirement in the mill and woods equal to that necessary to plant, cultivate, and harvest 100,000 acres of cotton. The same southern soils which average 250 to 300 pounds of cotton per acre will produce 700 pounds of wood cellulose. Beyond doubt the forest crop is capable of adding to the prosperity of the individual tree farmer and to the whole Southland to an extent not yet realized by the most optimistic economist.

The expansion and new production in southern industry during the past 15 years has been a bright spot in the growth of the entire nation. It is customary and proper to attribute the technology on which this progress is based to engineers and industrial chemists. Without detracting from these accomplishments, it should be pointed out that the work of the South's for-
esters has made possible much of this progress. These men through success-
ful forest management have assured industry of its raw material, utilization
of which was provided by the chemist. Furthermore, by building up the
timber resource to a level which assures permanency to the expanding wood-
using industry, and by broadening and strengthening the tax base on millions
of acres of once worthless land, foresters have made a great contribution to
the economic welfare of the region.

The South no longer “stands at the crossroads” as proclaimed by Chief
Forester Silcox in 1937. The millions of acres of land now supporting vigorous
stands of young timber belie the fact that only 35 years ago this entire sec-
tion of the nation was writhing in the pains of a cut-over land problem and
its accompanying social implications. Substantial, ever-increasing progress
in pine tree farming is taking place. There is no reason to believe that it
will slow down. Although great progress has been made since Henry
Hardtner began his timber farm in 1912, the future appears to look even
greener—the fresh, prosperous green of second growth forests—forests which
promise revenue for the owners, raw materials for an expanding wood-using
industry, and prosperity for the entire region. Such is tree farming 1958—
Southern Style!