

ECONOMIC HISTORY

Tar and Turpentine

BY BETTY JOYCE NASH

Tarheels extract the South's first industry

Sturdy, towering, and fire-resistant longleaf pine trees covered 90 million coastal acres in colonial times, stretching some 150,000 square miles from Norfolk, Va., to Florida, and west along the Gulf Coast to Texas. Four hundred years later, a scant 3 percent of what was known as “the great piney woods” remains.

The trees' abundance grew the Southeast's first major industry, one that served the world's biggest fleet, the British Navy, with the naval stores essential to shipbuilding and maintenance. The pines yielded gum resin, rosin, pitch, tar, and turpentine. On oceangoing ships, pitch and tar caulked seams, plugged leaks, and preserved ropes and rigging so they wouldn't rot in the salty air.

Nations depended on these goods. “Without them, and without access to the forests from which they came, a nation's military and commercial fleets were useless and its ambitions fruitless,” author Lawrence Earley notes in his book *Looking for Longleaf: The Rise and Fall of an American Forest*.

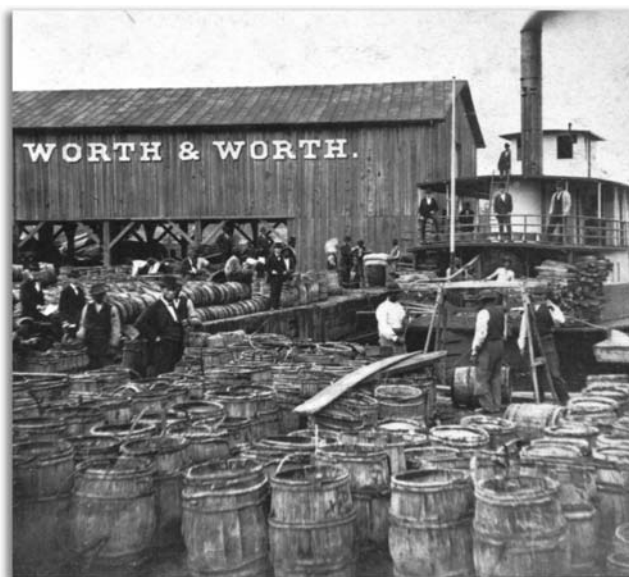
North Carolina seized the opportunity presented by naval stores production; it had the trees, the navigable coastal rivers, and no staple crops — such as Virginia tobacco or South Carolina rice — to crowd out naval stores production. The Tarheels produced so much tar they earned a nickname from the spilled tar that stuck to workers' heels. After the 1720s, the colony dominated the trade in tar and pitch and later, as hundreds of uses were discovered, turpentine.

The naval stores business might never have gotten off the ground had it not been for British demand and incentives Parliament offered.

Gum in a Box

Early sea captains, on a reconnaissance trip to North Carolina, described the pines to Sir Walter Raleigh in 1584 as “trees which could supply the English Navy with enough tar and pitch to make our Queen the ruler of the seas.” Likewise, the governor of the future Lost Colony reported on Roanoke Island's abundance in rosins and pitch. And in 1608, a group of Polish tar-burners was dispatched from Britain to teach their craft to Jamestown settlers. British trading partners were often mired in disputes and wars, but naval stores were critical to keep trade flowing and the empire growing. Having exhausted their own forests, the British needed an affordable and reliable supply.

By the end of the 17th century, the only significant tar production centered around Elizabeth City, N.C.: 1,200



Wilmington, N.C., was a hub for the naval stores industry. This photograph depicts barrels at the Worth and Worth rosin yard and landing in 1873.

barrels in 1698. To stimulate naval stores production, in 1704 Britain offered the colonies an incentive, known as a bounty. Parliament's “Act for Encouraging the Importation of Naval Stores from America” helped defray the eight-pounds-per-ton shipping cost at a rate of four pounds a ton on tar and pitch and three pounds on rosin and turpentine. Goods could only travel aboard British or British colonial ships. “The British had to pay that premium to even get production to begin,” says Louisiana State University historian Robert Outland, author of *Tapping the Pines*, a history of the Southern naval stores industry.

The British had aimed the bounty mainly at New England, to divert industry there from the woolens that competed with Britain's, but the region had depleted its pine forests by the 17th century. In contrast, the Southeast's supply seemed unlimited. The Southern longleafs yielded even more resin, also known as gum.

As settlers spread throughout North Carolina's coastal Cape Fear Valley and its network of waterways, naval stores production expanded. With slave labor, landowners worked crops in the spring and summer and made tar in the winter.

England soon imported enough naval stores to sell the excess to Holland, Flanders, Germany, Spain, Portugal, and Ireland. But the British Navy objected to a shipping subsidy, and the product was poor by European standards. After Britain briefly dropped the subsidy, naval stores exports to Britain fell by 60 percent, eroding the shipping business the subsidy had generated. Parliament subsequently renewed the Bounty Act regularly, for the last time in 1758.

Tar and pitch dominated exports. To obtain tar, producers “sweated” the liquid from resin-filled fallen timber by slow-burning the wood in a sloped pit, with a barrel at the bottom.

Naval stores production grew and so did the uses for them, especially turpentine. It waterproofed cloth and leather and was believed to cure ailments, clean carpets, and repel fleas, among hundreds of other uses. Workers harvested gum from which turpentine and rosin are distilled. (Gum is the sticky substance exuded by living trees as a natural insecticide.) Workers cut into the trees — four inches deep — and collected the gum in a box. John Brickell's *Natural History of North Carolina*, describes that process in 1737: "The Planters," he writes, "make their Servants or *Negroes* cut large Cavities on each side of the *Pitch-Pine Tree* (which they term *Boxing of the Tree*) wherein the *Turpentine* runs, and the *Negroes* with Ladles take it out and put it into Barrels." The deep cuts weakened trees, making them disease-prone; forestry practices in 19th century France would prove superior.

England imported 135,000 barrels of tar, pitch, and turpentine from the colonies in 1768 — 60 percent of which, mostly tar, came from North Carolina. Naval stores were the colony's number-one export, and most of it departed through the port at Wilmington.

But the market for naval stores changed with independence. Shipping subsidies ended, though North Carolina found markets in other countries and colonies. Exports to Britain plummeted from 87,152 barrels in 1774 to 216 in 1777. After the Revolution, Tar Heel exports revived, with the New England states as the chief customers. North Carolina remained the biggest producer for much of the 19th century.

Few profitable alternatives existed, except a small rice-growing region near Wilmington and the tobacco that grew in its eastern river bottomlands. Frederick Law Olmsted, journalist, public administrator, and chief landscape designer of New York City's Central Park among other projects, writes, in *Journey in the Seaboard Slave States*, that "in the region in which the true turpentine-trees grow, indeed, there is no soil suitable for growing cotton; and it is only in the swampy parts, or on the borders of streams flowing through it, that there is any attempt at agriculture."

Over the next century, North Carolina would produce nearly all North American naval stores. The biggest growth emerged from turpentine.

Turpentine Frenzy

After the Revolution, demand for naval stores grew, particularly for turpentine and rosin, the two valuable products separated in the distillation process. Rosin was widely used in soap production and to prevent rot, but tar and pitch still dominated, so essential were these products in shipbuilding and maintenance. By the 1830s, turpentine was used in a camphene mixture for lamp oil until kerosene displaced it. Still other uses sprang up: Rubber manufacturing in the 1830s increased demand for turpentine as a solvent, adding to the product's value. The industry expanded in the 1840s and 1850s and created prosperity in eastern North Carolina as planters expanded production. Sample newspaper advertisements for the sale of operations show that while

the average business in the 1840s consisted of about 25,000 boxes, by the 1850s, the typical operation made use of 85,000 boxes. The expansion also drove up land values. Turpentine prices went up and cotton prices fell. Some farmers put in turpentine boxes and quit growing cotton.

Added production brought more local distilleries to process the raw turpentine, especially in port towns. The *Wilmington Chronicle* reported in 1846: "The distilling business has in fact become a great interest here, one almost equal in importance to any other."

The growing industry got a boost from the expanding railroad networks. Not only could planters, and later loggers, penetrate virgin forests, they could also schedule deliveries. The North Carolina General Assembly in 1849 chartered the North Carolina Railroad Co., which still owns and manages the 317-mile corridor between Morehead City, N.C., on the coast, and Charlotte, in the Piedmont.

The turpentine boom also attracted more people. Cumberland County, a center of production in the early 1850s, attracted 300 whites in January 1853, according to the *Fayetteville Observer*. The newcomers brought 700 slaves. Even the added coerced labor force was apparently insufficient to keep pace with demand, however, as labor costs rose. Some planters hired out their slaves to turpentine producers.

Naval stores slaves worked under a task system, in multi-unit groups in the warm months when trees produced resin. Olmsted wrote that in 1855, an overseer had "ten hands dipping + six hands getting timber, seven hands at the cooper shop, five hands at the still, one hand cutting wood, and three wagoning." But it was tough, lonely, dangerous work, in which slaves were often separated from families. Slaves were put up in crude lean-tos, according to Outland. Distillery fumes and the sticky gum could impair brain and skin, and ticks, chiggers, and snakes further burdened the laborers.

By 1860, naval stores were the third-biggest Southern export, behind cotton and tobacco. North Carolina produced 97 percent of the naval stores made in the United States. Though the longleaf forests already were in decline, in 1860 the total value of crude and distilled turpentine reached \$5.3 million, 32 percent of the state's manufacturing output. Lighter copper stills, though expensive compared to the heavy iron previously used, allowed production to burrow deeper into forests. North Carolina shipped out 90 percent of its tar and turpentine, according to historian David Carlton of Vanderbilt University.

Naval stores continued to form the South's backbone even after the war. Jim Gillis, 95, of Soperton, Ga., is a veteran turpentine operator; his grandfather started Soperton Naval Stores in 1880. Gillis notes that after the Civil War, cotton and naval stores dominated agricultural production in Georgia.

The Pines, Postbellum

In 1866, North Carolina exported 57,000 casks of turpentine. Demand grew, and so did costs of production,

particularly wages, which ate up 52 percent of operating expenses. Harvest methods remained largely unimproved, Outland observes, because the South had failed to develop an indigenous base of mechanics and engineers who could improve the industry's technology.

Though production revived in North Carolina after the Civil War, producers sought fresh forests farther south: South Carolina led production in 1879, Georgia in the 1890s, and Florida in the 1910s.

Post-World War I lumber production in North Carolina depleted its remaining pines which, before the iron rails, had grown too far inland to allow efficient naval stores production. The destruction of the pines mirrors the plantation economy. As soils were worn into infertility, it was "not at all uncommon for plantation owners to shut down operations in the former British colonies, sell it off, pack up slaves and move to fresher land in the Deep South," Outland says.

Though 21 percent of Tarheel lumber was exported, the business lasted only as long as the trees. In the meantime, North Carolina began fabricating a finished wood product: furniture. At the turn of the 20th century, High Point, N.C., had 26 small furniture factories. Nearby Thomasville and Lexington had 14 more.

From 1880 to 1920, lumber production in the South grew tenfold, partly due to wartime demand. Major James Coker of Hartsville, S.C., successfully made paper from soft wood pulp, in 1884, further intensifying the demand for pine and the land on which it grew.

Nonetheless, wages stayed low, about 80 cents a day in the late 19th century, for a 12- to 14-hour day. "The camps' isolation and lack of transportation to the nearest town ensured that most workers traded at the commissary," according to Outland. Most operators paid in scrip, redeemed at a commissary, often for 70 cents on the dollar. This contributed to a debt-peonage system. Though federally outlawed in 1867, the practice of keeping workers through debt owed to owners was not uncommon, according to historians.

Restrictive codes governing black people persisted well into the 20th century, and made it easy for employers to control a large segment of the labor force. Enticement acts prevented employers from hiring workers away from other operators; emigrant-agent laws imposed fees on agents who tried to move workers between states; and vagrancy laws criminalized any failure of black workers to sign and stick to labor contracts. Isolated camps could also breed brutality that could go unchecked, according to

Outland and others. Convicts were also used to work timber and turpentine.

The Resource Curse

At the end of the 19th century, the demand for rosin, particularly, blossomed along with the nation's nascent chemical business. At its peak in 1908-1909, the gum naval stores industry produced 750,000 barrels of turpentine and 2 million drums of gum rosin, which went into hundreds of products — paints, varnishes, lacquer, and paper production. Without rosin, for instance, paper couldn't hold its shape. In 1907, a chemist in a Michigan plant developed a method to wring turpentine and rosin from wood stumps, instead of from the gum that had previously been tapped from trees. This further industrialized the naval stores industry. Large distillation plants and alternative techniques for producing naval stores eventually displaced, throughout the 20th century, the backwoods turpentine distillers and operators.

Historians today suggest that this extractive, migratory industry hamstrung the region's economic development over the longer term, even though industry leaders may have been making rational business decisions at the time. "Everywhere you see the naval stores industry, it seems to center in areas that were poor, and when it leaves, it leaves those areas poor," Outland says. "When you look at North Carolina before the Civil War or South Carolina and Georgia after the Civil War, while the production is going on, the area seems to be generating decent revenue. In their wake, they leave nothing behind. There's no economic development, there are no businesses spun off from these backwoods operations."

Pine chemicals today remain big business. Among the producers is a division of MeadWestvaco in Charleston, S.C., which refines another gum product, tall oil, from its pulp mills to make inks and adhesives as well as lubricants and other industrial products.

Naval stores production and timbering exploited and exhausted the trees from which those industries grew. In the 20th century, efficient technology and modern forestry management replaced the crude destruction. But the longleaf forests have largely disappeared from the landscape. It takes a long time to grow a longleaf.

Naval stores left another mark, though, one still visible in some Southeastern forests: the V-shaped streaks cut into the trees and known as "cat faces," from which flowed the essence of the South's first industry. **RF**

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