

Indigo is a small shrub whose leaf, when put through a multistage process, yields a most beautiful blue pigment. Colonial fashion made this dyestuff a demand item, and early plantations in Louisiana concentrated on this crop. However, as other crops became economically more important and as alternate dyes became available, indigo faded from the scene.

Sugarcane is at the heart of Louisiana's agricultural history. The Mississippi river delta, jutting from the southern edge of North America out into the warm gulf waters, has a growing season just long enough to accommodate this tropical plant (figure 4-1). The French were able to exploit the international market that was eager for this commodity when they introduced a major improvement to its transportation—granulation. Today, this crop still makes its mark on the soils, and the way of life, along the old Mississippi River distributaries in the southern part of the state.

Rice, with its need for wet soils, fitted well with the marshy landscape settlers found in south Louisiana and was once an important crop in this part of the state. To this day, rectangular ponds and marshes scar wetlands where extensive rice fields once stood—the Pen east of Laffite, Big Mar near Caenarvon, and the rice fields southwest of Madisonville are but three relics of this method of sea-level agriculture. Modern rice farming now takes place inland, in the prairies of southwest Louisiana and on the vast flat upcountry delta where laser-guided tractors follow the land's subtle contours and plow huge curving fields ready for inundation from wells and streams.

The cotton industry and slavery were closely linked institutions in this state's agricultural history. The lucrative markets for this staple and its tendency to exhaust the soil of certain nutrients caused a great deal of the state's forested uplands and much of its alluvial plain (recall figure 1-1) to be gradually cleared by slave labor then tilled by their hand (figure 4-1). It remains a major crop on the alluvial plain of the Mississippi and Red rivers with the help of artificial fertilizers.

Naval Stores and Wooden Ships

The term *naval stores* probably means as little to us now as the term *microchips* would have meant to Audubon. Naval stores describes a once-thriving industry that supported the great sailing ships of the eighteenth and nineteenth centuries. A country that could not build and maintain its sailing fleet could neither ensure a flow of trade nor protect its maritime sovereignty. Nor could it keep enemy armies from landing on its shores. Queen Elizabeth I, Napoleon Bonaparte, and George Washington all needed sailing ships to win their wars. Their navies needed wood for masts, decks, keels, and a thousand other parts. In addition, each sailing ship absolutely required pitch to seal the cracks between planks, turpentine for making paints, and resins for treating rope to reduce decay. All of these products (pitch, turpentine, resin) came from pines—initially from the appropriately-named pitch pine of the Atlantic coast, and later from the longleaf pine. Until the advent of metal ships and diesel engines, pine forests were precious military assets with economic and strategic significance.

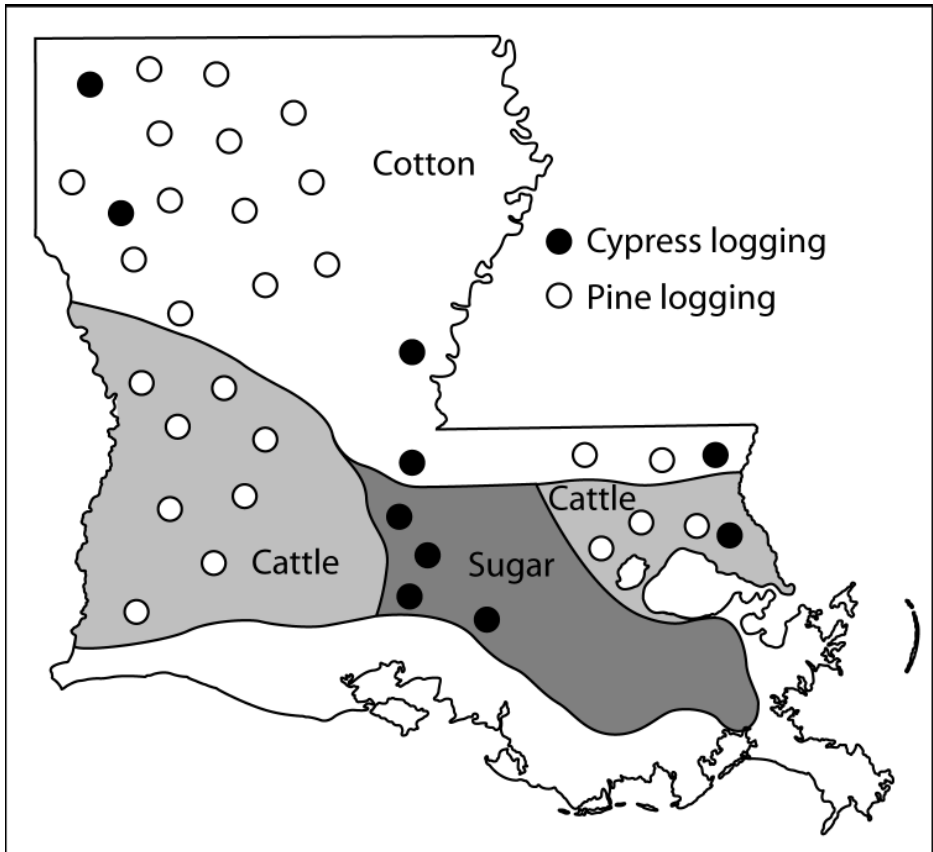


Figure 4-1. Resource development in Louisiana 1860-1930. Land management practices employed brought major changes to the environment of the state (from Taylor, J. G. 1984. Louisiana, A History. W. W. Norton & Co., New York, NY).

Why pines? Pine trees naturally produce a sticky resin to seal off wounds caused by fire or insects. You have probably seen an injured pine tree oozing resin that congeals into a thick amber-colored layer. We know that pine trees have produced resin for millions of years because in parts of Europe, they still mine amber (pieces of fossilized pine resin) for making jewelry. The remains of insects entombed in some amber testifies to the power of pine resin in trapping insects that would otherwise injure the tree. Some entomologists have studied ancient species of insects by observing their remains inside amber.

The use of pine for naval stores is an ancient practice; the Bible records Noah using pitch to seal the seams of the ark. In the United States, the naval stores industry

began about 1600 on the east coast, based on the pitch pine, which grew from Maine to New Jersey. The industry then spread south and west, following the pine forests. In the era of the Civil War, the naval stores industry, along with agriculture and lumbering, was one of three major southern industries.³³

Resin could be harvested from dead as well as living trees. One method used to harvest resin from dead trees required building a “kilyn,” a pile of pine wood some 12 feet high by 20 feet in diameter, covered in earth, surrounded by a small gutter or trench. Once ignited, the kilyn slowly burned the enclosed wood. Resin would seep from the bottom of the pile and collect in the gutter. One kilyn might yield a hundred barrels of resin over eight or nine days of smoldering. This process could extract resin from trees killed by fire or storms, but sometimes resin extractors deliberately killed trees by removing their bark, harvesting the resin the following year.³⁴

Resin was collected from living pine trees (figure 4-2) and processed in much the same way that sap is collected from maple trees and turned into syrup today. The flow of resin was started by making deep cuts into living trees, injuring the bark in a V shape. Resin then began to flow to the bottom of the cut, where it was collected. Too often, the resin simply pooled in an even deeper gash cut into the wood, called a box. This wasteful and damaging practice was sometimes replaced with a much simpler and less-damaging alternative, hanging a cup on the outside of the tree at the apex of the cut. In either case, once a sufficient volume of resin had been accumulated from many trees, the resin was heated over a wood fire in pots or kettles. The fumes were driven off by the heat; what remained was pitch. Later, enclosed iron pots were introduced into the process; the fumes, which had previously gone to waste, condensed to form valuable turpentine. Now there were two products: the more volatile spirits of turpentine, which could be used as a solvent, and the heavier resins and gums that remained in the pot after the turpentine evaporated.

As the pitch pine stands in the north and east were degraded, the industry moved south to the Carolinas, reaching the northern limit of longleaf pine. Settlers and industry soon degraded these longleaf pine forests just as they had done to the pitch pine forests. The industry migrated south and west into new forests, leaving a swath of ruined forest behind, eventually reaching Louisiana and Texas. Remarkably, the Europeans—particularly the French—had already developed a sustainable system for producing turpentine in plantations—trees were cultivated to produce turpentine for 30 to 50 years before being harvested for timber. But rather than learn from this example of sustainable production, Americans continued their application of methods that killed the trees within a few years. This necessitated the continual destruction of new swaths of longleaf forest.

To give some idea of the volume of resin extracted from our longleaf pine forests, consider records from Savannah, Georgia, once a major port for the storage and export of naval stores. In the period between 1895 and 1902, more than a million barrels of rosin (or resin) and 300,000 casks of turpentine arrived annually.³⁵



Figure 4-2. Longleaf pine forests were destroyed by collecting resin for the naval stores industry that supported the great sailing ships of the eighteenth and nineteenth centuries. Resin was used to prevent rope decay and turpentine, derived from heating the resin, was used in making paints. "Gathering turpentine in the pine forest, Covington, La." (Library of Congress, P & P).

By 1914, these receipts were halved, and by 1920 they fell by half again to 223,239 barrels of rosin and 88,910 casks of turpentine. A writer in 1920 expresses this view of the disappearance of great pine forests from the landscape:

The pine forests to the north of Georgia were rapidly becoming exhausted. Once they had been regarded as the source of unlimited supplies forever . . . An almost unbroken pine belt stretched westwardly and southwestwardly from Savanna to the Alabama line . . . These forests today have largely disappeared, swept away by the sawmill men following close in the wake of the turpentine men . . . one cannot but breathe a sigh of regret for the millions of acres of noble trees that have disappeared . . . and the great raw wealth that was swept away.³⁶

Production in Louisiana never matched that of the other states such as Florida or Georgia where longleaf pine forest was more extensive. As the industry declined across the Southeast, however, Louisiana did briefly increase in importance—in 1905, Louisiana produced less than 1 percent of naval stores in the United States, reaching 15 percent in 1918.³⁷ The Florida Parishes were a part of this industry. In 1920, Bogalusa Turpentine Company advertised "Pure Gum Spirits of Turpentine and Rosin. We Solicit Your Inquiries."³⁸ In Covington, the Mackie Pine Products Company advertised

“Manufacturers of Steam Distilled Turpentine and Pine Oils, Rosin, Navy Pitch, Kidney Rosin Oil and Rosin Paint Oil.”³⁹ Hammond began with this industry—its founder, Peter Hammond, had extensive landholdings that produced pitch and charcoal, as well as timbers for masts, all needed for the port in New Orleans.⁴⁰ As the pine forests reached their limits, in a sad final step, even stumps were dynamited out of the ground to extract their valuable resin. This practice was promoted in an advertisement for Hercules Powder in Chattanooga, Tennessee, in the 1920s that read,

Utilize your stumps. The Hercules Powder Company has given special study to the problem of blasting long-leaf pine stumps and their utilization to produce Naval Stores as an offset to the cost of clearing. We are glad to advise owners of cut-over pine lands who contemplate work of this kind.⁴¹

The use of stumps was only a desperate means to continue the poorly managed naval stores industry as a Mr. Hawley of the U.S. Forest Service commented pointedly,

The supply of stumps is no more inexhaustible than the supply of trees which originally grew on these stumps, and probably within 10 or 15 years after the last tree of the present stands of longleaf pine has been cut, the stump of that tree will be pulled out and distilled for the production of wood turpentine and wood rosin. What will be the condition of the naval stores industry of this country when that time comes?⁴²

In its short period of production, the naval stores industry certainly changed the forests and the landscape of our piney woods. The great longleaf forests east of the Mississippi are now all but gone, and one still can find depressions that testify to dynamited stumps. Many of the plant and animals species that use this habitat are on the rare, threatened, or endangered species list, from gopher tortoises to orchids. It is unlikely we will ever see such forests again—unless we make a conscious effort to re-create them.

The fate of our longleaf pine forests is unclear. On a more positive note, The Nature Conservancy has bought hundreds of acres of pinelands near Covington, with plans to re-establish longleaf pine forest and savannas and protect the unusual plants and animals that once inhabited them. The Girl Guides are replanting longleaf pines at Camp Whispering Pines north of Hammond. With time, small regions of Louisiana will be restored to remind us of the landscape that once produced naval stores and maintained sea-going fleets.

The Story of Cypress

European colonists quickly discovered that cypress wood is resistant to rot, yet strong and easy to work. The Louisiana timber trade began early—around 1700. Much has been written about cypress logging; the following overview comes largely