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THE SOUTHERN FORESTS

A LEGACY OF NATIONS

BY DON BURDETTE

Quite suddenly, people from a broad range of viewpoints are very interested in the history of our Southern forests. Why? For various reasons, we all want to know what the original forests were like before people came on the scene; how the forests were affected by human civilization; and how the forests that we see around us today came to be.

The continually changing forests of the South are the result of many natural and human events that have occurred through the centuries. In reviewing the past, we are reminded of important lessons about the conservation of natural resources, which we must continue to appreciate and practice.

In this article we will look at the South's original primeval forest, the last great natural transformation of the forest as witnessed by native Americans, the manipulated forests as the Europeans discovered them, as well as the effect of early logging and land use practices during the settlement of our country.

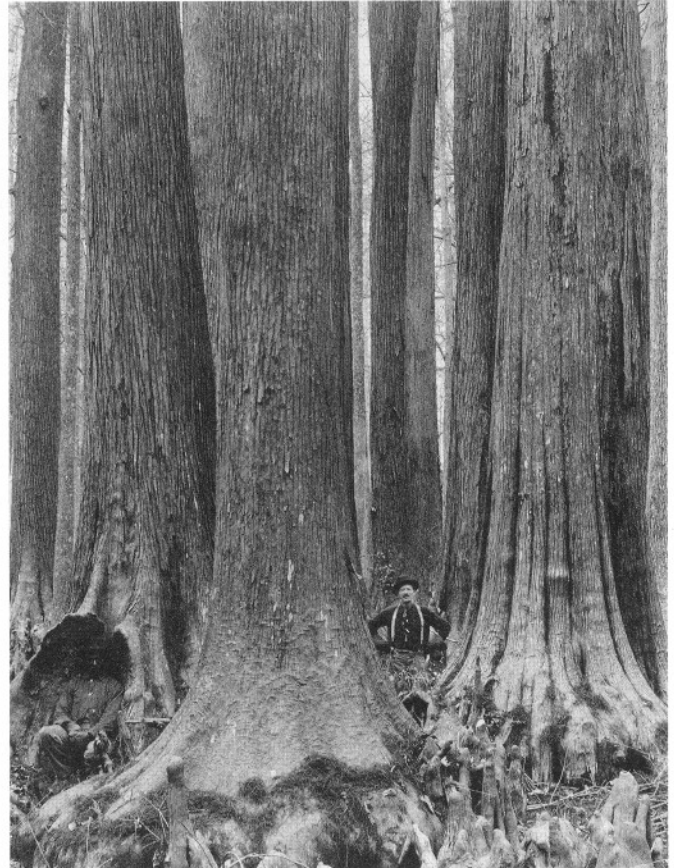
AMERICA'S PRIMEVAL FORESTS DEVELOP

Primeval is defined in the American Heritage Dictionary as "belonging to the first or earliest age or ages; original." We know that eons ago forests of the South were huge, club moss trees that flourished in swamps. Our only record of what took place during this time occurs in coal bed fossils, and scientific evidence indicates that those forests were as complex as today's.

Clearly, over a long period of time, the character of the Southern forest went through phenomenal modification

in response to changes in atmospheric composition, climate and geologic turmoil. The forest evolved from club mosses and ferns to the first gymnosperms (relatives of modern pine trees) and finally to mixed forests of gymnosperms and angiosperms (broad-leaved, deciduous species). The glacial period of geologic history caused species hardiness zones to migrate north and south as the ice fields ebbed and flowed out of Canada. By the time the last glacier receded to the north (20,000 years ago), a boreal forest of hemlock, pine and fir trees had extended as far south as north Alabama. These species occur today in a Canadian hardiness zone far to the north; only remnants of the eastern hemlock remain in some cool ravines of north Alabama. Perhaps the most interesting aspect of this transformation is that change is a natural process, and whole ecosystems emerged and became extinct without the presence of man.

Most people's interest in the Southern forests, however, is in more recent



Bottomland hardwood and cypress trees were probably the only true old-growth forests that were in the Southeast at the time Columbus discovered America. "Cypress Brake" in southern Arkansas.

developments in which man is included as a part of the ecosystem. The forests and times of prehistoric man are interesting stories about the development of a human civilization that had to adjust to—and also helped create—a changing environment.

The first people to migrate into the South after the last glacier had receded to the north were called Paleo Indians by anthropologists. They came into north Alabama about 10,000 B.C. following herds of mastodons, giant bison and



Bald cypress festooned with Spanish moss looking much as it did when John and William Bartram explored the Florida coast.

ground sloths that they depended upon for food and clothing. The South they discovered was dominated by beech and maple—the same forest type found today in the Midwest.

By 8,000 B.C. a changing ecosystem forced new developments in the human population. As the climate grew warmer and drier the forest types that we are familiar with in the South today—oak-hickory and mixed pine-hardwood—began to dominate and eventually stabilized by about 5,000 B.C. The megafauna hunted by Paleo Indians had become extinct in part due to an inability to adapt to ecological changes and partly due to severe hunting pressure. Archaic people were forced to switch to the hunting of deer, turkey and small game animals for sustenance. As the forest changed, Archaic people learned how to make better use of the forest for food, shelter, medicine and more sophisticated tools. As they learned how to live off what they could hunt and gather around them, a transition was made from a fully nomadic way of life to a semi-nomadic rotation between seasonal opportunities.

By 1,000 B.C., the Woodland people had discovered two new technologies that significantly improved their manner of living: rudimentary agriculture and

pottery making. They found that by clearing patches in the forest and cultivating plants such as sunflower, squash and gourds, they could provide more food close to home. Settlements and clearings meant that the Indians were beginning to exert greater influence on the forests' condition.

Between A.D. 800 and A.D. 1500, the Mississippian culture continued to develop their agriculture, social structure, art, trade and religion. This prosperous native American society reached its zenith with the construction of temple mound cities such as Moundville, Alabama. These centers of a feudal system required large areas of the forest to be cleared for mounds, structures, ceremonial fields and cropland. By this time fire was a tool commonly used by the Indians to influence the forest to better provide for their needs. However, even before the arrival of Europeans, the Mississippian culture had begun a mysterious decline.

1500s: AMERICA'S OPEN SOUTHEASTERN FORESTS ARE DISCOVERED

The journals written during the Spanish exploration of the mid-1500s give the first historical account of how the native

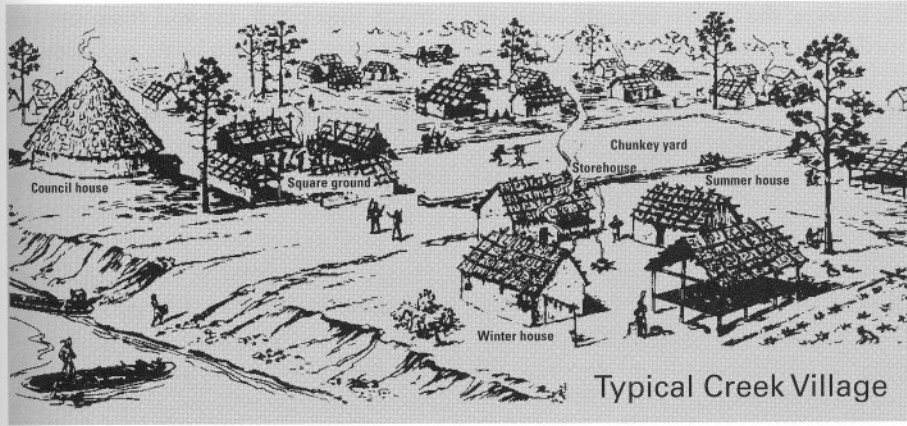
Americans lived and interacted with the natural resources of the South. The native American lifestyle throughout the Southeast at that time could best be described as dependent upon a combination of floodplain farming, hunting, fishing and gathering of natural foods and materials. Most Indian settlements were found within alluvial valleys of major rivers, where it was advantageous to cultivate corn, beans, squash, gourds and tobacco in the moist but well-drained, fertile and easily tilled soils.

Open burning was used for the initial clearing of new garden sites. Little effort may have been made to confine the fire and it spread to areas of adjacent woodlands and previous clearings. The trees in the garden area that survived the wildfire were girdled either with stone axes or by burning additional brush at the base. The vegetables planted beneath the deadened trees were then cultivated with simple hand tools.

Fires were also intentionally set outside the garden areas to open up and improve the surrounding upland forests for hunting and gathering purposes. Intensity and frequency of resulting wildfires probably varied with fuel, topography and weather conditions around the Southeast.

The result of intense, annual fires in the Lower Coastal Plains was that longleaf pine trees and other fire tolerant plant species usually dominated the landscape. The fires in this region removed or severely restricted most of the fire intolerant species from the forest composition. In addition, young regeneration of even the fire tolerant species was often destroyed resulting in open, grassy and park-like conditions throughout much of the coastal areas. Eventually, as the regular fires continued to prevent natural regeneration and the older trees died out, vast grassy savannas devoid of trees were maintained along the Atlantic and Gulf of Mexico coasts.

The fires that occurred outside the Coastal Plains do not appear to have been of a frequency or intensity to result in wholesale conversion of the forest to a fire climax composition. At least half of the South was most likely oak-hickory climax forest but with evidence of fire and storm damage interrupting the landscape.



Throughout the South there were places and times when fire was kept in check either by wet climatic spells or sustained moisture. Lulls in the burning regimes allowed periodic regeneration of natural longleaf pine and even upland hardwood stands in the Lower Coastal Plains. Also, the forests of huge bottomland hardwood and cypress trees in the swamps and wettest river floodplains could not have developed under pressure of frequent fires. The magnificent stands in these places were probably the only true old growth forests that were in the Southeast at the time Columbus discovered America.

It's a good thing fire didn't keep the forest bare forever! Wood was essential to the Indians as fuel and as a primary construction material for dwellings and other buildings, tools, implements, palisade walls, weapons and ceremonial objects. Several species of hardwood trees also produced food, medicine, and other properties which were important components of Indian survival and culture.

Historical records and archeological evidence indicate that the Indian settlements were moved frequently for a variety of reasons, including depletion of wood supplies, reduction in soil productivity, flooding and intertribal turmoil. Given the substantial Indian population in the Southeast at the time of the Spanish explorers, their use of fire, and the tendency to move whole communities fairly frequently, the native American impact on the forest was to create a mosaic of stand types, ages and conditions as well as open prairies. The gradually changing mosaic also provided habitat diversity which allowed, and may even have guaranteed, the sustenance of a

wide variety of wildlife species during the Indian influence on the forests.

The Spanish explorers in the region introduced common European diseases to which the Indians had little or no immunity. Millions of people, an estimated 60–80 percent of the Indian population, died between the Spanish expeditions and the next wave of European contact. While natural and man-caused fires still continued during this time, they were less frequent so the forests had a greater chance to regenerate themselves. Pine and hardwood quantity and quality increased everywhere.

1600–1700s: AMERICA'S COLONIAL SOUTHEASTERN FORESTS ARE EXPLORED

During the 1600s and 1700s, territory in Southeastern North America was con-

stantly claimed, taken by force or traded between Spain, Britain and France before the founding of the United States.

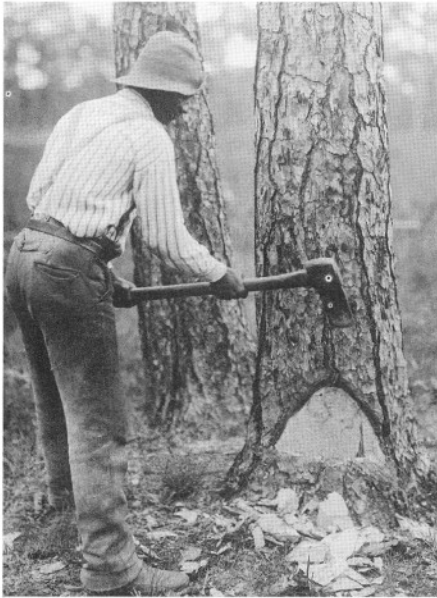
The forests the British and French encountered were somewhat different from what the Spanish had described. Less frequent and intense burning as had been done by a well developed Indian society 150-200 years earlier, had allowed natural plant succession to increase both the quantity and quality of hardwood and pine stocking.

William Bartram, a noted English botanist of the late 1700s, described "grassy savannas of scattered longleaf pines, abundant cane, and narrow groves of hardwood forests on the banks of streams" within the Lower Coastal Plains of the South. This indicated that the Indians were still practicing burning in this area of the South. Bartram described stands of cypress and bottomland hardwoods in the Mobile swamps that were so tall, straight and enormous that he was afraid of jeopardizing his credibility by giving the dimensions. He described "vast open forests without any considerable variation," almost entirely hardwood species, in the Upper Coastal Plains of Alabama. And finally, Bartram described "grand, high forests of stately trees," again almost entirely hardwoods though of different species, in the Appalachian and Piedmont mountains from Carolina to Alabama.

The first explorers made their living trading with the surviving descendants



Production of naval stores was a common scene in the early colonial forest.



The grassy savannas of scattered longleaf pine provided good access to these "turpentine" forests. This worker is starting to "cut the box."

of the Indians. These survivors had regrouped into federations of tribes whom we know today by such names as Cherokee, Creek, Choctaw, Chickasaw and Natchez. Traders used ornamental items, iron axes and kettles to trade for furs and deerskins. The Indians in turn shared their techniques of girdling trees and using fire to open up the woodlands for agriculture and improved game habitat and hunting.

The fur traders had little more impact on the forests and land than the Indians but they opened up opportunities for early European settlements to establish, grow and spread inland from the coasts along waterways and Indian trade trails. As settlers came into the South, their first need was open land on which to grow crops and build their homesteads. They also needed grazing land for their livestock.

Early in colonial American history, an attitude developed toward the forests which regarded them as both an inexhaustible resource and an impediment to the advancement of civilization that had to be cleared out of the way. This belief prevailed for nearly two centuries during the early settlement and expansion period of American history. Besides the techniques of tree girdling learned from

the Indians, the settlers brought beasts of burden, iron axes and buck saws, plows and guns to carve a living out of the wilderness.

After the initial clearing of the land, the settlers took on a greater appreciation of wood. Virtually every object on a farm and in a home was wholly or partly made of wood. Obviously the first uses for the trees found along the Lower Coastal Plains by the European pioneers were for homes, barns, rail fences, tools, implements, wagons and furniture. By far the greatest demand for wood was for fuel to heat, cook and forge by. Inefficient, open fireplaces required 20-40 cords of wood per year and soon created wood shortages near the larger and older settlements.

To succeed during these times, farmers needed to be part-time lumbermen, carpenters and coopers who learned the distinctive properties and potential of each wood species. Even though almost everything the settlers used required wood, the fine timber that stood in those days was far in excess of their immediate needs and had little to no commercial value.

Because of transportation problems, early lumbering enterprises remained small and supplied mainly local needs. The best trees were felled with axes, the branchless portion of the tree cut into logs which were dragged by oxen to a homesite where they were squared with broadaxe and adz and fitted into log cabins or other buildings. Because only the clear limbless portion of the tree was utilized for lumber, everything else (usually a sizeable portion of the tree) was burned for fuel, consumed in brush fires or left as waste to decay in the woodlands. Early harvesting and sawmilling technology were altogether human or animal powered. The earliest method of cutting logs into planks was by pit sawing. Productivity was very low and inefficient.

Beyond the immediate needs for the homestead, one of the first export industries was the harvesting of oak, chestnut and red cedar timber, pine masts and naval stores for shipbuilding. Naval stores refers to pine sap which was extracted from longleaf and slash pines and

made into pitch, tar and rosin used to waterproof wooden boats and ships.

During the time of exploration and early settlement along the Atlantic and Gulf Coasts, the Southeastern forests continued to increase in stocking. Burning the pine forests continued as a cultural practice by both Indians and white settlers for improving range conditions for semi-domesticated livestock. However, this burning and the beginning of land clearing and timber harvesting by a sparse white population did not yet have a significant overall impact on the forest condition in the Coastal Plains.

The interior hardwood forests probably showed considerably less impact by either Indian tribes or early European trappers and explorers at first. However, sustained contact by the Indian tribes with French and British deerskin traders resulted in rapid acculturation of European technology and standards of living. This meant that the Indians began to adopt and utilize the white man's iron axe, plow and beast of burden to make life in the interior forestlands easier and more prosperous.

By the mid-1700s sawmills began to be built along dammed streams where a waterwheel generated the mechanical power for sawing. This new technology increased the feasibility and affordability of uniform lumber production. In the late 1700s small communities grew up around the sawmills which produced planks, clapboards, shingles, barrel staves and shipbuilding parts.

As settlers moved into the Piedmont and Appalachians, charcoal production from hardwoods became another important forest product from beyond the Coastal Plains. Charcoal was used in iron and glass making, production of soap, gunpowder, filters, deodorizers and insulation.

At first, Americans may have felt hostility toward the forest as an immediate obstacle to their plans and purposes. When they became settled, however, it did not take long for them to realize how dependent they were on the forest. Early America was not only made possible, but it was made beautiful by wood.