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Another New South: Patterns of Continuity in the Southern Naval Stores Industry.

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ANOTHER NEW SOUTH: PATTERNS OF CONTINUITY IN THE SOUTHERN NAVAL STORES INDUSTRY

VOLUME I

A Dissertation
Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in The Department of History

by
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B.A., Wake Forest University, 1989
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December 1999
For Barbara
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Abstract

Analysis of southern naval stores production, an industry in many respects more representative of southern economic development than cotton textiles, reveals a pattern of continuity between the antebellum and post-war South. Naval stores manufacturing began in the colonial era but languished as a marginally-profitable business until the 1830s when new uses for spirits of turpentine resulted in increased demand and higher prices. Large turpentine operations developed almost exclusively in eastern North Carolina and the slaves, who performed most of the work, experienced distinct work patterns. By the 1850s, destructive gum-harvesting methods led to the depletion of North Carolina's longleaf pine forests; producers determined to continue in the business moved their operations and slaves into fresh pine tracts in South Carolina, Georgia, Florida, and Alabama.

The antebellum industry's trends—large-scale production, primitive harvesting methods that wounded the trees, and reliance on forced labor—continued after the Civil War. Producers continued moving into the deep South and solved the problem of labor shortages with convict leasing and peonage. Intensive work routines and difficult conditions in isolated forest camps also persisted, despite attacks on the industry's labor practices in the early twentieth century. Moreover, producers continued to migrate through the South as gum collection devastated pine stands. Progressive-era initiatives did bring moderately successful efforts to introduce less destructive harvesting methods than those in use since the 1700s. However, two new problems plagued the industry in the first half of the century: the rapid rise of production costs and competition from both foreign gum naval stores producers and the rapidly growing wood naval
stores industry. These rivals, combined with the economic and social changes that affected the
South in the 1930s and 1940s, brought the gum naval stores industry to virtual collapse, despite
federal assistance through New Deal farm programs. The wood naval stores industry, which
relied on heavy mechanization and a small number of well-trained technicians, made gains at the
expense of the gum industry. That naval stores production did not modernize until World War II,
demonstrates that a significant portion of post-Civil War southern development represented a
continuation of antebellum patterns.
The southern naval stores industry relied on forced labor and primitive production and marketing techniques from the early-nineteenth century into the first half of the twentieth century. It presents an alternative view of southern economic development than that usually provided by historians who have focused on antebellum cotton cultivation and post-war textile manufacturing. Such scholars find a dramatic difference between the Old South and the New. They describe a region emerging from the ravages of the Civil War ready to cast off its dedication to forced labor, agriculture, and the underdevelopment these two factors spawned and shift its resources toward the construction of factories, located in towns, and employing free, if inadequately-paid, wage laborers. Although largely ignored, naval stores production, the South's oldest industry with deep roots in the antebellum and even colonial eras, perhaps reflects the nature of development in the region better than any other form of manufacturing. It thus serves as a vehicle through which to explore several broad issues regarding the South's development both before and after the Civil War—economic growth, industrial expansion, the transition from slave labor to free labor, environmental alterations, twentieth-century reform efforts, and changes in the rural countryside—and the degree of continuity in these elements from the antebellum to postbellum years.

Despite the importance of naval stores to the history of the South, few people today even know what naval stores are. Since ancient times, naval stores have been vital commodities for shipbuilding: Originally defined to include all materials used in ship construction and maintenance—hemp, flax, masts, spars, planking, tar, and pitch—the term “naval stores” by 1800...
referred only to tar, raw turpentine, and their derivatives—spirits of turpentine, rosin, and pitch. Tar, produced by firing pine branches and logs in slow-burning kilns, and pitch, made by boiling tar, were used primarily for nautical purposes. To reduce decay, seamen slathered heavy applications of tar on the standing rigging that held masts in place and painted lighter coats on the running rigging used for raising and adjusting sails. Tar was also used as an axle grease for wheeled vehicles, a rust protective for cannons, and a preservative for fence posts. Livestock wounds that received an application of tar stood a lower chance of infection and seeds coated with the sticky, resinous substance proved less appetizing to hungry birds and rodents. Pitch, applied to the sides and bottoms of wooden ships, prevented leakage. The other principal naval stores product, raw turpentine, a substance secreted by living conifer trees to protect wounds to their trunks and also known as resin or gum, had minimum uses before the nineteenth century. It was an ingredient in the paint that coated the sides of ships above the water line and was also employed for a variety of medicinal purposes—as an external rub, a laxative, and a flea repellent. Turpentine also served to waterproof leather and cloth. The residue that remained in the still after the raw turpentine finished distilling, called rosin, possessed few applications before 1800. Over the course of the nineteenth century, however, turpentine and rosin came to be used for a multitude of purposes. Spirits of turpentine became an important solvent in the growing rubber industry and an essential ingredient in a widely popular lamp oil. It was also employed in the manufacture of such diverse products as adhesives, pharmaceuticals, disinfectants, and shoe polish. Rosin was used as paper sizing and in the production of soap, floor covering, and paving material. These new applications expanded the demand for turpentine and rosin and spurred the naval stores industry’s rapid expansion across the South during the nineteenth and early part of the twentieth centuries.¹

Because of its primitive production characteristics, disagreement has persisted as to whether naval stores operations constituted industry or an unusual form of agriculture. Throughout the nineteenth century, the United States government classified naval stores products as a manufactured commodities, but in the 1930s it reversed itself and designated them as agricultural products. The ambiguity persisted. For example, in the Encyclopedia of Southern Culture, published in 1989, Percival Perry’s article, “Naval Stores,” appears in the section on agriculture but the topic is also discussed in Roland L. Lewis’s article on “Antebellum Industry” and Thomas F. Armstrong’s piece on the “Timber Industry.” The confusion arose because the techniques for refining turpentine closely mirrored manufacturing, but the schedule and methods of harvesting raw turpentine resembled those in agriculture. Naval stores production first demanded multiple and systematic sweeps through pine forests to prepare trees for the collection of raw turpentine and to keep the resin flowing during the harvest season, just as agricultural fields required periodic trips through them for plowing, planting, and hoeing. Moreover, the harvest of raw turpentine involved several operations on the same tree each season, just as tobacco harvests involved picking leaves from the same stalk at different times. The complicated distilling process to refine the raw turpentine did not transform the gum’s chemical properties, but simply separated the spirits from the rosin. A turpentine enterprise is perhaps best compared to a better-known southern industry, sugar production. In her analysis of slave use in the mid-nineteenth-century Cuban sugar industry, Rebecca Scott explains that mills “were integrated
units, combining the growing of cane and the manufacture of sugar from its juice. Work on a sugar plantation involved elements of both field and factory but differed from other forms of agriculture and industrial work. Most laborers worked in the “agricultural” sector of the operation. Like raw turpentine or resin, which had to be collected and distilled, sugar cane had to be cut, gathered, and hauled to the sugar house where it was processed. As with sugar production, naval stores manufacturing had an “industrial” phase, which employed a minority of the total number of laborers involved in the enterprise. As a hybrid of agriculture and manufacturing, it typified rural-based industries common in the antebellum and postbellum South.

Ignoring such ambiguous forms of industry, many historians argue that antebellum Southerners were either incapable of, uninterested in, or antagonistic toward establishing manufacturing. That the South failed to fund industrialization to the extent that the North did is


Stephen J. Goldfarb, who studies southern textile production, maintains that industry was handicapped by the absence of efficient transportation in areas with water sources powerful enough to run a mill. He points out that the four southern counties with the largest textile production in the antebellum years were those that possessed both rail and water transportation routes. Only after the Civil War, when railroad expansion linked areas with falling water to markets, did the South’s mills begin their rise. “The South had to overcome geographical obstacles,” Goldfarb concludes, “before it could begin on that long road to an industrial economy.” Harold Woodman contends that southerners invested their money in agricultural instead of industrial pursuits because they believed that the most reliable and best returns lay in planting. Southern farmers, he adds, also lacked the capital necessary to develop manufacturing. Eugene D. Genovese argues that the South failed to industrialize because the slaveholding class, which exercised economic and political power in the region, “feared a strong urban bourgeoisie, which might make common cause with its Northern counterpart. They feared a white urban working class of unpredictable social tendencies.” Stephen J. Goldfarb, “A Note on Limits to the
clear. On the eve of the Civil War the South produced only fifteen percent of the value of manufactured goods in the United States. Yet southerners did not ignore industrialization and during the late antebellum period they began significant initiatives into economic development outside of agriculture. Spurred by the Panic of 1837, which depressed cotton prices until the mid-1840s, investment in manufacturing rose from $53 million in 1840 to $93.6 million in 1850 and jumped to $163.7 million by 1860. Between 1850 and 1860 the value of manufactured output rose seventy-nine percent. Southern industrialists built railroads, operated ironworks, and wove textiles, but most of them extracted and processed raw materials or agricultural products. They established and operated rice, sugar, wheat, and corn mills, saw mills, cotton gins, tobacco factories, hemp factories, salt works, coal mines, and turpentine operations.

A few scholars have recognized these activities. In her study of Confederate entrepreneurs in Georgia, Mary DeCredico finds that southerners, even planters, supported economic diversification, internal improvements, and industrial expansion. Driven by the depression of the late 1830s, Georgia’s boosters and political leaders encouraged manufacturing and the exploitation of natural resources. Although Georgia’s manufacturing, like the rest of the South’s, primarily involved the processing and refining of raw materials—cotton, lumber, flour, meal—the increase was significant. Between 1850 and 1860 manufacturing output per capita increased 104 percent and capital investment rose 71 percent. The trend toward economic diversification, DeCredico believes, also occurred in other regions of the South in the late antebellum period. Fred Bateman, James Foust, and Thomas Weiss present evidence that supports her suspicions and find that planters were responsible for much of the investment in

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industry. Although "manufacturing development was retarded by an inability to transfer resources, primarily capital, out of agriculture," they argue, planters still supported industry. Indeed, large planters controlled a significant percentage of the South's new industry; twenty percent of manufacturers owned more slaves than the average slaveholder. Although such large slaveholding investors were a small minority of planters, only six percent, they controlled twenty-three percent of manufacturing capital. In North Carolina, where the naval stores industry first developed on a large scale, planters enthusiastically invested in manufacturing and, in fact, represented the majority of backers. In the Tar Heel State, thirty-three percent of manufacturers owned more slaves than average slaveholders, and many owned two to three times as many bondsmen. Much of North Carolina's high rate of planter investment in industry was a result of the state's prominence in naval stores production. In 1860, North Carolina's total capital investment in industry amounted to $9,693,703 of which $2,059,780, or a little more than twenty-one percent, was in naval stores production. That same year the state produced $16,678,698 in manufactured goods of which $5,355,780, or thirty-two percent, was naval stores. Moreover, forty-two percent of the state's manufacturing establishments made these products.6

Not only was naval stores production a prominent antebellum southern industry, it also possessed the general characteristics typical of southern manufacturing after the Civil War, much more so than textile production. James C. Cobb explains that most industries in the postbellum South, like those before the war, comprised industries that were largely undercapitalized and

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involved extracting and processing agricultural products and raw materials—such as gum turpentine. Cobb also notes that southern industry shared these characteristics with southern agriculture. They "remained locked in a mutually dependent relationship in which the weakness of one reinforced the weaknesses of the other." David Carlton finds that the New South did not conform to the prevailing image of an industrial society, but rather remained predominantly rural and relied on low-wage and ununionized labor—again, both common in the naval stores industry. F. Ray Marshall argues that the lives of agricultural and industrial workers in the South, especially those involved in forest industries, usually diverged very little. Both lived and worked in rural areas, inhabited similar houses, labored for paternalistic bosses, and received company scripts which they spent in company stores. Although the textile industry used the South's most important raw commodity and employed low-skilled workers, it did not extract or process the fiber but rather produced a finished product in a highly-mechanized facility typically located in at least a moderate-size town. These characteristics offered by Cobb, Carlton, and Marshall do not fully apply to cotton textile production. These traits, however, describe naval stores manufacturing. It typically took place in rural areas where few other opportunities for economic development existed, where capital commanded a high price, and where pines grew in abundance and sold for little. The industry used crude techniques that maximized the short-term returns of both capital and labor and employed methods and work rhythms that in many ways resembled agriculture more than industry. Furthermore, naval stores production relied on a variety of systems of forced labor, which supports recent scholarship that argues that slavery, peonage, and convict leasing, rather than serving as drags on the southern economy, helped to modernize it. Turpentining can therefore be studied as a prototypical southern industry.8

7 Cobb, Industrialization and Southern Society, 11, 16.

It certainly provides a better means of examining the region’s growth than does cotton textile production, which was not only unrepresentative of most southern industry but was not even the New South’s most important industry until after the First World War. Edward Ayers maintains that “while the cigarette, furniture, and textile industries made impressive strides in the New South, most Southern industrial workers labored in forests and mines rather than in factories. Those extractive industries became increasingly dominant throughout the New South era, outstripping the growth of more heavily mechanized enterprises.”

Economist Gavin Wright finds that, until 1920, the South’s timber products industry—raw timber, lumber, and naval stores—was the region’s largest in terms of both employment and value added. Indeed, a map of southern industry in 1900 included in Ayers’ The Promise of the New South reveals that the percentage of families with a member engaged in manufacturing was the highest and most widespread across the rural pine region of south Georgia, Florida, and the Gulf coast of Alabama and Mississippi—where the timber products industry was most concentrated—not in the more town-oriented Carolina piedmont, which possessed most of the South’s textile mills. Naval stores and other timber products production has received little attention in studies of the South, even though, as Ayers argues, “lumber, more than any other industry, captures the full scope of economic change in the New South, its limitations as well as its impact.” Wright believes that scholars have largely ignored the rural-based timber industry because it was of an extractive and therefore transient nature and, in most areas of the South, consequently made no lasting


10 Ibid., 123.
contributions to local development. But in a significant portion of the South, timber and naval stores operations were—despite their mobility—the largest and most influential businesses for half a century. Furthermore, their failure to bring lasting development to rural areas constitutes an important legacy and helps explain why the southern pine belt remains relatively devoid of industry and towns today. Naval stores alone, it must be admitted, did not represent the most important industry in even the piney woods South. But as a part of the larger timber products trade, with which it shared common characteristics, the naval stores industry serves as a superior example of southern economic development.

In examining three interrelated dimensions of the southern naval stores industry—business, labor, and environment—this study addresses some of the issues Gerald Nash asked historians of the South to consider over three decades ago. Nash believed that “the growth of business and industry, readjustments in agriculture, the changing nature of the South’s transportation system, its financial institutions, and its labor force all require further detailed investigation before we obtain a clearer conception of the tortuous course of industrialization in the twentieth-century South.” Nash also argued that the region’s timber industry, the role of government in the process of industrialization, and the use of applied science also deserved attention. By also exploring the human dimension of the naval stores industry’s development, especially the experiences of laborers, this work adopts an approach advocated by Edward Ayers and Thomas F. Armstrong. Ayers argues that despite industry’s failure to meet the claims of southern boosters, it did indeed shape the lives of a significant number of people whose existence


12 Ibid., 159; Ayers, *Promise of the New South*, 23; For comparative figures of cotton, timber product, and naval stores production see Appendix A.

deserves attention. Armstrong employs such an examination in his study of the work experience and residential and family patterns of Georgia lumber workers. Armstrong admits that, for the historian, such issues might seem mundane topics, but “for the workers these were often the questions which had daily meaning in their lives.” Finally, as advocated by Alan Taylor, this study explores the part the environment played in shaping the naval stores industry and the lives of those involved in it, and, in turn, the role the industry and its workers played in altering the environment. Taylor finds that social historians typically concentrate on human interrelationships and treat “the natural context” as an “unexplored backdrop.” On the other hand, environmental historians, he charges, commonly “describe societies and cultures as homogeneous wholes.” But in fact, Taylor argues, “social and environmental history are fundamentally compatible and mutually reinforcing” and together can show the “systematically unequal distribution of the rewards and burdens extracted from the environment.” Such a pattern was deeply rooted in the southern naval stores industry’s colonial past and persisted well into the twentieth century.

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14 Ayers, Promise of the New South, 105.


Chapter One

The Rise of the Tar Heel State:
Early American Naval Stores Production

Over the course of the eighteenth century, North Carolina developed into the largest colonial producer and Britain's principal supplier of naval stores. England had manufactured its own naval stores supplies since the Middle Ages, but, no longer able to do so in the seventeenth century, turned to other Western European sources for tar, pitch, and turpentine. For much of the 1600s, England found the quality and price of imported naval stores to be satisfactory. But by the beginning of the eighteenth century, wars and mercantilistic trade policies scuttled this arrangement. Therefore, in 1704 England created an incentive program to encourage its North American colonies to increase their then small output of naval stores. After a slow start, the program succeeded and, for most of the remainder of the colonial era, England enjoyed a steady, abundant supply of naval stores, most of it produced in North Carolina. For a variety of economic, environmental, and geographical reasons, North Carolina was particularly well-suited for making naval stores. Although other colonies with similar capabilities produced tar, pitch, and turpentine, in them other commodities proved more profitable and crowded out naval stores products. North Carolina, with few alternative staple crops, therefore, never lost its hold on the naval stores trade once it achieved dominance after the 1720s. In fact, North Carolina produced so many of these products that it became known as the "Tar Heel State." ¹

In the Middle Ages England had provided its own ship materials. As the country's merchant fleet and navy grew larger, its population increased, and its iron industry expanded,

however, England’s forest resources rapidly dwindled, causing wood product prices to climb. Ships required wood for lumber, planking, and masts; homes needed wood for heating; and iron forges burned charcoal, carbonized wood. Coal proved to be an adequate substitute for heating, and iron manufactures found alternative wood sources in Ireland. Ship-building supplies were more difficult to obtain. At the beginning of the seventeenth century, English shipyard managers sought materials from Prussia, the most important producer and exporter of naval stores at the time. Soon, Sweden established itself as the primary European supplier and retained that status throughout the remainder of the seventeenth and all of the eighteenth centuries. Sweden—whose territory by the late seventeenth century included not only what is today Sweden, but also Finland, Estonia, Livonia, and parts of northern Germany—made the highest quality tar. Using Scotch pine, Swedish tar-makers employed a labor-intensive process that involved removing the bark of the tree from the base to a height of eight feet and leaving only four inches on the north side to sustain the tree’s life. After standing this way for a year, the pines were cut and their pitchy bottom sections burned in a ground kiln. Because tar-manufacturing paid little, farmers made it primarily as an income supplement. Few producers were willing to sacrifice their own forest lands to such a wasteful method, so they used community-owned land instead. For forest owners with tracks close to markets or transportation centers, significantly greater profits could be had from sawing timber into lumber. In the more remote areas where shipping charges proved prohibitively expensive, tar was the only profitable choice. Although it was relatively inaccessible to markets, the tar region had sandy soil, which not only grew the most resinous trees, but also eased the task of digging a kiln.²

Although inefficient, the Swedish tar makers offered England a reliable supply of a high-quality product at reasonable prices. The exclusion of forest products from the enumerative clause of the 1660 Navigation Act suggests that England did not consider its dependence on Swedish naval stores a problem. In the mid-seventeenth century, however, a single firm, the Stockholm Tar Company, tightened its grip on the entire Swedish tar trade; by the 1690s it possessed enough power to fix tar prices at home and abroad. Between 1689 and 1699 tar prices more than doubled (from 5 pounds, 15 shillings to eleven pounds for twelve barrels). England scrambled to find a cheaper source. Improved trade relations with Russia following Peter the Great’s visit to England in the 1690s, combined with Russia’s rising naval stores production, offered hope for an alternative tar supplier. However, the Tsar raised Russia’s price to capitalize fully on this highly-demanded product.3

In the early 1700s, England’s problems in securing reasonably priced naval stores increased. During the Great Northern War, the Russian Army overran Finland, which resulted in a drop in the latter’s naval stores production. England had imported 30,117 barrels of Swedish tar and pitch in 1701, but only 6,654 barrels arrived the following year. The War of the Spanish Succession, in which the English, Dutch, Austrians, and Prussians fought France from 1700 to 1713, led to a massive naval buildup that increased demand and pushed naval stores prices to record levels. By 1703, the cost of twelve barrels of tar had risen to twenty-two pounds, double its price before the war. At the same time the Stockholm monopoly further tightened its control of the market. It no longer sold naval stores directly from Stockholm, but only through its factors abroad and only at the price and quantities set by the company. All supplies sold to England

were delivered only aboard company ships. Not only did Stockholm force Britain to pay exorbitant prices for naval stores, but British shipping interests lost a valuable cargo. England's cheap and stable naval stores supply had ended.  

England's dependent position in the early eighteenth century had developed through years of failed endeavors to develop naval stores production in its colonies. From the beginning of their efforts in North America, English financiers hoped the new colonies would produce, among other commodities that England had to import, naval stores—products essential to the construction and maintenance of Britain's growing fleet of naval and commercial ships. In 1585, Ralph Lane, the governor of the fledgling colony on Roanoke Island, reported "that what commodities soever Spaine, France, Italy, or the East parts do yeeld unto us in wines of all sortes, in oils, in flaxe, in rosens, pitch, frankenscence, currans, sugars & such like, these parts do abound with ye growth of them all..." Prospects for naval stores also appeared promising with Thomas Harriot's exploration of the Carolina coast. He claimed that "Pitch, Tarre, Rosen and Turpentine. There are those kinds of trees which yeeld them abundantly and great store." But any attempts by the Roanoke colonists to produce naval stores ended with the colonists' mysterious disappearance. However, the Jamestown colony, founded in 1607, met with early success in tar manufacturing. In 1608 the colony was resupplied with a second group of colonists, among them Poles who knew the methods of tar and pitch making. With the English...  

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6 Ibid., 51.
apprenticed to the Poles, Jamestown managed to include several barrels of naval stores among its first exports. Despite hopes that Virginia would become an important source for these products, however, the new colony soon lost interest in tar and pitch and cast its lot with another staple, tobacco, a crop that could deliver more substantial returns. When British officials pushed Virginians to produce naval stores—particularly tar—the colonists complained that there were no horses or other means to transport the wood necessary for production. Moreover, they argued, the threat of Indian attack made work in the forest too dangerous. Parliament tried to encourage tar production by allowing naval stores from Virginia and Maryland to be imported free of the four shilling, two pence duty for five years. The effort apparently failed because, in 1682, the colonial government made its own attempt to increase production. The Virginia General Assembly made tar legal tender in the colony with each thirty-two-gallon barrel carrying a value of fifteen shillings. Like Parliament’s, Virginia’s attempt to encourage production met with little success. By 1698, the only place in Virginia where naval stores were produced in any significant quantity was Elizabeth City County, and its products never exceeded 1200 barrels annually.7

More than the Indian threat or a lack of horses, three significant disadvantages in profitably selling naval stores to overseas markets discouraged colonial production. First, shipping distances between North America and Britain vastly exceeded those between the Baltic and Britain and therefore resulted in significantly higher shipping costs for colonial suppliers, despite colonial measures to lower them. In an effort to lower transport costs, the Virginia General Assembly in 1640 set a standard shipping rate charge of six pounds per ton on products traveling from Virginia to England. Although the act was primarily designed to reduce the excessively high rates for shipping tobacco, it applied to naval stores as well. Despite the act,
however, by 1704, the cost of shipping naval stores from Virginia had climbed to eight pounds per ton. Exporters from the Baltic states paid only two pounds. Second, colonial labor costs also exceeded those in the Baltic states because of a shortage of workers in the colonies. Third, the colonies lacked experience in tar-making, which resulted in lower productivity and a lower-quality product than that made in Europe. For all three reasons, naval stores never became the predominate export of any colony during the seventeenth century. Virginians produced some naval stores, but concentrated on tobacco. The Carolinas exported a combination of beef, pork, rice, and naval stores, but not significant quantities of the latter before 1700. In the seventeenth century, New England became the first center of American naval stores production, but its exports failed to supply more than a small fraction of England’s needs. New Englanders tended to favor lumbering and shipbuilding as more profitable enterprises for wood products and limited tar and pitch production to quantities required for their own needs.\footnote{Hautala, “European and American Tar,” 42; Snow, “Naval Stores in Colonial Virginia,” 91; Donald Fraser Martin, “An Historical and Analytical Approach to the American Gum Naval Stores Industry” (Ph.D. diss., University of North Carolina, 1942), 43-45; A. Stuart Campbell, Robert C. Unkrich, and Albert C. Blanchard, The Naval Stores Industry (Gainesville, FL: Bureau of Economic and Business Research, College of Business Administration, The University of Florida, 1934), 8; Airaksinen, “Tar Production,” 120; Innes, Creating the Commonwealth, 272; Wood, Black Majority, 110.}

The Whig government, which controlled Britain in the early eighteenth century, felt new pressure to force colonial naval stores manufacturing. Coming to power in the Glorious Revolution of 1688, the Whigs strongly supported mercantilist policies that emphasized exporting the largest possible amount of products while importing as little as possible. Under their control in 1696 Parliament created the Board of Trade, which determined that the empire’s mercantilist structure was not operating up to its potential. Not only were the colonies failing to supply adequately the raw materials for British manufacturing, but the northern colonies actually posed a threat to the English wool industry. A shift to a more mercantilist-oriented trade policy,
the Whigs believed, would help strengthen English manufacturing, increase the volume of
English shipping, and develop the outer regions of the empire. Colonial naval stores production
could help achieve these ends.\(^9\)

A combination of these three factors—the Scandinavian tar monopoly, Whiggish
mercantilist support, and the threat of developing colonial manufacturing— influenced Parliament
when in 1704 it passed “An Act for Encouraging the Importation of Naval Stores from America,”
a piece of legislation that one historian has described as “one of the most interesting and
significant mercantilist experiments made by England during the whole colonial period.”\(^10\)
Encouragement took the form of bounties, or subsidized prices, which compensated for the high
shipping charges associated with transatlantic export. Effective January 1, 1705, and lasting nine
years, the Navy Department would pay a bounty of four pounds per ton on tar and pitch, three
pounds per ton of rosin and turpentine, six pounds per ton of hemp, and one pound for each ton
of masts, yard-arms, and bowsprits. The Admiralty, however, had the right of refusal for up to
twenty days of any colonial naval stores sent as part of the program. The act also made naval
stores enumerated commodities; colonists could export tar, pitch, and turpentine only to British
ports and aboard British or British colonial ships. Few colonists complained about the
restriction; in essence the bounty act created a receptive market for colonial naval stores by
forcing the British Navy to purchase them at inflated prices. The British, not the colonists,
complained most about the new policy.\(^11\)

20; Knittle, Palatine Immigration, 122.


\(^11\) Charles Christopher Crittenden, The Commerce of North Carolina, 1763-1789 (New
The War of the Spanish Secession delayed the bounty act's effectiveness because the high wartime freight rates, as much as four times those from Sweden, rendered the compensation inadequate. While Swedish exporters paid only £.25 to ship a barrel of tar to England, Carolina colonists paid £.1, New England £.9, and New York £.8. Although colonial exports rose slightly immediately following the bounty act's passage, between 1708 and 1710 tar exports actually dropped. However, with the end of hostilities in 1713 and a subsequent drop in shipping costs, American tar achieved prominence in the British naval stores market and soon came to dominate it. Britain had imported only 177 barrels, or one half of a percent, of its naval stores, from the colonies in 1701. By 1714 the colonies supplied 11,639 barrels, or twenty-five percent. A year later it imported nearly one half of its naval stores from America, two years later a majority and six years later ninety percent of its supply. Between 1716 and 1724 England received an annual average of 61,488 barrels of tar and pitch from the colonies and an annual average of only 12,849 from the Baltic. By 1725 the colonies provided England with more than it required for annual use. England then began to export naval stores to Holland, Flanders, Germany, Spain, Portugal, and Ireland. Britain's import volume released it from its dependence on Sweden and, in fact, drove down the costs of the Swedish products.\(^\text{12}\)

Although highly successful in stimulating naval stores production, the 1704 act did not foster the industry where Whig administrators had wanted. They intended the act to boost naval stores manufacturing in the northern colonies whose export products actually competed with England's. New England and New York, with a climate similar to England's, produced agricultural commodities that could just as easily be grown by farmers in the mother country. Much of the northern colonies' produce, consequently, had to be exported to other colonies. The

mercantilists hoped that if New England could shift from wool to naval stores production, not only would competition with English woolen works diminish and an alternate source of tar and pitch open, but the colonists could use the profits from naval stores to purchase England’s woolens. The act called for bounties to be paid only on naval stores produced in the New England and middle colonies. But by the end of seventeenth century, New Englanders had relentlessly cut timber, especially pine, until its depletion curtailed even limited naval stores activities. The southeastern colonies, however, possessed an abundance of longleaf pines, a species that yielded much more oleoresin than New England pines. Therefore, most of the tar, pitch, and limited amounts of turpentine that left northern ports originated from the southern colonies, especially Carolina. Southern producers exported naval stores through such northern ports as Philadelphia, New York, and Boston so they could receive the bounty. The British overlooked the origin of most of the naval stores because they were pleased with the volume they received. England remained determined, however, to build a northern naval stores industry, so determined that in 1709 it sent, three thousand Palatine immigrants to New York and instructed them to produce naval stores. The effort failed when it lost its financing and the Germans, who were not accustomed to burning tar kilns, found they could prosper as farmers instead. Britain also persisted in its efforts to obtain masts—for which it continued to rely on the Baltic states—from the northern colonies. To preserve the mast supply in the northern colonies, the bounty act prohibited the cutting of pines smaller than twelve inches thick, three feet from the ground. However, when the colonies failed to produce an adequate number of masts, Parliament, in 1711, imposed a one-hundred-pound penalty for cutting such pines. Continued depletion of forests in the Northeast led to additional measures. A 1715 Massachusetts law forbade the boxing of pine trees for turpentine on Cape Cod. In 1720, Parliament outlawed the cutting of any pine in Nova Scotia, New England, New York, or New Jersey.13

13 Williams, “English Mercantilism,” 168; Cox et al., Well-Wooded Land, 28; Hautala,
While few pines grew in the northern colonies by the early eighteenth century, an expansive pine forest covered the coastal plain of the southern colonies. In much of this area, longleaf pine, the best pine species for making naval stores, made up eighty percent of the tree species. Only river bottom lands, where hardwoods and other pines grew, broke up this almost pure longleaf growth. A nineteenth-century traveler through the southern forest observed that “its features are monotonous in the extreme, varied only by alternate swamp and piney woods; the former bordering the water-courses, the latter covering the sandy ridges between.”

Stretching for nearly twelve hundred miles from near Norfolk, Virginia, through the Carolinas, eastern Georgia, the Florida panhandle and northern peninsula, southern Alabama and Mississippi, and portions of Louisiana and Texas, the longleaf pine forest of the southeastern coastal plain and Gulf South regions covered an estimated sixty million to ninety million acres. André Michaux, the French botanist who explored the United States’ forests in the late eighteenth century, found only three significant areas in the southern pine belt where longleaf did not dominate, one in the Neuse River vicinity in North Carolina, another north of Columbia, South Carolina, and the third just north of Augusta, Georgia.


The longleaf pine is particularly well adapted to the southern environment. As a pioneer tree species, pines are first to appear on land where vegetation has been disturbed by wind, water, fire, or human or animal activity. In the absence of further disturbance, they give way to a mixed forest of gum, oak, and other hardwood species. The mixture of hardwoods represents the natural climax forest for the southeastern United States' coastal plain. But in areas of frequent fires, caused either by lightning or humans, the longleaf remains dominant. For while hardwoods and other pine species are easily damaged and killed by fire, the longleaf's reproductive and growth characteristics render it well-suited to not only survive but to thrive in frequently burned over areas. Although it produces seed only at long intervals, usually no more than once every seven years, it does so in abundance. These seeds take two years to mature in large cones. When the seeds reach maturity, the cone dries out and its scales spread apart, freeing the winged seeds which then float to the ground. Although the relatively large size of the seeds permits foraging animals and birds to find them with ease, their weight enables them to penetrate undergrowth and reach the forest floor where they can germinate. The tops of new longleaf pines emerge in early winter but achieve little height growth. They remain at a low grass stage for three to ten years, depending on growing conditions, which puts the longleaf at a disadvantage to other tree species, especially other pines. Slash and loblolly pines, for example, grow considerably faster at an early stage and can crowd out the squat longleaf seedlings. But the longleaf's slow growth gives it superb fire resistance. Until the first autumn after germination, very young longleafs are as susceptible to fire as other species. However, after that, when the stem reaches six inches tall, the longleaf is well protected from fire by a covering of heavy eight- to fifteen-inch needles that grow in bundles of three. At this stage, the seedling grows a deep root system in which it stores a reserve food supply. In the event it looses its crown of needles in a fire, the seedling can draw on the energy stored in the root to grow a new set. Once the grass stage ends, the longleaf begins rapid height growth for two or three years, and is once again susceptible to fire. If it survives,
though, it develops a layer of heavy bark, from one-quarter- to one-half-inch thick, that can protect it from most fires for the rest of its life. The longleaf requires fire to eliminate the competing tree species. In fact, it is seldom successful in wet areas where fires occur infrequently. In such places other tree species shade the longleaf out during its short, grass stage years.16

The southeastern forests endured frequent fires. Some had natural causes. The heat and humidity the region experienced during the warmer months encouraged thunderstorms and lightning that sparked fires. But because most lightning strikes were accompanied by precipitation which moistened the forest floor, the fires it started often burn slowly, low to the ground, and, consequently, rarely spread. On occasion they could smolder until extinguished by the next rain. Lightning, however, was only a secondary cause of the fires that created the longleaf pine forest.17 Native Americans were responsible for most of the fires in the southeastern forest. “It was in large measure owing to the Indian and his Grandfather Fire,” explains Stephen J. Pyne, historian of fire in America, “that the forest primeval had already been widely cleared, converted, and otherwise managed.”18 Environmental historian Albert E. Cowdrey maintains that in the hands of native Americans, “fire became central to the maintenance of a human-centered ecology.”19 Burning served as a means of sustaining a balance


17 Silver, New Face on the Countryside. 18.


19 Cowdrey, This Land, This South, 14.
in the forest that supported the Indian economy. It was the only way for Indians to maintain their population in the temperate forest that developed in eastern North America at the end of the last ice age. As glaciers retreated northward, the boreal forest, which consisted mostly of conifers adopted to cold weather and once extended as far as central Georgia, followed. But when undisturbed, the temporal or mild climate forests that replaced it sustain relatively low plant and animal populations, making human habitation difficult for all but the smallest communities. By the time vegetation in such a forest reaches its most mature stage, it has developed a two- or three-layer canopy that shades the ground enough to prevent grass and undergrowth development. Since the beginning of the Holocene period, which began ten thousand years ago and marks the disappearance of the megafauna, Indians relied on bison, deer, elk, and other grazing animals as their source of protein. To encourage the growth of grasses and shrubs on which this game could feed, native Americans periodically burned the undergrowth to keep the forest open, a common approach among both pastoral and farming cultures. Indians also used fire to herd their prey together for easier hunting and to improve their own quality of life in the forest. Fire drove off mosquitoes, flies, snakes, and other pests. It improved the production of edible berries, eased nut gathering by clearing away debris, opened the forest for better travel, boosted security by giving better visibility, unlocked nutrients for trees and grasses, and discouraged larger forest fires by clearing away their fuel, forest debris. 20

The accumulation rate of ground litter—leaves, needles, branches, and twigs—varies with forest type. In pine forests it tends to collect more rapidly than in hardwood or mixed forests.

But the volume at any given time depends on the burning frequency. Pyne explains that "under natural conditions the intensity and frequency of fire varies according to the work required of it: The greater the litter, the more intense the fire; the more frequently litter is built up, the more frequent the fire."21 By keeping accumulation to a minimum, Indians, who may have fired the southern coastal plain woods as often as twice a year, ensured that fire had only enough fuel to burn slowly and at ground level. Besides fuel accumulation, other factors that contributed to fire intensity include precipitation patterns, relative humidity, wind speed and direction, ground slope, and temperature. During periods of average precipitation, only the upper layer of debris burned because the lower layer remained damp and fire resistant. Indians allowed such fires, which offered no threat to their life or property, to burn until they reached water courses or were put out by rain. These fires rarely harmed hardwoods and other pine species which occupied the swampy terrain that seldom played host to fires. But when areas that had escaped fire for a number of years finally did burn, considerable damage occurred, especially if the flames began spreading through the tree tops. Because Indian burning was primarily localized and not all areas of the forest received even burning, such occasions were not uncommon. Lush undergrowth and a thick layer of debris could fuel a conflagration, which, if started during a dry summer period when the entire forest floor was dry, could consume everything in its path. Such hot fires were especially damaging during the growing spring and summer seasons and in dense stands of young trees. The vast differences in forest fire frequency and characteristics created different vegetation environments. Intense fires during dry periods could eliminate trees altogether, creating open fields with dense shrub growth on their periphery, while areas that experienced

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frequent low-burning became savannas with widely spaced trees, little undergrowth and lush
grasses.²²

Indians, therefore, "made an indelible impact on the forest" through burning as ecology, 
historical geographer Michael Williams has explained.²³ "Far from being incapable of modifying 
his environment, the Indian created it, gradually replacing dense forest with thinner forest, 
thinner forest with grassland, and changing the composition of the standing forest."²⁴ The initial 
arrival of the Europeans may have caused some forest areas to grow uninterrupted and close. As 
native population declined, primarily from disease epidemics, cultural pressure on the 
environment relaxed and reduced the need for frequent burning. But European settlers quickly 
adopted and continued the Indian patterns, a practice that lasted for centuries and for a time 
enabled the longleaf to retain its dominance over the coastal plain.²⁵

In addition to its ability to endure fire, other features of longleaf favored its growth in the 
southeastern coastal plain. The tree thrives in poor, dry soil. With the exception of river flood 
plains, where longleaves rarely prospered, the soil of the southeastern coastal plain is relatively 
poor. Southern topsoils are old, having experienced the leaching effects of rain much longer than 
northern topsoils. They have also experienced more the process that reduces soil to a mixture of 
clay and aluminum hydroxides and iron hydroxides. In such soils the soluble nutrients from 
organic decomposition are carried deep into the ground, beyond the reach of many plants' root 
structures. But the longleaf’s taproot, which penetrates well into the ground, enables it to

²² Buckner, “Prehistory of Southern Forests,” 21; Silver, New Face on the Countryside, 
18, 60; Greene, “Forests that Fire Made,” 3; Forbes, Timber Growing, 25; Williams, Americans 
and Their Forests, 43; Cowdrey, This Land, This South, 14.

²³ M. Williams, Americans and Their Forests, 44.

²⁴ Ibid., 43.

²⁵ Ibid., 49; Buckner, “Prehistory of Southern Forests,” 22, Hansbrough, “Human 
Behavior,” 23; Cowdrey, This Land, This South, 15.
survive in such soils where the growth of other trees would be slow. Its long taproot also helps it withstand severe weather conditions. During dry periods it can access water deep within the ground and in high winds the tap root acts as an anchor to prevent it from blowing over.26

Despite its ability to withstand harsh conditions—fire, poor soil, low precipitation, and high winds—the longleaf is not invincible. When the seedling first emerges, ants may attack it, biting out the tenderest parts. Only after the formation of needles does their threat end. More than any other pine species the longleaf is susceptible to brown-spot needle blight, a disease that strikes seedlings that have been covered by dead grass and rough. Since young longleafs can spend up to ten years as seedlings, they are easy targets for needle blight. As its name suggests, the disease causes brown spots to form on the needles. During the spring of the second year of infection, new needles are attacked by spores produced on the old needles. In severe cases, the young pine is defoliated and dies. Once the young trees are two feet high, however, they are less susceptible to such a damaging attack. Another enemy of the longleaf pine, feral hogs, were especially destructive. These hogs, which savored the energy-packed longleaf taproots, could dig up scores of seedlings a day. Introduced by the Spanish, hogs had little effect on existing forests because hogs posed no threat to mature trees, but in later years, wild hogs became a significant cause of the longleaf's inability to reproduce itself.27

On the margins of the longleaf belt and in the coastal plain's wetter areas, loblolly, shortleaf, and slash pine grew along side hardwoods. Loblolly grows individually or in small groups and is adapted to a variety of soil conditions, from wet bottom lands to dryer, rolling

26 Cowdrey, This Land, This South, 2; Silver, New Face on the Countryside, 18; Forbes, Timber Growing, 8-9.

uplands. It produces a smaller seed than the longleaf and can prosper in a variety of soil conditions. Although it grows rapidly as soon as it germinates, it is somewhat resistant to fire, although not as much as the longleaf. Shortleaf pines can be found scattered among longleafs, but grow in purer stands near rivers and in swamps throughout the southeastern coastal plain. Like the loblolly pine, the shortleaf produces a smaller seed and is capable of growing in a variety of soils. They grow rapidly but remain susceptible to fire until they are ten to twelve years old. The slash pine’s characteristics resemble the shortleaf’s. It is abatable to different, soils but is found more in bottom lands and their rapid growth makes them susceptible to fire, especially in their first years. But throughout the southeastern coastal plain the number of slash pines, along with loblollies and shortleafs, were vastly outnumbered by the longleaf.  

Because of the abundance of longleaf pine, southern colonists, especially those in the Carolinas, were well situated to manufacture naval stores. From the 1700s to the 1720s, most Carolina naval stores came from the region between the Cape Fear River and Charleston, South Carolina. In fact, production of these commodities dated back to before 1700 when settlers first arrived in the region.  

In his 1709 account of travels through Carolina, John Lawson observed that “as for Pitch and Tar, none of the Plantations are comparable for offering the vast Quantities of Naval Stores, as this Place does.” Between 1705 and 1718, the Carolinas exported 134,212 barrels of tar and pitch while New England exported only 86,411 barrels, many of them originating from the Carolinas. Planters in the colony took advantage of their ability to make tar and pitch on a large scale. They not only possessed significant holdings of longleaf pine forest,

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but numerous slaves whom they set to building and burning tar kilns. After the bounty made naval stores an attractive export product, some planters bought even more slaves on credit to cash in on the trade's increased profitability. They operated on a grand scale, employing their large slave labor forces in thousands of acres of pine forest. Until the 1720s, South Carolina's naval stores export tonnage exceeded that of any other product, including rice.31

The sparsely settled area of southeastern North Carolina produced only small quantities of tar, pitch, and turpentine until the 1720s, when settlers began spreading up the Cape Fear River. In the Cape Fear Valley, the river and its tributaries provided North Carolina makers of tar and other naval stores products with an extensive water transportation system. The first part of the journey was usually overland. Laborers drove a stick through each barrel of naval stores and left both ends protruding so it could serve as an axle. A draft animal drew the barrel, which rolled on its own hoops, to a landing where workers sawed both ends of the stick off leaving it in the barrel. Rafts took barrels of naval stores to points where they could be collected for export aboard larger vessels. The port at Brunswick, laid out in 1727 on the west bank of the Cape Fear River, handled most of the region's early naval stores exports. A rival port community, Newton, planned in 1733 and incorporated as Wilmington in 1739, gradually drew commerce from Brunswick until, by the Revolution, Wilmington enjoyed the most active trade. Like their South Carolina counterparts, naval stores producers along the Cape Fear Valley owned abundant land in the longleaf belt and controlled slave labor forces of considerable size. But it appears that not all Cape Fear area settlers brought their slaves with them; those who did not found it difficult to acquire needed workers. Cumberland County, set in the heart of the longleaf pine forest and

beside the Cape Fear River, would seem to assure it as a base for substantial naval stores production, actually made very little because it had few slaves.32

Slaves labored at tar-making during the winter and at crop cultivation and limited turpentine production during the warmer months. In 1699 Edmund Randolph witnessed slaves preparing tar kilns. Alexander Spotswood, Virginia’s governor from 1710 to 1723, reported that in the 1720s he purchased from the Royal Africa Company four hundred slaves to make naval stores in his colony.33 John Brickell’s The Natural History of North-Carolina, published in 1737, describes slaves laboring to produce both tar and turpentine. “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.” Producers distilled little of the raw turpentine their slaves collected, “few giving themselves to the trouble.” Not only did the refining process require considerable skill, but the large iron stills necessitated considerable capital outlay.34 In 1765 a Frenchman traveling through North Carolina also noted that slaves worked in tar and pitch production and “that one Negroe will tend 3000 [boxes], which will rendr about 100 Barls. terpentin”35

During the winter slaves built tar kilns, first gathering pine lightwood, then splitting it to the thickness of a man’s leg, and finally building and firing kilns to extract the tar. Tar producers


33 J. Williams, “English Mercantilism,” 180.


made earthen kilns by digging shallow pits as large as twenty-four feet in diameter. The floors of these pits sloped toward the center from which a gutter led to the perimeter and extended outward anywhere from two to ten feet. Some kiln builders used a wooden pipe to channel tar from the kiln. Laborers placed two-to three-foot long pieces of split pine wood into these pits. The wood pile extended up and out over the sides of the pit until it formed what J. F. D. Smyth described as a “circular pyramid,” that often reached from twenty-five to thirty feet in diameter and was ten to twelve feet high. Slaves covered the structure with earth and clay, sometimes mixed with pine straw, so that only an opening at the top was left. The kiln was fired through this top vent, often around sundown. Once the top wood was ignited and the combustion had begun to penetrate downward, usually after twenty-four hours, workers covered the top hole and made vents in the walls. Laborers manning the burning kiln, it was reported in American Husbandry, “temper the heat as they think proper, by thrusting a stick through the earth, and letting the air in at as many places as they find necessary.” If the kiln burned too fast, black smoke arose, indicating that the tar was burning before it reached the bottom. A hard wind from one direction could build up the fire on one side, requiring a worker to climb to the top of the kiln and stomp hard to seal the vents and smother the blaze. After a day of burning, the tar began to flow, falling first to the bottom of the kiln, then sliding to the center, and running out through the gutter, and finally collecting in a trough from which workers dipped it into barrels. Unlike turpentining, building a tar kiln was not strenuous work but did require limited technical skill. Monitoring a kiln only meant keeping a constant eye on the flow of tar and the amount of smoke. But the job did require patience. Tar burners probably lived in brush lean-tos and did their own cooking as did those laborers who continued this occupation in the nineteenth century. A typical kiln that produced from 100 to 130 barrels of tar could take eight to nine days to burn completely. The work could also be hazardous. Workers who fell into the kilns while sealing
vents could be burned to death. Those who were injured were often miles from help. Brickell observed that in accidents with the kilns, “Negroes have been very much burnt or scalded.”

Although delighted by the increased export volume of colonial naval stores produced largely by these slave laborers, Britain was greatly disappointed with the product’s quality. British buyers complained about the condition of many colonial goods; they claimed that colonial flour was too old and course, tobacco dark and sour, timber poorly dried, linseed light in weight, and beeswax dirty in color. But naval stores, particularly tar, appear to have been of especially poor quality. Consumers grumbled that manufacturers added foreign matter—dirt, sticks, water, grass—to barreled tar to increase its weight. Trash also accidentally mixed with tar as it drained from earthen, woodland kilns. Ship builders and captains complained that the poor-quality or “hot” tar “burned” the rigging, but modern scholars disagree on the nature of the harm. Some maintain that the inferior tar’s acidity damaged the ropes. Timothy Silver explains that “the high temperatures of the kilns led to the accumulation of wood acids in the tar. When applied to the ship’s rigging, those acids sometimes weakened or ‘burned’ the very ropes the tar was supposed to protect.” Others believe the complaints referred to how the hot temperature of the tar actually caught the ropes on fire. Before workers applied tar, it had to be heated until its consistency was thin enough for it to penetrate into the rope fiber. Colonial tar, the argument

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38 Silver, New Face on the Countryside, 127.
goes, was so thick and the temperature at which it reached viscosity so high, that it literally
burned the rope. "So by calling tar hot," Mikko Airoksinen writes, "the dockyard workers
actually meant it was too thick." Finally, tar often sat for long periods on wharves where,
unprotected from the hot sun, its temperature could rise to degrees that permitted it to melt and
ooze from cracks in poorly-constructed barrels. Many barrels shipped from the colonies were
reportedly made of green timber. Although the cooper may have fashioned a tight barrel at his
shop, as the staves dried they contracted, opening cracks between them.

As with tar, British consumers also complained about the quality of colonial pitch and
turpentine. Buyers claimed that colonists processed their pitch only half way, thus increasing its
volume but rendering it useless. Colonial pitch was also reputed to contain dirt, rocks, and
debris, a result of having been processed in ground pits. Naturalist William Bartram, who
toured the southeast in the 1770s, described this primitive method used in the Carolinas. He
explained that "when they design to make pitch, they dig large holes in the ground, near the tar
kiln, which they line with a thick coat of good clay, into which they conduct a sufficient quantity
of tar, and set it on fire, suffering it to flame and evaporate a length of time sufficient to convert
it into pitch, and when cool, lade it into barrels, and so on until they have consumed all the tar, or
made a sufficient quantity of pitch for their purpose." Producers were also accused of packing
pitch, like tar, into weak barrels that leaked. Turpentine quality received similar complaints.
British buyers claimed that colonial turpentine, most shipped as raw gum, contained wood chips,

39 Airoksinen, "Tar Production," 121.

40 Crittenden, Commerce of North Carolina, 58.

41 Ibid., 58.

42 William Bartram, Travels Through North and South Carolina, Georgia, East and West
Florida, the Cherokee Country, the Extensive Territories of the Muscogulges or Creek
Confederacy, and the Country of the Choctaws in William Bartram: Travels and Other Writings,
water, and other foreign matter. The barrels in which the colonists shipped it were so inferior and prone to leakage, the British said, that some packed with three hundred pounds of turpentine when shipped could arrive in Britain weighing only a few pounds.\footnote{Crittenden, Commerce of North Carolina, 58.}

Three factors contributed to the low quality of American naval stores. First the producers' economic situation demanded that they extract the quickest return from their land with the least possible labor and capital expenditures. Producers, therefore, avoided the labor-intensive Baltic practice of barking and felling the trees from which to secure wood to build kilns and instead instructed their slaves to gather dead pine wood in the forest. A second and related reason for poor quality tar, especially among less wealthy producers, was the practice of collecting dead wood from ungranted lands. No law forbade the scavenging of fallen limbs from unowned property, but to bark a tree and then later cut it down, as the east country method required, constituted trespassing. Third, American tar makers did not choose shortcuts but simply did not know proper techniques. Since Britain had produced almost no naval stores for many decades before North American colonization, English settlers possessed little practical knowledge of tar making. Neither did their slaves. Whereas Africans arrived in America with knowledge of rice production, knowledge South Carolina planters quickly put to use, Africans had no prior experience with naval stores. Producers did not know the best wood to use and, as North Carolina Governor Gabriel Johnston suspected, fired their kilns to such high temperatures that all of the wood's juices came out with the tar.\footnote{Martin, "American Gum Naval Stores Industry," 62; Cox et al., This Well-Wooded Land, 17; Snow, "Naval Stores in Colonial Virginia," 83; Lee, Lower Cape Fear, 53; Hautala, "European and American Tar," 58.}

The colonial assemblies addressed the problem of colonial tar quality through legislation. The first attempts actually predated the bounty. A 1698 Virginia General Assembly measure
created a penalty for marketing unclean or inferior-quality tar and pitch. Producers were subject to a twenty-shilling fine for each barrel of unacceptable pitch and ten shillings for each barrel of low-quality tar. The same act also established a standard-size naval stores barrel and created an inspection system. In 1705 the Assembly passed a similar measure. Continued complaints, however, suggest the legislation had little effect. A North Carolina act, much like Virginia's, stipulated that naval stores barrels were to be made of seasoned staves, bound by at least twelve strong hoops, and contain thirty-two gallons. As in Virginia, North Carolina's law produced very little regulatory activity. Virginia again tried in 1720, this time offering its own bounty on top of that already paid by Britain for tar made according to the east country method. Two shillings per thirty-two gallon barrel were to be paid provided the tar was made on land belonging to the producer. Yet, nothing changed.45

Enterprising colonists attempted to evade criticism of their tar by making pitch from it and marketing that product instead. Good pitch could be produced from even the poorest-quality tar, but pitch did not bring the profits that tar returned. One barrel of pitch required two barrels of tar, thus reducing the quantity of marketable goods by half. Since the bounty for tar and pitch were the same, four pounds per ton, half of the potential profits were lost by making pitch. From the colonists' perspective, however, receiving one half payment for their pitch was better than receiving nothing for the tar that the Navy rejected as substandard. The threat of rejection was real. In 1707, alone, the Navy refused to pay the bounty on six thousand barrels of low-quality tar. Another advantage of pitch was that its shipping costs were half that of tar. Shipping firms favored hauling pitch over tar because tar had a tendency to leak from its barrels and ruin other merchandise during the voyage. Some colonies, including North Carolina, did not export pitch. Yet Virginia and South Carolina did and in such quantities that for some years England received

45 Crittenden, Commerce of North Carolina, 51, 57; Snow, "Naval Stores in Colonial Virginia," 88.
more pitch than tar from the North American colonies. (Shipments to the West Indies contained more tar than pitch.) This export pattern did not serve the purpose England had intended for the bounty because Britain’s shipyards needed more tar than they did pitch. Furthermore, colonial pitch production contradicted the mercantilist economic policy. England, not the colonies was supposed to refine goods.46

The British Navy expressed disgust at the excessive expense of the bounty program, the poor-quality tar they received at this high cost, and the colonists’ shift to pitch production. Between 1705 and 1724, the Navy paid a yearly average of £18,703 for colonial naval stores. In years of active production the cost ran considerably higher—£27,410 in 1716 and £52,011 in 1718. Many British administrators advocated an end to the bounty system, favoring acquisition of naval stores supplies from the troublesome Baltic suppliers. Despite opposition, Parliament finally succeeded in renewing the bounty act in 1713 for eleven more years. By the early 1720s, tar quality had still not improved and prospects for the act’s renewal at the end of 1724 appeared bleak. With the approaching bounty renewal threatened by mounting criticism, Parliament passed an act in 1722, to take effect on September 29, 1724, that would exclude from the bounty program any tar not made by the Swedish method. Some colonial producers fought un成功 for the act’s repeal. Others attempted the required method, but, unfamiliar with the technique, barked all the way around the trunk, essentially girdling it, causing the tree’s death. Parliament’s attempt to change procedure succeeded no better than earlier colonial efforts, little more green tar found its way to England, and the Navy continued to complain. The act’s greatest effect was to reduce naval stores production in areas with high labor costs—the northern colonies, South Carolina, and the Cape Fear region—and to push it into areas settled by

poorer colonists where labor was cheaper, including the region surrounding North Carolina's Albemarle Sound.47

Throughout 1724, representatives of the tar issue's two sides refused to compromise and on January 1, 1725, the bounty expired. Over the next few years colonial naval stores exports to England dropped nearly sixty percent, from 81,003 barrels in 1725 to 66,667 barrels in 1726 to 34,277 barrels in 1727. The colonies simply could not compete with the Baltic states' lower production and shipping costs. The colonists carried a seven-shillings-per-barrel labor expense, but in Finland the cost was only four shillings. Colonists paid eight shillings per barrel in freight charges; shipping from Finland was but half as much. Other costs were roughly the same. But the higher labor and shipping costs made a barrel of colonial tar seven and one half shillings more expensive to produce and transport than a barrel of Finnish tar. The bounty had provided a payment of ten shillings per barrel, a payment that more than compensated for the colonists' disadvantage. With its disappearance, Russia and Sweden, who offered a better product at a cheaper price, resumed their exports to Britain. In the absence of competition from the English colonies, Sweden raised its prices. In addition, the English shipping business suffered with the colonial naval stores industry's decline since British vessels lost the extra business that the naval stores bounty had generated. In part to end the shipping depression, Parliament restored the bounty in 1729.48

The new bounty act paid a subsidy payment for colonial naval stores, but on terms more acceptable to the Navy. Tar made using the Swedish method received four pounds per ton, but


the act reduced payment for common tar to two pounds, four shillings per ton, and the payment for pitch to one pound per ton. Furthermore, only the lowest-quality tar, the last half to emerge from the kiln, could be made into pitch. One pound, ten shillings was paid for every ton of turpentine. In sum, the new act attempted to tailor production to England’s needs. It encouraged higher-quality tar, reduced the reward for making common tar, and made pitch production a practice of last resort with only the worst tar. The act made specific requirements about how tar was collected from the kiln. It insisted that producers catch the tar in a cask as it ran from the kiln, not collect it in a hole in the ground as was the common practice. These casks were to be covered to prevent rain from mixing with the tar. The act also called for products to be shipped in lots of eight barrels, each barrel holding thirty-two gallons and constructed of seasoned staves, well-hooped, bunged at the sight of production, and to be kept in the shade or a cool place until shipped. Finally, the act used stiff penalties to discourage violation of its provisions. A tar maker could lose half his product for breaching the act’s requirements. For the remainder of the colonial period Parliament unfailingly renewed the bounty act, once in 1742, again in 1750, and for the last time in 1758.49

Within a decade of the 1729 act’s passage, a large percentage of American naval stores were accepted on par with those from the Baltic states, not because the new bounty act’s combination of punishments and incentives achieved the desired result, but rather, because the quality of Swedish tar went down. Turmoil generated by the Great Northern War so greatly disrupted the Swedish tar industry that by the conflict’s end few former producers successfully reestablished their trade and within a short time the traditional tar-making practices were largely forgotten. Also, the Tar Company went out of business in 1714 and with it went its strict

standards and efficient quality inspections. Finally in 1734, in an effort to save the country’s remaining forest resources, the Swedish government declared that tar was to be manufactured only from stumps, roots, and trees that had blown down. In other words, Swedish tar was now to be made by the same method used in the American colonies. Kustaa Hautala, a Finnish scholar of international commerce, explains that “since the quality of Finnish tar was not much better than that of American tar at the beginning of the 18th century, it is no wonder that the latter captured the English market.”

With the bounty’s return and the Swedish industry’s decline, the colonial naval stores industry quickly rebounded. England received 33,062 barrels from the colonies in 1730, 47,541 in 1731, and 70,428 in 1732. But these exports did not come from South Carolina and the Cape Fear area as they had before the bounty act’s lapse at the end of 1724. In the southern portion of South Carolina, the Yamasee War of 1715 had already disrupted naval stores production. Many producers in other regions of the Carolinas had purchased slaves on credit to take advantage of the high naval stores prices resulting from the bounty. When the subsidies stopped, these indebted slave masters faced ruin unless they could find another way to put their slaves to profitable employment. At least one South Carolinian attempted to provoke the British mercantilists by warning that if the bounties were not continued, the slaves who had labored to make tar could be diverted to industries that competed with England. Although this threat was never carried out, South Carolina did reduce naval stores manufacturing and turned its slaves’ energy toward increased rice production. The cultivation of rice continued after 1729 because at the same time Parliament revived the naval stores subsidy, it also repealed restrictions on the rice trade. Where before South Carolina had to export rice to other countries through England, it could now ship it directly to other markets, especially Southern Europe, where demand for rice

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50 Hautala, “European and American Tar,” 63-64.
was high. In the 1740s indigo offered another alternative to naval stores, especially after 1748 when Parliament placed a subsidy of six pence per pound on indigo shipped directly to England. The naval stores bounty act's premium of four pounds per ton for green tar could not compete with these more profitable uses for slave labor. In 1748 Charleston exported only 5,521 barrels of pitch, 3,075 barrels of tar, and 2,387 barrels of turpentine, a decline of forty-one percent from 1741 and a drop of almost seventy-five percent from 1738. While tar and pitch production in South Carolina never ended entirely, that colony's tar exports dropped in both relative and absolute figures and remained low for the remainder of the colonial period.51 “South Carolinians,” one historian explains, “believed that they had better things to do.”52 For the same reasons that it declined in South Carolina, naval stores production also declined in the Cape Fear region, which also switched to rice and indigo as well as tobacco.53

Yet North Carolina's naval stores exports, as a whole, increased during the late colonial era. The industry's center shifted northward into the counties surrounding the Albemarle Sound. The Albemarle area, settled for roughly sixty years by 1725, had a relatively sparse population. The area's small farmers and backwoodsmen owned few slaves and contributed little to the colony's staple export trade except limited amounts of tobacco. Living among the longleaf pines, however, they could use their own labor to make and burn tar kilns and tap trees for raw turpentine. Reduced competition from the wealthy slave owners to the south and the renewed bounty on tar made production of these commodities profitable for Albemarle settlers, who


52 Weir, Colonial South Carolina, 145.

53 Powell, North Carolina, 131-134.
heretofore had made only limited quantities. Because northeastern North Carolinians lacked the capital resources to invest in large slave labor forces and huge timber tracts, they manufactured naval stores on a small, almost casual level, performing most of the work themselves, and often using timber they did not own.

Not only did naval stores producers in the Albemarle region lack the financial means to develop large operations, they faced the challenge of transporting their goods to the open sea. The Albemarle region possessed no significant water courses, such as the Cape Fear River, which could connect it to a port facility accessible to ocean-going ships. Exasperated ship captains had to ply its smallish rivers, picking up barrels of naval stores from the many small landings that dotted the banks. Even the largest Albemarle port, Edenton, could be reached from the Atlantic only with considerable time and difficulty. In the 1780s Johann David Schoepf, a German traveling through the confederation, described this challenge:

The road which ships must take coming in from the sea by the navigable and best channels is as much as 180 miles long, although the town itself is not more than 35-40 miles from the sea in a direct line. There would be a shorter passage if the Roanoke and other inlets were navigable for vessels even of a moderate tonnage. Coming in, vessels must first pass the Occacock Bar, where at high tide there is no more than 13 ft. water; and then there lies in the way another bank, 2-3 miles wide, called the Swash, consisting of firm sand, and at the highest tide giving a depth of only 9 ft. Ships, therefore, often take 8-12 days entering and clearing the Sound, at times must wait months for a favorable opportunity, and then are subject to the very inconvenience of lading and unlading at a distance from the town by means of lighters. And when at last a ship is freighted and past all obstacles, shortly after getting into the ocean the Gulf Stream must be contended with, which in this latitude approaches very near the mainland."

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55 Merrens, Colonial North Carolina, 91, 106.

56 Johann David Schoepf, Travels in the Confederation (New York: Burt Franklin, 1968), 111-112.
Shipping challenges encouraged a concentration on naval store production by preventing commercial lumber operations from developing in the Albemarle region as they had along the Cape Fear River.57 “It is found much more profitable,” the author of American Husbandry explained, “to apply the timber they cut down to this use [turpentine] than to saw it or export it in any kind of lumber; and the tar &c. being far more valuable in proportion to bulk, is a circumstance of great importance in a country that does not abound with good ports.”58 Moreover, the expensive mill equipment was well beyond the means of the relatively poor Albemarle settlers.

Some producers near the Virginia border preferred to transport their naval stores to Norfolk for shipping. The volume of this traffic reached such a high level that Virginia, which remained a relatively unimportant tar-producing colony itself, generated revenue from North Carolina naval stores by charging a duty of eighteen pence on each barrel of pitch and twelve pence on each barrel of tar that left the colony.59

From the mid eighteenth century to the Revolution, the naval stores industry spread southward from the Albemarle region, into the Washington and New Bern areas, and slowly migrated up the Tar and Neuse Rivers. In 1811, Jeremy Battle explained that settlers from around the Albemarle region introduced naval stores production in Edgecombe County, through which the Tar River flowed. “The natives of this county . . . would have starved,” he argued, “had they been possessed of no other means of subsistence. Emigrants from Virginia and the northeastern Counties of this State, settled on these barren lands, and converted the pines into

57 Merrens, Colonial North Carolina, 99.

58 Carman, American Husbandry, 245.

meat, bread and money.\textsuperscript{60} This area east of the Pamlico Sound remained the heart of North American naval stores production until the mid-nineteenth century. In the Albermarle region production declined so that by the end of the eighteenth century it produced little naval stores. Virginia naval stores production, only a small part of that colony’s economy, also declined. In 1743, England received approximately eight thousand barrels of tar and pitch out of the ten thousand made in Virginia. But from October 1764 to October 1765 only four hundred, seventy left the upper James River area.\textsuperscript{61}

Like the upper Albermarle area and Virginia, other regions of North America produced limited quantities of naval stores but failed to sustain an important and lasting industry. Georgia, not settled until the 1730s, included these commodities among its exports, but never approached North Carolina’s volume. During Georgia’s trustee period, which lasted until 1753, its officials considered sending representatives to North Carolina to learn the trade of tar and pitch production. Nothing came of the plan, however, and it was not until later in the decade that the colony began shipping naval stores. By then the colony’s ban on slavery was lifted, and Georgians, like South Carolinians, found rice and indigo cultivation to be the most profitable employment for their slaves.\textsuperscript{62} Georgia consequently exported only small quantities of naval stores, their manufacture confined to coastal areas and lands adjacent to the major rivers. The second half of the 1760s saw the beginning of a trend toward proportionately greater tar production. In fact, by the last two years before the Revolution, tar exports exceeded pitch by

\textsuperscript{60} Quoted in Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861” (Ph.D. diss., Duke University, 1947), 232.

\textsuperscript{61} Ashe, Forests, Forest Lands, and Forest Products, 18; Snow, “Naval Stores in Colonial Virginia,” 92-93.

\textsuperscript{62} Many of the largest slaveholders in colonial Georgia were South Carolinians who had moved southward with their slaves seeking new lands. Herndon, “Naval Stores in Colonial Georgia,” 428, 430; Betty Wood, Slavery in Colonial Georgia (Athens, GA: University of Georgia Press, 1984), 65; Cox et al., This Well-Wooded Land, 18.
nearly a third. In 1766 the Georgia legislature, concerned that the colony’s tar, pitch, and turpentine could not compete in the English market, passed an act requiring that the colony’s naval stores meet the standards set by the 1729 bounty act. To ensure compliance, the law called for inspection of all naval stores before they were loaded aboard ships and levied a five-shilling fine for each barrel that was not up to standard. Despite these efforts, Georgia’s naval stores business remained small. From 1755 to 1775, Georgia only exported a yearly average of only 220 barrels of tar, 149 barrels of pitch, and 44 barrels of turpentine.63

Florida and Louisiana, both colonial possessions of various European countries until the nineteenth century, experienced considerable difficulty with their respective naval stores trades. At the turn of the eighteenth century, the time when Britain experienced its most urgent need for a colonial naval stores supplier, Spain was also seeking a source. In a memorial to the King of Spain, probably written in 1700, the curate rector of St. Augustine reported that not only did Florida possess “a diversity of woods” suitable for masts, posts, and yards, but already “a very good pitch and tar necessary for the careening of the frigates and vessels of your majesty and the rest of the vessels of the presidio is made in the land. . . .” He admitted that the products were not as good as those available in Europe, “because the master is not very expert in the science and thus it is a little thick. . . .” Transporting the Florida naval stores to Cuba for the readying of ships, the rector believed, could save the crown the cost of shipping them from Europe.64 Spain did not take swift action in this matter, by the 1730s administrators were still attempting to implement the policy. In 1757, however, another governor developed an independent naval stores operation and with the King’s endorsement shipped his goods to Havana. The Spanish


crown sought to encourage their export by allowing naval stores into Vera-Cruz duty free. 65

Further evidence of Spanish Florida tar and pitch production comes from William Bartram’s report on his travels through America in the 1770s. While walking near Mobile Bay, then part of West Florida, he observed “three vast iron pots or kettles, each of many hundred gallons contents. . . .” He was informed that “they were for the purpose of boiling tar to pitch, there being vast forests of Pine trees in the vicinity of this place.” 66 Although the Spanish were most interested in tar and pitch, chipped faces discovered deep in the hearts of Florida pines indicate that before 1750 turpentine production had also begun. 67

French administrators in colonial Louisiana also struggled to stimulate naval stores production. In the early eighteenth century, Governor Bienville recommended that France would offer subsidies, transportation, and a guarantee to purchase tar, pitch, and turpentine as well as import slaves to make them. Some production started. Bienville reported in 1734 that three or four tar works operated across Lake Pontchartrain from New Orleans. When the French crown cut the price it paid for naval stores by half, however, production slowed. As in the English colonies, higher returns from alternative staples drew efforts away from naval stores. Tobacco and indigo cultivation increasingly consumed the energy of slave laborers, as these products replaced naval stores in the crowded hulls of merchant ships. In fact, the merchants’ preference for products other than naval stores was so great that, despite offering advances and preferences to shippers for carrying naval stores, the colonial government found cargo space inadequate. Naval stores stock began overcrowding warehouses. Through the 1740s the importance of naval

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66 Bartram, Travels, 339.

stores declined as shipments of indigo, rice, cotton, timber, and pelts rose. Under Spanish rule, which lasted in Louisiana from the 1760s to the beginning of the nineteenth century, demand for the colony’s tar and pitch rose. Local consumers purchased some of these products. One enterprising New Orleans builder fashioned roofs using resin, oyster shell, and two types of tile. However, it appears that no turpentine production developed. With only moderately successful efforts to develop naval stores production in Georgia, Florida, and Louisiana, North Carolina remained the manufacturing center of tar, pitch, and turpentine in America.

By the 1760s the center of colonial naval stores production in North America was located between North Carolina’s Pamlico Sound and the Cape Fear River. The area’s poor soil could not support extensive agriculture, but its expansive pine forests offered its residents a means of support. A traveler in the 1780s described the region as “a wide extended dead flat, covered in a thousand places with stagnated water.” But, he continued, “this land that appears,

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69 Ibid., 301.

70 In February 1773, Bernard Romans sailed into New Orleans “there being a necessity for some turpentine on board of the vessel. . . the Captain was obliged to pay sixteen dollars for a half cask of it, and i have been informed, that even then it was sold in that town for medical uses at a great price by the pint and quart.” Bernard Romans, A Concise Natural History of East and West Florida (Gainesville: University of Florida Press, 1962), 150. In 1797, Governor Carondelet granted permission for a resourceful producer to use his slaves to make tar and pitch from pines that had fallen down on an island considered royal land. Carondelet to Don Pedro Olivier, Feb. 2, 1797, Archivo Central de Indias, Cuba 24, fol. 183. Louisiana continued to make tar and pitch into its American territorial period, but still no turpentine. During his travels through Louisiana from 1803 to 1805, C.C. Robin observed that in the areas around Lake Pontchartrain “the most lucrative industry of the region . . . is the manufacture of pitch which requires fewer men than would agriculture.” Robin does not indicate which method of tar production was used, but he does describe a unique method of making pitch. According to him, “iron balls are heated red hot and thrown into the collected pitch, which bursts into flames with a loud explosion and throws off a thick smoke. When the pitch is judged to be concentrated enough, the pits are covered with a screen which is then covered with turf. The fire is smothered, the tar then cools and hardens. It is cut out with an ax.” C. C. Robin, Voyage to Louisiana (New Orleans: Pelican Publishing Company, 1966), 29.
and actually is, totally barren and altogether useless and unfit for any kind of culture, yields more profit to the occupiers, from the smallest capital imaginable, than can well be conceived. . . .

This prodigious profit is derived from making tar, which is one of the most estimable staples of North Carolina. 71 Another observer, surprised to find so few “plantations scattered about in these woods at various distances, 3-6 miles, and often as much as 10-15-20 miles apart,” reported that rather than staple agriculture “it is the forest which supplies the present inhabitants of North Carolina not merely an occupation and a support, but the means as well of an easier life and often considerable estates.” 72 The author of American Husbandry was not so well impressed with the promises of naval stores. For him, that “pitch, tar, and turpentine are made throughout this province in vast quantities[. was]. . . a proof, among others, that the country is very far from being well settled even yet.” 73

Not only did counties between the Pamlico Sound and the Cape Fear River have a higher concentration of longleaf pines than the Albemarle area, its forests were closer to more accessible port facilities. The ports of Beaufort and Brunswick, both offered easier access to the open sea than Edenton, together handled approximately seventy-five percent of the total naval stores exports from North Carolina, and the greatest portion of these exports from North America. 74 Yet despite the importance of these two ports in the naval stores trade, their overall size and total export volume paled in comparison to others such as Charleston and the northern ports. A Frenchman traveling through Beaufort in 1765 could not have been less enthusiastic about the town. He reported it was “a Small village not above 12 houses, the inhabitants seem

71 Smyth, Tour in the United States, 94-95.

72 Schoepf, Travels in the Confederation, 103.

73 Carman, American Husbandry, 244.

74 Merrens, Colonial North Carolina, 88-89.
miserable, they are very lazy and Indolent, they live mostly on fish and oisters, which they have here in great plenty." As for the harbor, "Non but small vessels Can come here there being but 13 feet water on the bar at low water. the tide does not rise above 4 feet. the little trade that is Caryed on here Consists in terpentine. tar and pich."\(^75\)

North Carolina made naval stores, especially tar, its specialty. In 1768 England imported one hundred, thirty-five thousand barrels of tar, pitch, and turpentine from her colonies, around sixty percent from North Carolina. In 1769 North Carolina exported 63,301 barrels of tar and pitch. The same year Virginia exported only 23,365 barrels, much of which was actually made in North Carolina and shipped through Norfolk. South Carolina exported 10,531 barrels, Georgia 653 barrels, and Maryland only 24 barrels. By 1775, North Carolina alone exported 130,000 barrels of naval stores. This volume made the bounty program increasingly expensive for the navy. Between 1730 and 1750 the annual subsidy averaged £17,000 and by the 1750s rose to £24,000. Between 1763 and 1776 the annual average rose again to just under £34,000. Colonists no longer tried to compensate for poor quality tar by making it into pitch. By the late colonial period the percentage of pitch as part of naval stores export had dropped dramatically, down to only seven percent by 1771. Although tar dominated naval stores shipments, turpentine, nevertheless, represented a significant commodity of North Carolina. Most often it was shipped in its raw form. In 1785 Port Brunswick exported nineteen thousand barrels of crude turpentine and only twelve barrels of distilled spirits.\(^76\)

Despite the 1729 bounty act's measures aimed at improving naval stores quality, the export of substandard and adulterated products continued to worry colonial officials. In a 1735 letter to North Carolina's Governor Johnston, a group of concerned gentlemen requested that he

\(^75\) "Journal of a French Traveler in the Colonies," 773.

suggest to “the Assembly that some proper regulations might be enacted as rules for making Tar throughout the Province and a proper person or persons appointed to inspect the several kilns that penalties might be inflicted on such of them who transgress the said rules. . . .” They feared that “if the Tar of your Province should be brought into disrepute by the burning quality of it none of it will be exported from thence and that Manufacture will be quite lost to those of your Province who now maintain themselves thereby.”\(^7\) In 1751 the colonial assembly passed a law regulating exports from the Cape Fear River, later applied to all ports, that provided for inspection of goods before shipment to ensure that they conformed to quality, weight, and packaging standards. Only marketable casks, each bearing the producer’s initials, were to be exported. Each county court was responsible for appointing inspectors for its own jurisdiction, but because county judges were sometimes naval stores producers themselves, the inspectors integrity rarely rose above suspicion.\(^7\) In a March 1770 memorial to the Earl of Hillsborough, British tar, pitch, and turpentine importers expressed their concern over the poor monitoring of North Carolina naval stores quality. The colonies’ refusal to enforce standards, they argued, resulted from “the Officers and Inspectors being appointed by the Magistrates of the different Counties. . . such Magistrates being Planters and Tar Burners. . . .”\(^7\) The British recommended the usual remedies: only the second half of tar should be made into pitch, official inspection of kilns, better-made tar barrels, cleaner turpentine, and finally, pitch fully-made in kettles. Despite these continued efforts, green tar represented only a minor portion of the colony’s naval stores exports


\(^7\) Lee, Lower Cape Fear, 153; Crittenden, Commerce of North Carolina, 57.

on the eve of the Revolution. Of the 82,075 barrels of tar exported from the colonies in 1770, only 653 barrels, less than one percent, contained green tar.\textsuperscript{80}

Colonial administrators also attempted to deal with the problem of unscrupulous producers who made naval stores from trees on land they did not own. As early as 1717, Virginia passed a law that anyone manufacturing naval stores from material taken from crown lands for which they had no intention to patent and pay quitrents would be guilty of trespass. The problem arose in North Carolina as well, especially after 1730 when small producers, who owned little land, began production in the Albemarle area.\textsuperscript{81} In 1738 Henry McCulloh complained to the Board of Trade in London that “it has been a practice of long standing in the Colony [North Carolina] for people to Box pine trees for Turpentine and burn light wood for Pitch and Tarr without taking out Pattents for the Lands the Governor has been much censured for the preventing this. . . .” McCulloh requested that the board support the governor in his effort to collect quitrent on this property.\textsuperscript{82} As late as 1772 North Carolina Governor Josiah Martin issued a proclamation addressing a similar problem. According to the governor, unprincipled colonists “have made frequent practice of entering Tracts of Land in the Secretarys Office and immediately set down on the same—carried off the timber and burnt the lightwood without further prosecuting their claim to a patent for the said Land. . . .”\textsuperscript{83}

By the end of the colonial period naval stores had become North Carolina’s most important export. In 1769 North Carolina’s total export tonnage amounted to 23,113, of which


\textsuperscript{81} Snow, “Naval Stores in Colonial Virginia,” 82; Merrens, Colonial North Carolina, 89.


\textsuperscript{83} Ibid.
more than half went to Great Britain and Ireland. Naval stores, the colony's number one export, was valued at £42,000. Although the export of all goods from six other colonies—Massachusetts, Virginia, Pennsylvania, New York, Maryland, and South Carolina—exceeded North Carolina's, North Carolina exported seventy percent of tar from the North American colonies, more than fifty percent of the turpentine, and twenty percent of the pitch. Ports servicing the Cape Fear Basin—Brunswick and Wilmington—saw the most overall trade activity of any of North Carolina's ports, handling a total tonnage of 8,500, and shipping the largest volume of naval stores. Port Roanoke, which handled the entire Albemarle region's trade—6,000 total tons in 1769—was the colony's next busiest port and ranked behind Brunswick and Wilmington in naval stores exports. The other three important ports—Beaufort, Bath, and Currituck—shipped a combined total of 8541 tons in 1769 but considerably smaller quantities of naval stores.84

Although tar, pitch, and turpentine represented significantly important commodities for a colony that possessed so few export staples, North Carolinians relied too heavily on them. As historian Lawrence Lee observes, "by unduly concentrating their energy on naval stores, they built their economy on a flimsy foundation of bounties that might be discontinued, and on a narrow and distant market over which they had no control."85

84 Crittenden, Commerce of North Carolina, 41-41, 70-73.

85 Despite North Carolina's specialization in naval stores, the colony did export a few other goods. Timber products, although not enumerated like naval stores, retained their importance. North Carolina ranked only behind Massachusetts in lumber exports, and held first place among the southern colonies. The Cape Fear Valley, which by the end of the colonial period possessed around fifty sawmills, produced most of the colony's exported lumber. The amount was considerable. Average annual exports before the revolution ranged between 2.5 million and 3 million feet. Seventy to seventy-five percent of the colony's lumber passed through Port Brunswick. Staves, commonly cut from oak, came from areas with considerable bottom lands in whose wet soil conditions these trees grew best. Similarly, shingles, most often crafted from white cedar and cypress because these woods are light, soft, and resistant to dampness, originated from swampy areas where the trees could be found in greatest abundance. The Albemarle region's slight dominance of this market may be attributed to the area's many swampy environments. Cox et al., This Well-Wooded Land, 19; Lee, Lower Cape Fear, 149-150, 169; Merrens, Colonial North Carolina, 93-94, 99, 101-105; Crittenden, Commerce of North Carolina, 39; Lefler and Newsome, North Carolina, 71.
The American Revolution created volatility in colonial naval stores trade and production, but Britain possibly suffered more than the United States. As early as August 1774 the first North Carolina Provincial Congress, which was called to elect delegates to the Continental Congress, drew up a set of resolutions criticizing British colonial policies. One resolve threatened “That unless American Grievances are redressed before the first day of October 1775, We will not after that day directly or indirectly export Tobacco, Pitch, Tar, Turpentine, or any other articles whatsoever, to Great Britain, nor will we sell any such articles as we think can be exported to Great Britain. . .”\(^\text{86}\) When bounty payment to the colonies ended in 1776, North Carolinians, free from the navigation acts that had restricted colonial trade, found markets for their products in other countries and colonies. It appears that tar remained profitable, each laborer, according to one report, generating “from one hundred pounds, to two hundred pounds sterling, and upwards, annually.”\(^\text{87}\) Britain, however, suffered a naval stores shortage. American tar and pitch exports to Britain dropped from 87,152 barrels in 1774 to 78,358 in 1775, and then to 4,823 in 1776, and to 216 in 1777. So desperate were the British for naval stores, the Second Continental Congress feared that the Redcoats might attempt to capture the sizable stash of these supplies at the Wilmington port. On May 21, 1777, it advised that these products be either transported to a more secure area or destroyed before they could fall into British hands. Nothing apparently came of the perceived threat and the British navy was forced to obtain its badly needed supplies from the sources it had tried to free itself from decades earlier, Scandinavia and Russia. The rise in naval stores imports from Sweden, Russia, and Denmark corresponded with the falling of colonial trade. In 1774, British tar and pitch imports from these three countries


\(^{87}\) Smyth, *Tour in the United States*, 95.
were only 6,900, 5,340, and 945 respectively. But by 1776 they had risen to 27,929, 17,397, and 1,704 and reached their high in 1781 with imports of 73,079, 43,123, and 8,606.  

Britain attempted to secure at least a portion of its badly needed naval stores from Florida, which it had taken possession of in 1763 as part of the agreement ending the Seven Years War. Despite Britain’s early efforts to encourage naval stores production and population growth in its new colony, by 1776 only approximately three thousand settlers lived in Florida, they made tar and pitch in only small quantities. During the American Revolution, however, loyalists from Georgia and South Carolina seeking political asylum and economic opportunity flooded into Florida. Between the war’s outbreak and 1784, Florida’s population grew to 17,000, as it rose, so did naval stores production. Florida made only 190 barrels of tar in 1776 but in one year output jumped to 2,241 barrels of tar and 417 barrels of pitch, and in 1778 it increased to 8100 and 1980 barrels respectively. By 1783, the last year of British rule in Florida, the colony made 20,000 barrels of tar and turpentine, the production centered in the vicinity of the St. Marys, Nassau, and especially the St. Johns Rivers. Florida colonists made tar in the same fashion as their counterparts in Carolina and Georgia did. In his natural history of Florida, published in 1775, Bernard Romans observed that “green tar has not yet been made in Florida... [because] it was entirely unknown in the country.” Instead, tar was manufactured the common way, “by splitting the heart of the pitch pine, fallen down. . . .” An active turpentine trade also developed over these years. In a pine forest four miles north of St. Augustine, one producer used slaves to harvest turpentine from 25,000 trees. Another producer, John Imrie, made turpentine on 450


90 Romans, Concise Natural History, 149-150.
acres along Moultrie Creek in northeastern Florida. Because Britain no longer received naval stores from the rebellious colonies, Florida became its only source in North America. With the American patriots’ success sealed upon Cornwallis’ surrender at Yorktown in 1781, Francis Philip Fatio reported to Britain in 1782 that “East Florida is now the only Province of N. America belonging to the crown where Naval Stores can be made.” But, in 1783 Florida returned to Spain as part of the Treaty of Paris and Britain lost this last colonial supplier.

Following the Revolution, North Carolina continued its dominant role in American naval stores production and export, despite the absence of a bounty. Manufacturing recovered gradually. In 1785 North Carolina exported 56,000 barrels of naval stores, less than half the 128,000 barrels exported in 1768. By 1788 naval stores exports rose to 95,000 barrels. Tar

91 Imrie owned five hundred acres, four hundred, fifty of which he used in his operation. Fourteen slaves labored to make his tar and turpentine, each slave tending an estimated 2,500 trees and producing sixty barrels of turpentine. Along with turpentine, Imrie’s operation made three hundred to four hundred barrels of tar a year. With the help of his slaves Imrie built for himself a wood-framed house, thirty feet by twenty feet and two stories high with two rooms on each floor. He also constructed a log house for his overseer, six or seven slave cabins, and a barn. Blount, Spirits of Turpentine, 12; Stanley C. Bond, Jr., “The Development of the Naval Stores Industry in St. Johns County, Florida,” The Florida Anthropologist 40 (September 1987): 195.

92 That forest depletion was already a concern is evident in Fatio’s claim that “experience has taught us how to remedy, to that vast destruction of Timber by such Crops [turpentine]. . . .” To solve this problem Fatio recommended outlawing the setting of fires in pine forests, regulating boxing trees for turpentine, requiring a few trees be left on every acre for reseeding, and preventing hunters and cattlemen from burning over pine forests until the tree bases had been raked clear of weeds and debris. Francis Philip Fatio, “Considerations on the Importance of the Province of East Florida to the British Empire,” December 14, 1782, transcript at St. Augustine Historical Society Research Library, St. Augustine, FL, 2.

93 As it did in the first Spanish period, Florida naval stores production suffered after 1783. Many of the British settlers who had entered Florida during the American Revolution left for other parts of the Empire or returned to the United States. East Florida’s population fell to under 2000. Spanish administrators did little to encourage the new naval stores industry’s continuation and by 1787 only three tar and pitch producers remained. Blount, Spirits of Turpentine, 14; Historic Properties Survey of St. Johns County, 25; Holmes, “Naval Stores,” 304-305.

94 Crittenden, Commerce of North Carolina, 160.
remained the principal naval stores export product, followed by turpentine, pitch, and rosin (fig. 1.1).\textsuperscript{95} As the quantity of production resumed, so did poor quality. In his history of North Carolina, published in 1812, Hugh Williamson, like the British during the colonial era, blamed inferior tar on the producer, who “performed every operation in the most hasty and slovenly manner” and on “unprincipled inspectors, who, instead of being broke by giving their sanction to imperfect produce, are apt to court popularity by passing the worst that comes.”\textsuperscript{96} The industry center appears to have moved back towards the Albermarle area. An increase in naval stores shipments through Port Roanoke and a decline through the state’s more southerly ports indicated


\textsuperscript{96} Hugh Williamson, \textit{The History of North Carolina} (Philadelphia: Thomas Dobson, 1812), 213-214.
a northward shift in production. Although the port at Brunswick saw its total export tonnage increase, its naval stores exports actually declined while Port Roanoke’s naval stores shipments almost doubled.\textsuperscript{97} At the same time, tobacco shipments from Brunswick and Beaufort increased over sixteen times from the late 1760s while Port Roanoke, which had lead in tobacco export, dropped to third place, Brunswick took its lead and Bath came in second. This pattern suggests that, as during the late 1720s when the bounty lapsed for four years, naval stores production declined in South Carolina and the Cape Fear region where slaveholders required profits adequate enough to cover their large investments in labor and moved into the northern half of the state where slaves were fewer and labor was cheaper. The late-eighteenth-century shift represented the industry’s center’s third movement since the 1700s, the first being from southeastern North Carolina to the Albermarle region, then from there to the area of the Neuse and Tar Rivers. In another change, the northern states replaced Great Britain as the principal buyer of North Carolina naval stores. The revival of American shipping, especially in New England, lead to this increased domestic consumption.\textsuperscript{98} By 1800 North Carolina was firmly established as the principal American naval stores producer and would continue to live up to its designation as the “Tar Heel State” for most of the nineteenth century.

North Carolina achieved this distinction, not solely because it possessed abundant longleaf pine trees, for expansive stands of the species grew in other southern colonies, but because North Carolinians lacked any other staple they could produce profitably. England’s bounty, which compensated for the prohibitively high shipping costs from America, was required

\textsuperscript{97} Overall trade in the southeastern portion of the state was hurt by a sand bar, which blocked the Wilmington port during the 1780s and allowed no more than nine to ten feet of clearance and limited shipping volume through the town. Schoepf reported that “larger ships must consequently first lighten cargo at Brunswick a little place 16 miles from here.” Schoepf, Travels in the Confederation, 145.

\textsuperscript{98} Hautala, “European and American Tar,” 121,123.
to stimulate colonial naval stores manufacturing. South Carolina and portions of southeastern North Carolina manufactured tar, pitch, and turpentine until the bounty ended and changes in trade policies made rice and later indigo viable substitutes with even better returns. As Georgia's economy developed in the mid eighteenth century, settlers there also preferred rice and indigo to naval stores. The same proved true in Florida and Louisiana. In North Carolina, however, tar, pitch, turpentine, and other forest products did not face competition from other staples. Except for tobacco, which grew well in the fertile eastern river bottom lands, and rice, which could be cultivated in the coastal region near Wilmington, North Carolina lacked any other profitable export commodity. Even though naval stores did not bring the returns that rice and indigo provided other colonies, the bounty, which continued uninterrupted from 1729 until the Revolution, made profits from them adequate enough to attract attention of producers who lacked the large slave labor forces to operate on the same grand scale as South Carolinas and settlers along the Cape Fear River. Although North Carolinians were able to produce some lumber from their pine forests, scarcity of water power for sawmills and the difficulty and high cost of transporting lumber made tar and pitch relatively more profitable. Also, naval stores manufacturing, especially tar making, which could be performed at any time of the year, provided small farmers with a means to supplement their income, just as it did for Finnish farmers.99 With no competing export commodity, limited transportation opportunities, and seasonal flexibility in the production, "tar-making conditions," as one scholar has explained, "were at their best in the Carolinas, especially in North Carolina."100


100 Airaksinen, "Tar Production," 121.
Chapter Two

North Carolina Trades Tar for Turpentine:
The Emergence of the Southern Turpentine Industry

During the antebellum period, turpentine developed into the most heavily demanded naval stores product and its rapid production increase drove the industry, which remained centered in North Carolina, to impressive heights. New uses and a growing need for turpentine following the American Revolution brought prices high enough to make gum and spirit production an appealing alternative to cotton cultivation for the southeastern North Carolina counties, whose poor soils prevented extensive plantation agriculture. Such high returns attracted the attention of the state’s planter class by the 1830s. With access to capital resources and the control of large, slave labor forces, these market-sensitive entrepreneurs invested in thousands of acres of previously undesirable pine land, constructed their own distilleries, and began production on a grand scale. At the same time a transportation revolution in North Carolina facilitated turpentine’s expansion into areas previously too remote to permit profitable manufacture. As high demand continued through the 1830s, 40s, and 50s the number of turpentine operations that spread across southeastern North Carolina taxed the state’s undeveloped economic resources and structures. Not only did the many new businesses drive land and labor costs higher, but the greatly increased production volume strained the poorly organized marketing system. By the antebellum period’s end, efforts were under way to organize better the system of inspecting and selling these commodities.

During the first decades of the 1800s the variety of applications for rosin, tar, and turpentine grew. Rosin became widely used in making soap. It did nothing to enhance the properties of soap, only increased its bulk. Tar had a multitude of uses. It was painted on coarse
surfaces to make them smooth and applied to posts to prevent rotting. Cuts on domestic animals
that received a coat of tar stood less chance of infection and the feet of cattle painted with tar
were less likely to be injured by dampness or abrasion. Some farmers coated their grain seeds
with tar to discourage hungry birds. At the beginning of the nineteenth century the greatest
demand for naval stores continued to come from shipyards. Tar remained the most important
naval stores commodity, but turpentine production increased faster than other naval stores
manufacturing and replaced pitch as the second most produced of these products. ¹ Spirit also
served as flea repellent and as a waterproofing agent for cloth. It could even be used to wash
clothes, especially to remove grease spots. Economist Kustaa Hautala speculates that this rise in
demand for turpentine occurred because of oil paints, in which turpentine served as a thinner.

¹ Thomas Jefferson’s trade policies did little to stifle the industry’s progress. Attempting
to bring Great Britain and France to terms over abuses of American shipping rights, in 1807
Jefferson drafted and Congress passed an embargo which forbade American ships to leave the
United States for any foreign port. Repealed in early 1809, the Embargo Act’s short lived impact
on naval stores exports was reflected in the sudden rise of prices in foreign ports. Tar, which
sold in 1807 in Liverpool for $4.67 a barrel rose to $5.56 the next year. The rise in turpentine
prices was even greater, from $3.00 for one hundred pounds in 1807 to $8.00 or $9.00 in 1808, a
jump of around three hundred percent. Foreign turpentine prices probably reacted more to the
embargo than did tar because no alternative source for the former existed. The Baltic states
continued to produce tar in limited quantities. Yet, during the embargo turpentine exports from
North Carolina rose by more than three hundred percent. In 1804, 28,500 gallons or 650 barrels
of gum left North Carolina. By 1810 the amount was 94,900 gallons or 2160 barrels. However
the War of 1812 appears to have more seriously affected naval stores trade. The inability of
North Carolina producers to ship their products to northern ports caused crude gum prices in
New York to rise from $2.50 per barrel in 1812 to $12.00 per barrel the next year. A Dr.
William Lay Smith, who made turpentine by the Chowan River north of Edenton and one of the
few producers in the upper Albermarle region at the time, saw his business ruined by the war­
time interruption in trade. W. W. Ashe, The Forests, Forest Lands, and Forest Products of
Kirby, Poquosin: A Study of Rural Landscape and Society (Chapel Hill: The University of North
Rice & A. N. Hart, 1857), 112, 114; Percival Perry, “The Naval Stores Industry in the Anti­
Bellum South, 1789-1861” (Ph.D. diss., Duke University, 1947), 49; Thomas Gamble, “Early
History of the Naval Stores Industry in North America,” in Naval Stores: History, Production,
Distribution and Consumption, ed. Thomas Gamble (Savannah: Review Publishing & Printing
Company, 1921), 23; G. Terry Sharrer, “Naval Stores, 1781-1881,” in Material Culture of the
consumed 112,000 gallons of it a day. Popular belief held that turpentine possessed a multitude of curative properties, especially as a treatment for respiratory disease and as a powerful purgative. So powerful was the effect of turpentine perceived to be against cholera, diphtheria, whooping cough, hay fever, and phthisis that merely living in a pine forest was thought to provide some protection. As a preventative measure, turpentine could also be burned to purify the air. Patients with worms, hemorrhages, and severe gas might receive turpentine rectally. Turpentine was even applied to both male and female genitalia to treat gonorrhea and sores. But taken in too large a dose, turpentine could have dangerous consequences.² Alex MacRae of Washington, North Carolina warned his brother Donald to “watch carefully the effects of the vermifuge [medicine to expel parasites] + Spts. Turpt you give Lizzy... When given too often or for too long a time results badly.” MacRae recounted that he “was once rendered blind + stupid as a goose for 24 hours for taking too much” turpentine.³⁴

In the 1830s the discovery of two new uses for turpentine further boosted its production. The rubber industry, which was expanding during that decade, began using turpentine as a solvent. More important, turpentine became a main ingredient in a popular lamp fuel. During the 1830s Americans experimented with alternatives to tallow-dipped candles and sperm whale

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³ Alex MacRae, Jr. to D. MacRae, August 27, 1863, Hugh MacRae Papers, Special Collections Library, Duke University.

oil. Early efforts to burn turpentine as a substitute failed because it gave off a strong odor and had a tendency to smoke. Attempts at burning turpentine-based mixtures met with similar failure. The first widely-used lighting alternative consequently was not turpentine but lard oil. Introduced in 1841, this fast-burning fuel gave off satisfactory light, however in cold weather it hardened and became useless. Soon afterwards, a mixture of alcohol and turpentine, popularly known as Camphene, Camphine, Teveline, and Palmetto oil, appeared for general use and gradually replaced lard oil. Not only did Camphene give off more light without ever flaring up, but it was cheaper and burned longer. In February 1847, B. Murphy & Co., manufacturer of Camphene lamps in Philadelphia, claimed of the lamps that for “half the money they will give double the light of any Oil or Lard Lamp yet invented.” It sold for about 40 cents per gallon. Camphene soon became the most popular illuminant in America and burned in homes, businesses, hotels, public buildings, and aboard some trains. In at least one instance it was even burned as a heat source for hatching eggs in an incubator. It could be purchased at distilleries, from merchants or druggists, or, in large cities, delivered to the home or business. So popular was the oil that when the New York market experienced unusually low turpentine shipments from the South, it was reported that “the quantity of Camphene used for burning has become so

5 By the mid 1850s, the rubber industry annually consumed 4,650 casks containing a total of 187,000 gallons of spirits. Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861” (Ph.D. diss., Duke University, 1947), 203-208, 213.


great, that for this purpose alone, a large supply is needed, and any considerable disruption in the receipts is immediately felt."

However, Camphene had to be handled with great care. When used correctly this oil provided safe effective lighting, but serious accidents sometime occurred from carelessness with this volatile and flammable fluid. When in 1847 a Philadelphia man attempted to fill a lighted lamp, the Camphene exploded, "blowing the lamp to pieces and the bottom of the can out, and setting fire to the room and to his clothes, from which he was so dreadfully burned." After a day he died. In 1851 a Mrs. Ewing of Chesterfield County, Virginia, near Petersburg, met unfortunate circumstances when the lit camphene lamp she held in her hand burst into flames which immediately engulfed her. She too lingered for several days before succumbing to her burns. Each of these cases represents the two different circumstances under which camphene lamps could explode. As in the Philadelphia case, refilling the lamp while the wick still burned, could ignite vapors rising from the pouring liquid and transfer the flame from the wick to the oil can. In many such instances, the panicked lamp lighter would drop the can spreading the flames. As in the Chesterfield County case, the sloshing of the oil in the glass lamp, even from the motion of walking with it, could cause the oil to overflow its reservoir, catch fire from the wick, and run down the outside of the lamp. The heat from the burning oil on the lamp’s exterior would crack the glass causing the rest of the oil to escape, spreading the fire. By the 1850s the annual deaths from accidents involving Camphene lamps exceeded those from steamboat explosions and railroad accidents combined. In response to consumer concerns, a safer lamp soon appeared. Newell’s Patent Safety Lamps kept the burning wick away from the vapor, thus

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8Quoted in Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861” (Ph.D. diss., Duke University, 1947), 207.

reducing the risk of explosion. Also introduced was the safety can and filler which allowed for refilling of the lamp while it continued to burn.10

With Camphene rendered safe, producers who rushed to meet the increased demand for turpentine faced a perplexing problem. Because distilled gum yielded four gallons of rosin for every one gallon of spirits of turpentine, increased turpentine production resulted in overproduction of rosin. Experiments to discover marketable uses for rosin yielded two new oil products. Pinoline, the lightest of these oils, could be burned as an illuminant, while the heavier oil, known as rosin oil, was used as a lubricant and in the manufacturing of printing inks. Rosin oil production increased in the 1850s, with most of its manufacturing facilities located in the northern states. However, similar plants opened in Wilmington and New Bern before the end of the 1850s. Yet rosin consumption never approached that of turpentine and throughout the nineteenth century was treated largely as a byproduct of spirits production.11

As increased demand for turpentine raised its price, more North Carolinians began harvesting gum. The first burst of production began in the area between the Tar and Cape Fear Rivers, especially the Washington and New Bern areas, where the inhabitants were already familiar with the methods of turpentining (fig. 2.1). By the late 1830s, the quest for more suitable pine land lead to the opening of turpentine operations on the west and south sides of the Cape Fear River, where, until then, general opinion held that local pines would not yield

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Figure 2.1: Tench Coxe, A Statement of the Arts and Manufactures of the United States of America for the Year 1810 (Philadelphia: A. Comman, Jr, 1814), 133-134.

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Spirits of Turpentine Production, 1810
North Carolina
Value of Spirits of Turpentine

Figure 2.1. Spirits of Turpentine Production, 1810, North Carolina, Value of Spirits of Turpentine
sufficient gum (fig. 2.2). By 1840, when Edmund Ruffin traveled through the Cape Fear Basin, turpentining was "the almost sole business of the thinly settled population of the pine lands." Throughout the 1840s the industry moved up the Cape Fear toward the northwest into Cumberland and Harnett Counties and to the south, spreading into South Carolina. In 1844 one Henry Harrison cut the first boxes near the town of Manchester in Harnett County and shipped the gum to Fayetteville for distilling. Harrison's turpentine was probably handled by Thomas Lutterlaw, who that same year opened the first distillery in Fayetteville.12

Repeal of British duties on turpentine over-heated the market and eventually led to a temporary downturn. Becoming effective in May 1845, the repeal made exports to England increase and American prices climb. Speculation followed. A New York firm attempted to corner the market, causing prices to rise from $2.30 per barrel to $3.00 to more than $5.00.13 Attracted by these outrageously high prices, the Wilmington Journal reported, "many of our citizens have withdrawn their labor and capital from their wonted channels, and have embarked them in making Turpentine..." However, the bubble soon burst. In the mean time, "Lands and negroes have been both purchased and hired at high prices, in the anticipation that the product of the pine would continue to command such a price as would amply repay any outlay." Producers

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Figure 2.2: United States Department of State, Compendium of the Enumeration of the Inhabitants and Statistics of the United States as Obtained at the Department of State, From the Returns of the Sixth Census, 1840 (Washington, DC: 1841), 158, 170, 182, 194, 206, 218, 230, 242, 254, 266, 338.
Naval Stores Production, 1840
North Carolina, South Carolina, and Virginia
Barrels of Tar, Pitch, Turpentine, and Rosin

Figure 2.2. Naval Stores Production, 1840, North Carolina, South Carolina, and Virginia, Barrels of Tar, Pitch, Turpentine, and Rosin
were urged to hold their current crop off the market until the large supplies at New York, Liverpool, and London had diminished and the price recovered.\textsuperscript{14} The strategy worked. By the fall of 1845 prices rose to $3.50 per barrel of raw turpentine and 60¢ for spirits and production resumed its expansion.\textsuperscript{15} By 1847 North Carolinians made an estimated 800,000 barrels of were urged to hold their current crop off the market until the large supplies at New York, Liverpool, and London had diminished and the price recovered.\textsuperscript{16} The strategy worked. By the turpentine, valued at between $1,700,000 and $2,000,000. And around “four or five thousand laborers are engaged in making it, and perhaps three times as many more human beings are supported mainly from the proceeds of its first sale.”\textsuperscript{17} De Bow’s Review guessed that “there is no one article produced in this country by the same number of laborers, which contributes so much to the commerce and prosperity of the country as the article of turpentine.”\textsuperscript{18} By 1850, turpentine production had reached the upper reaches of the Cape Fear and Deep Rivers and Fayetteville and Cumberland County especially its seat, Fayetteville, became the inland center of the trade.\textsuperscript{19}

A shift to planter control of production accompanied the turpentine industry’s migration into the Cape Fear region. Since the late 1720s, small farmers had manufactured most naval stores; as the industry expanded along the Cape Fear in the 1840s and continued its dramatic

\textsuperscript{14} “Naval Stores,” Wilmington, North Carolina Journal, 15 May 1846.


\textsuperscript{16} “Naval Stores,” Wilmington, North Carolina Journal, 15 May 1846.

\textsuperscript{17} “North Carolina, Its Resources, Manufactures, Ect.,” The Commercial Review of the South and West 4 (October 1847): 257.

\textsuperscript{18} “North Carolina, Its Resources, Manufactures, Ect.,” 258.

growth into the 1850s, men with capital and large numbers of slaves entered the production on a
grand scale. Although these businessmen may not have participated in a classic market
relationship with their bound labor, they certainly engaged in a market exchange of their product
and shifted to turpentine in order to benefit from its increasingly profitable trade. The large
producers included James R. Grist, who worked timber in Brunswick and Columbus Counties
with over 100 slaves; James Metts, whose 65 slaves harvested turpentine in both North and South
Carolina; John A. Averitt, whose 125 slaves were primarily employed in turpentine on his huge
estate in Onslow County; and Daniel L. Russell, who with 25,000 acres in Brunswick County
and 150 slaves, was one of the largest producers in the state. In many cases these large operators
were the sons of Washington, North Carolina, area planters who moved to the previously
untapped region where they could work their slave labor forces more profitably in the virgin
timber than in the region’s poor soils, which were unable to sustain intensive agriculture.\(^{20}\) As
large turpentiners took control of more and more production in the 1840s and 1850s, evidence
suggests, the size of the operation tripled. A sample of newspapers advertisements for the sale of
operations reveals that while the average business in the 1840s consisted of around 25,000 boxes,
by the 1850s the typical operation made use of 85,000 boxes.\(^{21}\)

\(^{20}\) James Oakes, *Slavery and Freedom: An Interpretation of the Old South* (New York:
Alfred A. Knopf, 1990), 54; Percival Perry, "The Naval-Stores Industry in the Old South, 1790-
Stores Industry in the Ante-Bellum South, 1789-1861" (Ph.D. diss., Duke University, 1947), 150-
151.

\(^{21}\) "Land for Sale on Cape Fear River," *Wilmington, North Carolina Chronicle*, 10
November 1841; "Lands for Sale," *Wilmington, North Carolina Journal*, 27 June 1845; "Real
Estate for sale," *Wilmington, North Carolina Journal*, 4 July 1845; "Plantation for Sale,
Wilmington, North Carolina Journal*, 24 April 1846; "Valuable Turpentine Land For Sale,
Wilmington, North Carolina Journal*, 20 November 1846; "Valuable Real Estate," *Wilmington,
North Carolina Journal*, 26 February 1847; "Valuable Lands For Sale," *Wilmington, North
December 1848; "Valuable Farming and Turpentine lands For Sale," *Wilmington, North
11 May 1849; "For Sale," *Wilmington, North Carolina Journal*, 10 August 1849; "Notice.—A
For those few North Carolinians capable of profitably cultivating cotton, naval stores actually offered a better alternative in many years. At the same time turpentine prices rose during the 1830s and 1840s, cotton prices fell. The Panic of 1837 badly hurt the cotton market; the 1836 price of 13.3¢ by 1839 had dropped to 7.9¢ and reached a low of 5.5¢ in 1844. With cotton prices generally depressed during the 1840s, one observer commented that “compared to other labor,” turpentine “has, for the last ten years, been deemed the most profitable of all.” In 1846 the Fayetteville Observer reported that the turpentine region of North Carolina “has never, to our knowledge, been in so prosperous a condition as at present. Lands have risen, one, two, or three hundred per cent, and labor is so profitable that the country is full of money to make investments.” In 1846 the Tarboro Press described “a gentlemen [sic] who had gone to Wilmington to sell his turpentine, in pocketing $1900, remarked that sum was the produce of the labor of four hands.” In 1850 a Barnwell County, South Carolina man concluded that turpentine


23 “Product of Turpentine at the South,” De Bow’s Southern and Western Review 11 (September 1851): 305.

production offered a profitable alternative for timber owners who “are tired of making cotton at the low prices, to which planters have been hitherto compelled to submit.”

Cotton prices recovered by the early 1850 and remained stable, even during the Panic of 1857. But turpentine prices also remained relatively stable and continued to rival cotton profits. Dugall McMillan of Wilmington maintained that one slave could collect 200 barrels of turpentine in a season and that the profit margin was very good. It was “better by far than cotton raising,” he reported, and “many cotton planters are going into it.” Prices remained steady, he believed, because the demand expanded with the growing number of producers. The average hand, it was estimated in 1850, could make one hundred, fifty barrels of dip and fifty of scrape. With the former selling at $2.50 per barrel and the latter at $1.25 a barrel, a producer could realize a gross profit of $437.50. Subtracting $137.50 in expenses ($60 for two hundred barrels costing 30 cents each, $50 for shipping to market at twenty-five cents per barrel, and $27.50 in commission to the factorage house), the turpentiner could make $300 per hand. With cotton selling at nine cents per pound, a cotton planter could make only $200 per hand. With prices running around $2.31 for dip and $1.50 for scrape in 1852, the naval stores industry continued to attract producers. That year William Underhill of Wake County reported that “turpentine is all that is talk a bout nearby. it has been very high this year.” In the fall, a Wake County area

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26 Cooper and Terrill, American South, 192.


29 W. M. Underhill to Brother and Sister, 20 December 1852, Ransom Lee Papers, Special Collections Library, Duke University.
shoemaker quit his shop and began cutting boxes in his father-in-law's pines. Naval stores prices soared in 1853. On the Wilmington market, dip sold for $3.90 to $4.00 per barrel, scrape for $2.10 to $2.30 and spirits at 63 cents to 65 cents per gallon. At these prices, the Fayetteville Observer reported, "the Naval Stores men of the state, (and their name is legion,) are coining money out of the pine trees."  

The increased prosperity and rise in land values that the turpentine boom brought seemed a blessing for North Carolinians living in southeastern portion of the state where soil was incapable of sustaining commercial cotton agriculture. Edmund Ruffin, the South's leading agricultural reformer, like other observers, was struck by the poor, sandy soil of the southeastern pine region. He found the level land broken only by slight depressions of swampy areas where loblolly pine grew. "But whether dry or wet," he proclaimed, "all these pine lands, and the shallow 'bays' intersecting them are very poor . . . and will continue worthless for tillage." J. MacLeod of Wilmington agreed that the "long leaf was found on soil that will produce little else." Dugall McMillan, who traveled through the area in the mid 1840s, remarked that "the stranger who enters North Carolina will be struck with the wilderness appearance." The area's "sandy, stark soil offers little to tempt the adventurer or emigrant to settle down." Olmsted understood that North Carolina dominated the South's naval stores production "because, in it, cotton is rather less productive than in the others, in an average of years." He observed that "in the region in which the true turpentine-trees grow, indeed, there is no soil suitable for growing

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30 Ibid.; W. M. Underhill to Brother and Sister, 1 September 1852, Lee Papers.
31 "High Prices," Fayetteville Observer, 1 February 1853.
34 McMillan to Southern Cultivator, 172.
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.\textsuperscript{35} A Bladen County resident commented that “in the pine region tracts owned by individuals unfit for cultivation, high prices of turpentine has added much to their value.”\textsuperscript{36}

In the mid 1850s turpentine continued to distract producers away from cotton. Turpentine Benjamin Williams, his wife explained in 1854, did “not like to remove any of his hands from his turpentine land, the income from that being much larger than from the plantation.”\textsuperscript{37} In 1855 \textit{De Bow's Review} reported that “no business makes better returns for common labor, take one year with another, not even the culture of cotton and tobacco, especially when the amount of capital employed is taken into consideration.” The same article claimed that a prime turpentine laborer could gather $600 or $700 worth of turpentine in a year. After deducting the costs of barrels, hauling, provisions, the overseer’s wage, and other expenses, $200 per hand was a moderate return.\textsuperscript{38}

With the increase in turpentine harvesting, the number of distilleries in port towns grew. In 1818 the first turpentine still in Wilmington began operating. In 1845 the \textit{Tarboro Press}

\textsuperscript{35} Frederick Law Olmsted, \textit{Journey in the Seaboard Slave States} (New York: Dix & Edwards, 1856), 338.

\textsuperscript{36} J. Wright to Thomas D. McDowell, 9 December 1858, Thomas David Smith McDowell Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.

\textsuperscript{37} Sarah F. Williams to Parents, 17 March 1854, Sarah Hicks Williams Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.

\textsuperscript{38} “Turpentine: Hints for Those About to Engage in Its Manufacture,” \textit{De Bow's Review} 2 (October 1855): 488. D.W. Kyle, an enterprising man searching for business opportunities with the greatest return, informed his friend John Buford in 1856 that he was interested in the Pacific Railroad because “it is the place to make money.” He also anticipated going into “the turpentine, tar, and pitch trade.” D. W. Kyle to John Buford, 29 March 1856, John Buford Papers, Special Collections Library, Duke University. In 1859 one producer proclaimed, “good turpentine land is a fortune.” G. W. Perry, \textit{A Treatise on Turpentine Farming} (New Bern, North Carolina: Muse & Davis, 1859), 87.
reported that Wilmington had nine turpentine distilling operations with a total of thirty stills. The paper estimated the daily capacity of these facilities combined at five hundred barrels of resin and four thousand casks of spirits a day. The largest distillery operated seven stills, while the smallest ran but two. Between September 1845 and March 1846 Wilmington added three new distilleries, bringing the city’s number of stills to thirty-seven with three more under construction. When all were completed, the city’s thirty-seven stills were thought to consume 1,500 barrels of crude turpentine a day and produce two hundred barrels of spirits. A traveler visiting Wilmington in 1846 reported that “there are to be seen here twenty turpentine distilleries, most of them lately set up and all doing a very profitable business.” So impressed was he with such activity in the port town that he proclaimed it North Carolina’s commercial capital. Washington experienced a similar increase in distilleries. In 1842, three distilleries that consumed up to two hundred barrels a day were operating in Washington. By January 1846, Washington, where naval stores represented nearly seventy-five percent of the value of all products leaving its port, had seven turpentine distilleries in operation and another was under construction. Between these seven operations there were fifteen stills which, when all running at their peak capacity, required six hundred barrels of crude gum a day. The increase in local distilling brought an end to the earlier practice of shipping crude turpentine to the North and


40 McMillan to Southern Cultivator, 172.

England for distillation. By 1844 fifty percent of the crude gum distilled in the United States was distilled in North Carolina, the result of the growing number of stills operating in that state.

With the rapid increase in distilleries, raw turpentine processing grew into an important segment of the North Carolina economy. In 1847, the industry supported 150 stills with an average cost of $1,500. One observer explained that “the cost of distilling is very great, and when we reckon the cost of transportation, the profits of distillers, of ship owners, commission merchants, and the venders of the article abroad, it will be seen that the capital and labor employed is not only immense, but the numbers who are supported by the manufacture and sale of the article is astonishing.” Distilleries consisted of more than one or more stills and their shelters. In 1849 one typical operation, located one-half mile north of Wilmington, had four stills, capable of running one hundred barrels of gum a day; a large spirit house, where distilled turpentine was stored to protect the casks from the heat of the sun; a large glue house, where empty spirit casks were prepared by coating their interior with hot glue; “a large Negro house” where the slave workers slept; and a wharf.

Communities did not always welcome these combustible facilities. Between 1842 and 1852, twenty Wilmington area stills were destroyed by fire. In 1844 the Wilmington Chronicle objected to the construction of a distillery in a densely populated section of the town. At around the same time, a still at the Brown and DeRossets Distillery caught fire, destroying all the

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45 Ibid.

buildings, most of them sheds, and between six hundred and seven hundred barrels of rosin. The total loss amounted to between $1200 and $1500.47 In 1837 John Meyers became alarmed when he learned that Joseph Redding planned to set up a turpentine still on a lot adjacent to his property by the Tar River in Washington, North Carolina. Meyers feared for the safety of the wooden structures on his lots, which not only included shelters for protecting naval stores and produce from the weather, but his family's residence. Distilleries, Meyer complained, belted ashes and soot throughout the community. Moreover these facilities commonly caught fire, erupting into flames as many as six to eight hours after the still had stopped operating. When such operations caught fire, they were difficult to extinguish. Flammable barrels of turpentine and rosin surrounded stills and often guaranteed that accidental fires would grow large and last long. Meyer worried that with the right winds, the flames from such a conflagration could travel the distance to his property. "It is because of the great annoyance for smoke + ashes that distilleries are commonly placed out of the reach of other buildings," Meyer stated.48

With naval stores promising such high returns, not only did businessmen erect annoying stills in North Carolina's port communities but sections of the state experienced a population increase as hopeful producers rushed into the area. Fayetteville and Cumberland County experienced solid economic and population growth, each related to the turpentine industry's prosperity. The county's population, especially its slave population, was on the rise. Between 1840 and 1850 Cumberland's white population increased from 15,284 to 20,160, a rise of 34 percent. However the slave population rose 75 percent, from 4285 to 7217.49 The Fayetteville


48 Edward Pauly to the Honorable the Judge of the Court of Equity for the County of Beaufort, 16 January 1837, Thomas Sparrow Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.
Observer explained in 1853 that “the population of this county has increased about 1000 since the first of the present month—about 300 whites and 700 slaves having come here from other parts of the State to engage in the turpentine business.” Area boosters looked forward to the increased business this production would bring since “grain, provisions, and other necessities of life, would be in demand.”

One result of this newfound prosperity was an increased cost of labor. The Fayetteville North Carolinian reported that “Negroes hired on New Year’s day for prices higher by 25 to 33 per cent than last year—first rate men bringing from 100 to 135 dollars. This is attributed to the high price of timber in the Wilmington market, the great demand for labor on the various plank roads now in process of construction from this place, and also on the Cape Fear and Deep River improvements, and the increasing production of turpentine in the surrounding country.”

Olmsted found that in the early 1850s “wages of ordinary practiced turpentine hands (slaves) are about $120 a year, with board, clothing, ect., as usual.” In 1852 one producer reported that hiring prices were high for turpentine hands, between $125 and $150. However for $100 he had been able to hire a white man. Although the slave population rose it was not enough to keep up with demand. With one slave estimated to earn for his employer $500 to $800 a year laboring in the naval stores industry, owners could hire them out for between $150 and $175 annually. The rising cost of hiring turpentine slaves in the 1840s and 1850s is illustrated by the prices charged by the Francis Harper heirs of New Bern who hired out slaves to turpentine producers. In 1849 they received $56.50 for “Amas” and $49.50 for “Haywood.” In 1852 Amas and Haywood were


52 Olmsted, Journey in the Seaboard Slave States, 346.
each rented for $125, and by 1853 Aamas's hiring price had risen to $175 and in 1854 to $215. This increase corresponds with a 1853 Fayetteville Observer report indicating that the annual cost of hiring a good naval stores laborer was $150 to $175. By 1860 turpentine workers were hired for as much as $250. However especially skilled slaves could cost even more to rent. In 1853 a blacksmith for the Grist operation cost $300 to hire. Producers found difficulty in securing such talented slaves. They occasionally became available for hire when the operation they worked for closed.

Producers could not only rent slaves, but turpentine boxes as well. The rental price depended on the boxes' age and their distance from transportation. In 1854 C. W. Smith received $181.32 for the rent of 17,435 boxes for 4 years. The price amounted to $26.00 per year for 10,000 boxes. However, some rental agreements were made for only one year. For the turpentine season of 1846/1847 William D. Rodman rented his turpentine boxes to Mabum Minifield and Allison Whitly but found new renters for the next season. In cases of a turnover in renters, it was common for the gun in the boxes to be reserved for the previous year's renter until time for the new renter to commence chipping. Rental agreements usually contained other stipulations. When a producer rented turpentine boxes belonging to the estate of A. B. Mattick for 1860, he was required to post notes of security before working the boxes and had to agree to

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54 In 1854 a sawmill and distillery business in Lumberton was auctioned at the Robeson County courthouse. At the sale there was “hired out until the 1st day of January next, about twenty-five slaves who have been engaged in the Turpentine and Saw-Mill business.” “Steam Saw-Mill, Turpentine Still, &c. Trust Sale,” Wilmington, North Carolina Journal, 17 March 1854.
maintain a split rail fence on the premises. For this lease, the renter had use of a house on the
land, its out buildings, and the orchard.55

As naval stores prices rose and created greater demand for both rented and purchased
pine land, more marginal areas went into production. Convenient access to a still or market
could determine whether or not a timber stand was worked for turpentine. Olmsted noted that “it
is yet thought a harder venture to start the business where more than thirty miles wagoning is
required to bring the spirits of turpentine to a railroad or navigable water.”56 Turpentine
producers were advised to locate their operations as nearby a still as possible. “You may do a
very profitable business,” De Bow’s Review explained, “six or seven miles off if the country is
favorable for hauling. If the distillery is on a river, turpentine may be hauled two or three miles,
and rafted down forty or fifty miles, cheaper than to haul to the still over six or seven miles.”57
Pine forests on the periphery of transportation systems were often so isolated they could not be
profitably worked at all or, at most, worked for only the most valuable gum.58 Some producers
could only profitably harvest gum, not scrape, or work the tree for only a few years. While
traveling through North Carolina Olmsted observed trees at a prohibitively far distance from the
market that had never been scraped. In such cases scrape, which contained about half the spirits
of gum and was therefore less valuable, was not worth the expense of the labor to collect it and

55 Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861”
(Ph.D. diss., Duke University, 1947), 44; John F. Minifield to William R. Rodman, 30 October
1847, William Blount Rodman Papers, North Carolina State Archives; “The Condition of
renting farm land + Turpentine Boxes belonging to the estate A. B. Mattick dec.,” 28 December
1859, William Basden Papers, Special Collections Library, Duke University.

56 Olmsted, Journey in the Seaboard Slave States, 339.


58 One producer found that “the tract of land belonging to Mary Eliza laying on Turnbull
is so inconvenient that I have concluded not to cut Turp. boxes this spring.” Thomas D. S.
McDowell to Sir, 16 January 1843, Thomas David Smith McDowell Papers, Southern Historical
Collection, The University of North Carolina at Chapel Hill.
the transportation to get it to market. But at the time of his journey, he added, “the price of turpentine being now much higher than usual, many of the small proprietors are this year scraping their trees, that have not scraped before.”\(^5^9\) Edmund Ruffin observed that in the case of scrape, which “is sold at half the price of the fluid turpentine[,] . . . the expense of land-carriage is a sufficient bar to the production of so heavy and low-priced products, where the distance is considerable.”\(^6^0\) Other times when prices were not as high, turpentine operations located some distance from transportation were worked only three or four years and then abandoned for new areas. The greatest profits came during the first year’s harvest which yielded virgin turpentine and number one rosin, the finest quality of these respective products and which could be obtained from trees only during their first year harvested for turpentine. Second and third year harvests were also profitable. But as the distance that the gum had to flow down the face to the box increased with each season, the more the gum deteriorated from greater exposure to the sun and the less valuable it became.\(^6^1\)

Olmsted also explained that with the rising demand for spirits “the business has been extended into the depths of the forest.”\(^6^2\) The copper still, introduced in 1834, helped these producers push farther inland and affected the turpentine industry much like the gin had cotton production. Distilling in the forest permitted turpentinining to be done further from transportation routes near to which the industry had previously been confined. Copper stills, much like those used in the scotch whisky industry, were much lighter than the large iron ones used in port cities and could be transported, making it possible to refine gum in the forest, near to where it was

\(^5^9\) Olmsted, *Journey in the Seaboard Slave States*, 343

\(^6^0\) Ruffin, “Notes on a Steam Journey,” 250.

\(^6^1\) Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861” (Ph.D. diss., Duke University, 1947), 45; Perry, *Treatise on Turpentine Farming*, 78.

harvested. Naval stores products were bulky relative to their value. With on-site stills, producers were no longer burdened by the trouble and expense of hauling the heavy barrels of raw turpentine to port. They could save by shipping just the lighter and more valuable spirits and transport rosin only when its price was high enough to bring a profit. Rosin prices reached these high levels only occasionally. At distilleries located near rivers, producers saved just the first and second quality rosin while the poorer qualities were run off and wasted. One distillery, by the mid 1850s, had accumulated an estimated $15,000 worth of rosin which was simply drained out of the still and left at the site because the freight prices were too high to justify shipping it to market.63

Because stills cost between $1,500 and $2,000, only the largest producers could afford their own. Wealthy businessmen also constructed inland distilleries to take advantage of the spreading production. In 1854 Jonathan Worth, who would become the state's governor during Presidential Reconstruction, and his son operated a still in the extreme western part of Harnett County. Some Wilmington distillers brought their services closer to their clients. In 1848 W. O. Jeffreys of Wilmington advertised that he was constructing two new stills at Sarecta in Duplin County. When constructing a still, they looked for three qualities in its location—close proximity to adequate timber supply, access to transportation facilities, and a nearby water supply from which to fill the condenser's cooling tank.64


64 Ashe, Forests, Forest Lands, and Forest Products, 77; "To Turpentine Makers in Duplin," Wilmington, North Carolina Journal, 12 May 1848; Percival Perry, "The Naval Stores Industry in the Ante-Bellum South, 1789-1861" (Ph.D. diss., Duke University, 1947), 59; Martha Green Hayes, "General History of the Turpentine Industry," Georgia Agrirama, Tifton, Georgia,
A temporary price collapse in late 1846 and 1847 necessitated a reduction in shipping costs to maximize profits and thus spurred a movement away from central distillation in the port cities and toward more inland locations, nearer the source of production. Where in 1844 Cumberland County had only one distillery, by 1852 thirty-two distilleries operated. They represented a combined capital investment of $75,000, required $300,000 of operating capital, and yielded an annual income of $348,000. And new distilleries were always being constructed.\(^6\) In May 1847 prices dropped to two dollars per barrel for crude gum and to thirty-five cents for a gallon of spirits, down from sixty-five cents during the 1846 speculative bubble. Wilmington exported 145 times as many barrels of crude turpentine as casks of spirits in 1837; by 1848 only seven times as many gum barrels as spirit casks came through the port, and by the mid 1850s their numbers were about even. Washington experienced a similar trend. By 1855 about half of the spirits shipped from Washington had been distilled inland. The amount of spirits shipped was also up over crude gum. That year 147,211 casks of turpentine left the port and 68,897 barrels of gum. By 1860 the difference had grown even wider, with 147,962 casks of spirits shipped, but only 49,176 barrels of crude turpentine. Consequently, less raw turpentine reached the market, reducing the loading volume and need for distilleries.\(^6\) In 1848, Scientific American reported that "twenty years ago, there was more spirits of turpentine distilled in Europe than in the United States, but the tide has now turned and Europe gets turpentine from


By this time, North Carolina was unquestionably the most important turpentine producer not only in the United States but in the world, far exceeding Finland and Russia which continued to specialize in tar. In 1860, North Carolina produced 96.7 percent of the naval stores made in the United States. The total value of crude and distilled turpentine produced that year, $5,311,420, represented a more than two hundred percent rise from ten years earlier.68

As with stills, transportation improvements—plank roads, opened rivers, steamboats, and railroads—also facilitated the naval stores industry’s expansion by regularizing shipping and reducing transportation costs. Commercial traffic on the Cape Fear River faced a considerable challenge. Although steam boats came into general use nationally in the 1830s, through the next decade most naval stores traffic continued to move by raft and pole boats, with each raft carrying anywhere from twenty to three hundred barrels. The Cape Fear was commonly too low for steamboat navigation during the summer. Often, naval stores had to wait at landings until winter rains brought the river to a passable level. Wilmington’s port’s activity therefore depended on the Cape Fear’s water level. Its market was busiest after heavy rains when the valley’s creek and river levels rose high enough for inland producers to launch their rafts, weighted with naval stores, lumber, and other commodities.69 But when water was too low, no products could come through. The example of Wilmington’s 1845 commercial cycle illustrates this situation.


April 18 the Wilmington Journal reported that “owing to the very low state of the river, but very little produce, of any description, have reached this market within the past week.” After a month of low water the paper reported with hope that they had “noticed a rise in the north-east prong of the Cape Fear river, and also a slight rise of the north-west.” But it was not enough of a rise for many commodities to get through. The Wilmington commission merchants waited with anticipation for they understood “that from 8000 to 10,000 barrels of Naval Stores are on the way to market—down the north-east prong. Some say 20,000 barrels are expected to reach the market in a few days.” But not until August 7 was commercial traffic flowing freely. After a week of heavy rains “the Cape Fear river has swollen several feet; it is now as full as it has been any time during the last six months, and the atmosphere clearly indicates more rain yet.” According to the paper, the rise in the river level brought large quantities of timber into Wilmington, “likewise Naval Stores.” In mid-December of the same year the river was up once again and nearly 40,000 barrels of naval stores entered to port. The wide fluctuation in turpentine availability was reflected in a situation that occurred in Wilmington in 1846. By mid April, with the previous year’s harvest nearly all into market, the raw turpentine supply ran out. Distilleries did not have enough to continue operating and five sat idle. They could only wait for the new crop to find its way to market when the river cooperated.70

In the 1850s, the Cape Fear and Deep River Navigation Company, supported by innovative Wilmington interests concerned with increasing the port’s activity, set about making the Cape Fear River navigable as far north as Chatham County. Initiated to provide access to coal beds in Chatham County, the resulting improvements consisted of a series of dams and locks. Because this newly navigable stretch of river passed through the longleaf belt, it provided cheap transportation for an area that had previously been effectively cut off from the coastal

70 “Wilmington Market,” Wilmington, North Carolina Journal, 18 April 1845; 16 May 1845; 8 August 1845; 19 December 1845; 17 April 1846.
market. Enterprising men constructed stills at the landings that dotted the newly open stretch of the Cape Fear, permitting the naval stores industry to extend into the far western reaches of the longleaf pine belt.\textsuperscript{71}

By the 1850s, new light-draft steamers were able to navigate the Cape Fear's low water level during the summer months and helped make naval stores marketing a year-round activity. Most of the steamers that operated on the Cape Fear measured one hundred to one hundred, thirty feet long and fifteen to twenty-five feet wide. Steamboats could carry from three hundred to five hundred barrels of naval stores, but most often the products were transported aboard large flats, called lighters. Pulled behind steam boats, the lighters could carry from 300 to 1,100 barrels, depending on their size and the depth of the river. When Frederick Law Olmsted boarded a steamboat in Fayetteville headed for Wilmington, he discovered that "the bulk of our freight was turpentine." Introduction of river boats and navigation improvements gave Wilmington another advantage over New Bern and Washington. The Tar and Neuse Rivers that serviced the latter port communities were too shallow and sluggish to allow steam navigation, forcing producers to continue using carts, wagons, and flatboats to transport their commodities to market.\textsuperscript{72}

Just as navigation improvements and steamboats improved water transportation, plank roads, which radiated from Fayetteville into the pine forests, facilitated better overland transportation. These roadways were constructed of heart pine planks, cut nine to sixteen inches wide, at least eight inches long, and three to four inches thick, laid at a ninety degree angle over


heavy sills which rested on a graded road bed. Ditches and culverts provided adequate drainage to keep them dry. With these roads producers could haul their naval stores during any type of weather, even the most rainy periods when work in the forest slowed and time was best spent transporting their goods to market. The first road built was the Fayetteville and Western, also known as the "Appian Way of North Carolina." Incorporated in 1849, completed in 1854, and reputed to be the longest plank road ever constructed, it extended for 129 miles from Fayetteville, toward the northwest, and ended at the Moravian settlement of Bethania in Forsyth County. Its success as a toll road, especially from naval stores traffic, lead to the construction of other such roads radiating from Fayetteville. One ran from Fayetteville through the western section of Cumberland County. Another which was supposed to connect Fayetteville with Raleigh by passing through Harnett and into Wake County never was completed. However, the finished portion provided access to areas of the pine forest that before had been too remote for profitable turpentine production.73

Plank roads facilitated the naval stores industry’s spread into inland forests and funneled a considerable portion of the new production toward Fayetteville. In 1852 the Fayetteville Observer reported “that within the last three years the lands along the line of the Fayetteville and Western Plank Road in this country, ... have risen in value far more than the cost of that road through the country.” Land prices rose because “the country, for sixty miles, has been thrown open to the production of various articles which previously could not be brought to market. We may instance [sic] Turpentine which is too heavy for transportation long distances over bad

roads. But upon the Plank Road a number of Distilleries have been put up, and one is now going up sixty miles from this place.”\textsuperscript{74} The Fayetteville Observer reported in 1853 that “the discovery of the value of our pines, aided by plank roads, has worked a wonderful change within the last years.”\textsuperscript{75} Plank roads made Fayetteville the center of wagon trade for the state and the inland seat for the handling of naval stores and distillation of crude gum. Most of the products collected at Fayetteville were shipped down the Cape Fear to Wilmington for export.\textsuperscript{76} However, wooden roads, also referred to as “farmers’ railroads,” deteriorated rapidly, making their maintenance difficult and expensive.\textsuperscript{77} Not only did they fall into disrepair but the cost of moving goods on them was relatively expensive, like all over-land transportation, although not as costly as over dirt roads.

In the end, roads of iron worked the most lasting impact on the naval stores industry’s growth. In 1833 farsighted citizens of Wilmington, who believed correctly that their future prosperity depended on rail transportation, subscribed $400,000 for the Wilmington and Raleigh Railroad, which they chartered the following year. When Raleigh, which lacked Wilmington’s enthusiasm for the project, failed to raise its share of the capital, the projected route shifted northward to the Roanoke River. In 1836 the charter was revised and in 1837 construction began on the Wilmington and Weldon Railroad. By 1838 the line was already operating out of Wilmington along the right bank of the Cape Fear River for a distance of sixty-four miles. Upon

\textsuperscript{74} Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861” (Ph.D. diss., Duke University, 1947), 116, 118.

\textsuperscript{75} “The Tide Turned.”


\textsuperscript{77} Powell, North Carolina 305.
completion in April, 1840, the Wilmington and Weldon was 161.5 miles long, the longest railroad in the world. Edmund Ruffin, who traveled on the new line just after its completion, believed it to be “the most level and straight route of any of considerable length in the world; and being well planned and constructed, as well as on so remarkable and admirable a location, it necessarily is an excellent road.” It cut northward through the heart of the longleaf pine forest, crossing the regions that had historically relied on the Tar and Neuse Rivers for transportation. As a result, much of the naval stores trade that had once flowed toward Washington and New Bern now rolled toward Wilmington, especially since railroads reportedly gave turpentine shipping priority. Cotton bales sometimes sat beside the tracks for two or three weeks before they were loaded, naval stores rarely had to wait as long.78

Wilmington sought to continue its hold on the naval stores trade in the 1850s by constructing other rail lines that would terminate at its port. The Wilmington to Manchester Railroad, completed in 1853, extended 158 miles through the pine forest of Columbus County to Manchester, South Carolina. By opening the forest in the southeastern tip of North Carolina and northeastern South Carolina, it helped develop the naval stores industry in these regions.79 In 1850 De Bow’s Review reported that “the route contemplated for the Wilmington and Manchester railroad runs through the center of it [the pine forest]; and in anticipation of the success of this enterprise, lands which once brought no more than ten to twenty cents per acre, have risen to $1 and $1.50.”80


The next major North Carolina railroad project, although it did not run to Wilmington, was nevertheless designed to protect that town's shipping volume. Fearful that a proposed line from Danville, Virginia, through Charlotte, North Carolina, and on to Columbia, South Carolina, would take trade away from North Carolina's ports, particularly Wilmington, W. S. Ashe, a Democratic congressman from New Hanover County, introduced a bill in the North Carolina General Assembly in 1849 chartering the North Carolina Railroad Company. The state subscribed two million of the three million dollars needed for the project. Completed in 1856, the new rail line ran for 223 miles from Goldsboro, North Carolina, through Hillsborough, Greensboro, Salisbury, and ended in Charlotte. Its eastern leg provided more access to the western reaches of the pine barrens.

Wilmington sponsored yet another railroad in 1855. The Wilmington, Charlotte, Rutherfordton Railroad was projected to run westward from Wilmington, through Bladen, Robeson, and Richmond Counties. By the eve of the Civil War, however, the line was completed only a few miles beyond Lumberton, a distance of only eighty miles. It nevertheless opened up the pine forests of the region south of the Cape Fear River and permitted turpentine production in that area until the Civil War interrupted it (fig. 2.3). 81 As Percival Perry, the recognized expert on antebellum naval stores, has observed "improved transportation and the expansion of the


Naval Stores Production, 1860
North Carolina, South Carolina, and Virginia
Value of Crude and Distilled Turpentine

Figure 2.3. Naval Stores Production, 1860, North Carolina, South Carolina, and Virginia, Value of Crude and Distilled Turpentine
naval stores industry in North Carolina went hand in hand, and each greatly influenced the other."

These transportation improvements—clearing the Cape Fear River, steamboats, plank roads, and railroads—raised Wilmington’s prominence in the naval stores trade. Producers preferred to send turpentine to Wilmington by railroad than by boat to Washington. The railroad offered a more reliable and regular means of transportation to a more established market where prices were higher because of lower shipping costs to northern ports. But while the railroad linked Wilmington to previously inaccessible longleaf pine stands, it also made outside markets, particularly those of the north, accessible to the individual producers. Consequently a portion of the new turpentine production in the Cape Fear bypassed Wilmington and traveled directly to inland distributors. However, the railroad channeled a larger portion of this new production to Wilmington, which became the trading center of North Carolina naval stores, eclipsing both New Bern and Washington. In 1837 Wilmington had exported but 81,872 barrels of naval stores. In 1855 it handled 698,780 barrels and in 1860 777,691 barrels (fig. 2.4). In the mid 1850s, a British traveler explained that “nearly the whole trade of the town is derived from the produce of the pine forests. The Wharves display immense quantities of pitch and resin barrels, and stills

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82 Percival Perry, “The Naval Stores Industry in the Old South, 1790-1860,” The Journal of Southern History 34 (November 1968): 514. In 1855 the manager of one Grist operation requested that James Grist “Hire me fore negroes . . . for I cant get but fore or five over hear for thair is more men over hear after negroes than ever was before and hire running high from 200 to 225 for the railroads[.] I shant hire but about 14 with the fore I ask of you to hir . . . .” W. J. Grist to Brother, 31 December 1855, Grist Papers.

for the manufacture of turpentine are numerous. Pitch and turpentine afford an export trade of nearly one million sterling.\textsuperscript{84} This trade made Wilmington’s population the fastest growing of any town in North Carolina. In 1840 it was the largest town in the state with a population of 4,744. Fayetteville was second with 4,285 and New Bern third with 3,690. By 1860 Wilmington’s population had grown to 9,552, doubling in size since 1840, New Bern had 5,432 residents, and Fayetteville, which remained an important inland naval stores market but was bypassed by all the main railroad arteries, had 4,790.\textsuperscript{85} Yet by most standards, Wilmington remained a small town. In 1860, over one million people lived in New York, 565,000 in Philadelphia, and 169,000 in New Orleans. One visitor to Wilmington found that “the houses are chiefly built of wood, and a little plot of garden ground surrounds the best of them. There is only


one street paved, and the other are no better than the loose sand can make them. The numbers of mean negro huts, in some parts, are by no means a pleasing feature of the place.\textsuperscript{86}

Except for Wilmington's domination of naval stores exports, there was little consistency by which these products were marketed. Turpentine producers had a choice of ways to sell their product. One means, used especially by small farmers, was to sell their raw turpentine to a distillery owner. "Those collecting but a small quantity [of turpentine]," Olmsted observed, sell to large producers who own stills "or to custom distilleries, owned by those who make distilling alone their business."\textsuperscript{87} Small producers in areas where turpentine was of little importance and located a considerable distance from a distillery could sell their few barrels of gum to a large planter who marked it themselves. For example, in the 1850s, William R. Smith, a planter from Halifax County, North Carolina, handled small quantities of locally produced gum. Smith maintained accounts for producers whose turpentine he purchased and offered them either cash or such supplies as coffee, pork, corn, bacon, and turpentining tools. Other small producers, who could get their gum or spirits to market, sold them to speculators who bought naval stores on commission for northern firms. Speculators commonly worked on a small scale because they lacked wharf accommodations and worked only during the busiest time of the marketing season. Tar shipments into Wilmington peaked from January to May and turpentine from June to April, but the latter was present in its greatest quantity from November 20 to February 1. If a producer rafted his own turpentine to the market, he might serve as his own agent, finding a buyer and making the sale while the barrels remained on the raft. By custom, the buyer purchased the whole raft as landed, which could contain from twenty to as many as three hundred barrels of naval stores. The buyer subtracted the cost of handling, inspection, and cooperage, a charge of

\textsuperscript{86} Russell, \textit{North America}, 158.

\textsuperscript{87} Olmsted, \textit{Journey in the Seaboard Slave States}, 343.
from ten cents to fourteen cents per barrel. If the producer could not accompany his product, it was not uncommon before the mid-1840s for an inspector to serve as his agent for the sale.  

However, this arrangement proved unsatisfactory to many producers. In 1843 forty turpentiners explained “that great dissatisfaction exists among turpentine makers with regard to the mode of inspecting that article in the town of Wilmington, the way in which it is disposed of, and the manner generally of conducting the business connected with its sale, leading to the belief that they are not fairly dealt with . . . .” They requested a change in either the inspection laws or the manner of selling.  

When the practice of inspectors serving as agents ended in 1844, some inspectors quit their posts and became agents.  

Most producers, however, especially the large ones, employed the services of a commission and forwarding merchant, or factor, who, upon the naval stores’ arrival in port, saw that they were unloaded, inspected, and sold. In the 1840s distillers and factors competed for gum. The stiff competition gave producers such an advantage that they often had the option of contracting their product in advance, which guaranteed them the highest market price at time of delivery and saved them the commission fee. As the amount of individual inland distilling increased and the volume of distillation in Wilmington waned in the latter 1840s and 1850s, competition loosened and the business for factors grew. Most producers chose to sell their naval stores through factors, because factors proved so adept at marketing their commodity to the producers’ best advantage and offered a variety of other helpful services. Despite producers’

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89 “To Turpentine Makers,” Wilmington, North Carolina Chronicle, 27 December 1843.

reliance on unfree labor, profitable market trade remained their principal concern. Wilmington factors were reputed to have had the best knowledge of the naval stores trade. And they provided prompt sale of naval stores and avoided speculation unless directed to do so by their client. They also advanced capital to producers whose wealth was tied up in slaves and pine land. Unlike banks, which were few in the region did not lend on the security of pine timber tracts or still facilities because of their temporary and transient nature, factors supplied the necessary operating capital. If an account went unsettled, they would simply extended the balance to the next year; they rarely called in debts. Finally, the factor defended the producer against any complaint from the buyer.  

To attract clients, factors advertised that they offered the most accommodating service and the finest facilities for marketing naval stores. In 1844, James L. Bryan, a Wilmington factor, promised to give his clients needed attention for a modest charge. "When the price is depressed and owners wish to hold for an improvement, he will furnish a WHARF, and make suitable ADVANCES either in CASH or GOODS, to enable them to do so. Those wishing to SHIP will have every necessary facility." In 1852, Miles Costin, another Wilmington factor, notified producers that he had "leased for a term of years, of R.W. Brown, Esq., his fire-proof store, with his wharves, and is now in a condition to take especial care of Spirits Turpentine and other Naval Stores committed to his care." Not only that but "the lower wharves have on them four large new sheds, where Spirits can be safely kept from the rain and sun."  

Factors were not unique to naval stores marketing. Historian Harold Woodman explains that factorage houses served as the most common means by which antebellum southern planters

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92 "Notice to Turpentine Makers," Wilmington, North Carolina Journal, 4 October 1844.  
93 "To the Public," Wilmington, North Carolina Journal, 4 March 1853.
marketed their cotton crop. The factor bought, sold, received, and forwarded goods, for which he received a commission. The 2.5 percent commission that both cotton and turpentine factors received for their services was a carryover from the standard used by London factors who handled American tobacco sales in the seventeenth and eighteenth centuries. As the producers representative in the market, factors possessed the skill, experience, and information sources to make the proper judgments in their clients’ best interest. Because the factor had to be an expert on market fluctuations, crop size and quality, and the producer’s needs, he most often specialized in only one commodity. However, it was not uncommon for factors dealing in turpentine also to trade timber and lumber. Factors also ensured that producers received their needed supplies. If they did not actually stock what was needed, they acquired it from elsewhere, paid the bill, and charged the producer’s account. Factors usually extended a line of credit. Producers who required funds turned to their factor rather than to banks, although ultimately it was the bank that supplied the credit. Planters could only draw a note on the bank with the factor’s endorsement.94 Woodman explains that “this, of course, changed the whole nature of the loan: banks were lending not on the security of a plantation, slaves, or cotton but on the liquid assets of a city merchant. In a word, by adding his endorsement to the planter’s note, the factor was guaranteeing the payment of the note at maturity.”95 Woodman emphasizes that the factor, far from holding producers in debt peonage, provided an essential service in the South’s plantation economy. Not only did they bring capital into the region, but with their knowledge of price and market conditions, they were the most effective brokers to sell commodities and, with their connections in port towns to keep the inland producers supplied with goods. But, as with cotton,

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the real locus of power in financing, marketing, and pricing of naval stores was not found in the Southern port cities where factors and shipping firms handled these commodities, but in New York and Liverpool, where trading firms monitored the world supply and set prices.96

As with cotton, the cost of marketing turpentine, which included, on top of the 2.5-percent factor's commission, cost for freight drayage, inspection, storage, cooperating, and insurance, consumed more than a small portion of the products gross value. Into the 1850s schooners remained the most common means of transporting naval stores from North Carolina to New York. Bulky naval stores were not valuable enough to justify the more expensive shipping rate charged by steamers or railroads. New York was the most popular and the least expensive shipping destination, the freight rate from Wilmington to Philadelphia and Boston ran twenty to thirty percent above that to New York. However, trading at Wilmington could entail one added expense. Ships entering the port could not draw more than ten to twelve feet if they expected to clear the sand bar. Often lighters had to move the cargo down river, below the bar, before it was loaded aboard the ship, a costly and time consuming procedure. Shipping cost varied for spirits, gum, and rosin. Between September 1859 and September 1860 the cost of shipping spirits from Wilmington to New York ranged between 45¢ and 70¢ per barrel. In the same period shipping cost for gum ran between 35¢ and 55¢ and rosin between 35¢ and 50¢. Spirit shipment costs ran more, about 22 percent more, because the barrels had to be carried below deck to prevent evaporation from exposure to the sun. Rosin and gum, both less valuable, were transported on deck which carried a cheaper rate. However, the insurance for goods shipped on the deck ran higher because during storms, these items commonly fell overboard first. When marketing their

95 Woodman, King Cotton, 115-116.

96 Ibid., 130, 174-175.
naval stores producers paid around 12¢ per barrel for inspection, wharfage, cooperage, and loading.97

Turpentine shipped through R. W. Brown & Son, a Wilmington factor, serves as an example of the expenses involved in marketing naval stores. In October 1835 the firm shipped seventy-seven barrels of raw turpentine aboard the Regulus from Wilmington to New York. In addition to the freight cost, handling charges included $2.34 to transport the barrels around the Wilmington dock, $1.54 to land the shipment when it first arrived at the port, 60¢ to deliver the barrels to the schooner for the trip to New York, and twenty cents to load them aboard the ship. To inspect the shipment cost $2.20 and to repair either deficient or damaged barrels cost $3.04. The fee for storage at the wharf was 76¢. The commission paid to the factor for handling the shipment was 5 percent, $13.79, double the usual fee. Total cost of marketing the turpentine shipment amounted to $24.47, a little more than nine percent of the shipments gross value of 267.51. This is similar to the minimum cost of marketing cotton, six to ten percent of the gross proceeds.98

For the few producers who remained in North Carolina’s northern counties, transporting naval stores to New York cost considerably more. William B. Wise of Murfreesboro in Hertford County, a dry goods merchant and naval stores trader, had to spend over forty percent of a sixty-eight barrel shipment’s gross value to get it to New York. Valued at $171.51, the shipment first went to Norfolk by ship at a cost of $19. The cost of hauling, cooperage, inspection, wharfage, and the 2.5 percent selling commission totaled $42.07. Thus, when the shipment was ready to leave Norfolk for New York, its net value had been reduced to $129.44. The cost of shipping the

97 Ibid., 176; Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861” (Ph.D. diss., Duke University, 1947), 131, 135, 136, 146; Gamble, “Pages From Wilmington’s Story,” 32.

98 Shipping Receipt, 17 October 1835, Oliver H. Jones Papers, Special Collections Library, Duke University; Woodman, King Cotton, 177.
sixty-eight barrels by railroad to New York was $19.44 and the handling, cooperage, wharfage, and a 1 1/4 percent commission ran an extra $9.20 for a total cost of $28.64. Wise received $100.80 for a naval stores shipment that was valued at $171.51.\textsuperscript{99} Woodman explains that “those planters and farmers who sold locally to stockkeepers or itinerant merchants could escape the direct assessment of these charges, but since local buyers had no option but to resell through a factor, the price they offered had to include the added expenses.”\textsuperscript{100}

Marketing naval stores could not only be costly, but confusing as well. Until the naval stores developed into a big business within its borders, North Carolina neglected to create a uniform marketing code for these products. For most of the antebellum period there existed only chance consistency in weight and product standards among the several ports that handled naval stores. Once North Carolina attempted at last to bring some order to this chaotic situation, the dealers in Washington, New Bern, and Wilmington proved less than eager to relinquish their virtual autonomy and cooperate with measures imposed by the state. A 1784 state inspection act served as the basis for North Carolina’s naval stores inspection legislation. Because there was no systematic revision of the 1784 inspection act, the additions and amendments over the years created an amorphous inspection code in which some acts applied to some ports, but not others. Under the law the county courts had almost complete control over the inspection system. They appointed the inspectors and designated the places of inspection. Originally, inspectors, upon their appointment, were required to post a five-hundred-pound bond, but the legislature raised it to one thousand dollars. If a complaint was brought against an inspector, he was to be tried by the court and if found guilty the court would replace him. And they could be sued for damages for a period of three years after leaving their post. While serving, inspectors were prohibited

\textsuperscript{99} Receipt for sale of turpentine, July 31, 1855, William B. Wise Papers, Special Collections Library, Duke University.

\textsuperscript{100} Woodman, \textit{King Cotton}, 176.
from holding an office and could not be elected to the General Assembly. Legislation limiting
the number of inspectors per town was revised as the industry grew. An 1805 law restricted the
number of inspectors in any town to six. However, the increased naval stores traffic through
Wilmington soon strained the ability of these six as well as the five to six additional inspectors
who worked in districts around New Hanover County. An 1852 law permitted the New Hanover
County Court to appoint eight or more inspectors for Wilmington. In 1831 an earlier law
limiting the appointment of Wilmington inspectors to one year was revised to allow them to
serve two-year posts. In most cases, however, inspectors were reappointed; between 1842 and
1860, the term for Wilmington inspectors averaged slightly less than six years.101

The appointments could prove to be very lucrative. Inspectors did not receive a salary,
but were paid a commission for each barrel they inspected. The usual fee was 2¢ for a barrel of
tar, 2.5¢ for each barrel of pitch or turpentine, and ten cents for each certificate of the number
and quality of the barrels they inspected. In 1858 the eleven Wilmington inspectors received an
average of $1,176 in fees, one making as much as $2,265 and another only $410, still a living
wage for this time.102 With the promise of such profits at stake, many inspectors competed for
business through newspaper advertisements. In 1844 C. B. Morris posted a notice advertising
that he had “lately been appointed Inspector of Naval Stores, and respectfully solicits a share of
patronage from his Country friends and the public generally.”103

Inspectors employed relatively arbitrary standards in their duties because the legislature
provided only vague guidelines. They examined barrels to determine how free the product was
of dirt, wood chips, bark, straw, leaves, and water. They also decided if the raw turpentine was

101 Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861”

102 Ibid., 161-165, 171-173.

103 “Notice,” Wilmington, North Carolina Journal, 30 May 1845.
“hard” or “soft,” hard being the scrape removed from the face and soft the gooey resin dipped out of the box. The standards for soft and hard gum were well established. However, barrels containing a mixture of hard and soft turpentine were more difficult to grade. Typically, hard turpentine sold for half the price of soft, so unscrupulous producers mixed soft and hard gum in hopes that the mixture could be sold as soft. Others mixed hot water, scrape, and dip to achieve the same result. In such cases inspectors had few guidelines by which to judge the quality, a situation that often led to disputes between buyers and sellers. Inspectors also checked to see that barrels were branded with the producer’s initials. Inspections were valid only for twenty days before export. If the barrels sat for longer, they had to be reinspected to determine if exposure to the sun’s heat had damaged the material or made it more viscous causing it to leak from the barrels.104

Contributing to the confusion over grades was the inconsistency in the size of the state’s turpentine barrels. The barrels used in the northern counties and at Washington and New Bern weighed 280 pounds gross, but those shipped through Wilmington weighed 320 pounds gross. Although the resulting complication created in the export market by this situation was recognized early, neither region would conform to the other’s standard. One writer to the New Bern Carolina Centennial, who believed Wilmington’s standards should become universal, wished “to impress on the minds of the Turpentine makers, who look to this place for a market, the necessity of paying more attention than they usually do to the quality and thickness of the Staves and strength of the Hoops, as well as to the size and proper proportion of the barrels, so as to raise the reputation of our Inspection to an equality with that of Wilmington.”105 Against this writer’s wishes, the state legislature, in 1846, passed a law calling for all turpentine barrels to weigh 280

105 Ibid., 177.
pounds gross, the northern county standard. The same law also required that the barrels of soft
gum to be sealed with twelve hoops and branded with an “S” and those with hard fastened with
ten hoops and branded with an “H.”106 There was to be no mixing. Despite the new law,
producers felt little obligation abandon familiar standards. Not only did the act impose no
penalty against producers who did not conform to the legal standard, but Wilmington marketers
agreed to continue accepting 320 pound barrels. At worst the inspector could condemn
fraudulent turpentine and keep it off the market. Inspectors, however, faced a steeper penalty.
They could be fined fifty dollars for each offense of deceitful work. Turpentine dealers in the
city objected to the new smaller barrel size. Because freight was paid per barrel, regardless of its
size or weight, a smaller size would require more barrels and would bring a rise in freight costs.
In response to this situation producers, inspectors, and dealers decided to ignore the law and set
out to develop their own code or rules and standards. In May 1847, a month before the state
regulations were to take effect, the Wilmington dealers drafted their own regulations. They
called for a 320-pound barrel, turpentine to be brought to market at the producer’s expense, the
seller and producer to split the cost of inspection, and penalties for substandard packaging.107
The three parties also refused “to compromise for fraudulent mixture as heretofore, that we deem
chips, straw, billets of wood, limbs, dirt, &c., as a fraudulent mixture, and that we shall abide by
the strict letter of the law in all such cases.”108 But despite Wilmington’s domination of the
turpentine trade, the 280-pound barrel was more reasonable for the export market. Because the
northern counties had first supplied the bulk of the turpentine trade, the New York market had
established their 280-pound barrel as the standard trade weight and continued to do so. After ten

106 Ibid., 185.

chaotic months of dual barrel sizes and price scales, the Wilmington dealers, in 1849, finally submitted and accepted the smaller barrel.\textsuperscript{109}

During the antebellum era, naval stores production, especially turpentine manufacturing, grew into a large-scale business dominated by a wealthy class of entrepreneurial producers who required the services of factorage houses to financially sustain their businesses as well as consistent quality standards to ensure their products' marketability. In the late eighteenth and early nineteenth centuries naval stores production languished as a marginally profitable business which no state, save North Carolina, wanted. Prevented by its poor soils from participating in the cotton boom that other southern states enjoyed, North Carolina's economic development stagnated through the 1830s, earning it the unfortunate distinction as the "Rip Van Winkle State." But as demand for turpentine outstripped that of tar and its price persisted at relatively high levels, spirits developed, in a sense, into a substitute for cotton which attracted the attention of some of the state's wealthier men. Their ability to construct their own stills, coupled with transportation improvements, permitted the industry to expand into previously inaccessible areas of southeastern North Carolina. The growth and prosperity that turpentine production brought many North Carolinians rested, however, on the backs of black slaves who performed the particularly strenuous work the industry required. The conditions under which they and the white piney woods inhabitants lived represented a distinctive way of life for slaves and poor southern whites.

\textsuperscript{108} "Turp—The New Law."

\textsuperscript{109} In 1855 it was agreed that the purchaser would pay the inspection fee, which was lowered to one cent per barrel. Although producers were pleased to be freed of this expense, in some cases it could bring the inspector's interest too close to the merchants, a situation that raised suspicion among many producers. Percival Perry, "The Naval Stores Industry in the Ante-Bellum South, 1789-1861" (Ph.D. diss., Duke University, 1947), 190-193; "Notice to Dealers in Turpentine & Tar."
Southerners—poor whites, small piney woods farmers, and slaves—who occupied the antebellum pine forest and labored in some capacity in the turpentine industry, all lived an existence different from that of most southerners engaged in agriculture. Poor whites, who lived a relatively isolated and subsistence-based existence in the pine barrens, either harvested small quantities of gum, which they sold for finished goods or food, or worked on an irregular basis for larger producers. Other, more middle class whites worked on a somewhat larger and more regular schedule to produce turpentine for the market, sometimes with the help of several slaves. Unlike the piney woods whites, however, large naval stores operators often did not reside in areas quite so isolated, but rather close by small population centers or at least near major transportation routes. They lived lives more similar to large plantation owners than other southern whites who produced on a smaller scale with their own labor. Because big producers came to dominate the industry, slaves performed the vast majority of labor. For them, the expansion of naval stores manufacturing after 1830, the various procedures involved in harvesting turpentine, the size and location of the turpentine forests, and the ways that these three factors effected slave management practices created a distinct “work and . . . manner of life.”¹ In fact, turpentine slaves endured harsher working and living conditions than bondsmen on a typical agricultural plantation.

¹ William J. Parham to James R. Grist, May 1, 1854, James Redding Grist Papers, Special Collections Library, Duke University.
Poor whites who lived in the pine forest often engaged in turpentining in some way, whether producing small quantities on their own or laboring for a large producer. Unfortunately, as Percival Perry explains, little is known of the smaller-scale producers. Illiterate for the most part, they left scant written record. It is known, however, that the few white dwellers of the piney woods lived in near isolation. The longleaf pine prefers light, sandy soil and a clay subsoil. These soil conditions could not sustain agriculture and, consequently, made settlers bypass the pine barrens. Any farmers who attempted to grow cotton on land that formerly grew only longleaf pines experienced a decline in yield by over fifty percent from the first year to the third.²

Mid-nineteenth-century travelers commented on the dearth of inhabitants in the region. When reporter David Hunter Strother (pen name Porte Crayon) turned from the main road to explore the countryside, he could not “resist the feeling of loneliness that creeps over one on entering these silent forests, or to repress a sentiment of superstitious dread as you glance through the somber many-columned aisles, stretching away on every side in interminable perspective.”³ Olmsted described the road which he traveled upon in the same region as “a narrow opening through a forest of long-leafed pine.” The pine branches, fully tipped with needles, formed a dense canopy that shaded the forest. “In ten miles,” he claimed, “I passed half a dozen cabins, one or two small clearings, in which corn had been planted, and one turpentine distillery, with a dozen sheds and cabins clustered about it.”⁴ Still another traveler reported that


one could journey for a day anywhere in the region between Wilmington and Raleigh and not
pass more that one or two houses. Signs of life and development reportedly increased as one
approached the Wilmington to Weldon Railroad. Yet even there William C. Corsan, an
Englishman touring the Confederacy in 1862, found the countryside along the railroad
“depressing.” “Low swampy levels, intersected with turbid streams,” he explained,” were
followed by long stretches of poor, sandy, monotonous country, covered with pitch pines, and
destitute apparently of inhabitants.”

Poor whites occupied the unwanted clay bottom lands and sand-hills. Known by other
whites as vagabonds, clay eaters, dirt eaters, tallow-faced gentry, crackers, and sandhillers, they
had the reputation for being lazy, ignorant, and hard-drinking. Across the South, from the
Carolinas through the Gulf South, they either occupied an empty log cabin with the owner’s
consent or constructed a log hut on land on which they squatted. The infertile land was of such
low value that poor white families could, with little harassment, find small tracts on which to
live. Here they worked small garden plots and did occasional odd jobs on neighboring
plantations. Their houses often consisted of rude log cabins furnished with just a few chairs, a
bench, one or two beds, a corner cupboard, an oven, and a skillet and frying pan. In their garden
they grew corn, sweet potatoes, peas, collards; their hogs foraged for themselves in the forest.
They supplemented their diet with such game as they could shoot in the forest—wild hogs, deer,
wild turkey, squirrel, raccoon, and opossum. They probably suffered from hookworm disease,
which might explain their reputed laziness and habit of eating dirt.

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4 Frederick Law Olmsted, *A Journey in the Seaboard Slave States* (New York: Dix &
Edwards, 1856), 326.

5 Dugall McMillan to *Southern Cultivator*, 14 April 1846, *Southern Cultivator* 4
(November 1846): 122.

6 W. C. Corsan, *Two Months in the Confederate States* (Baton Rouge: Louisiana State
University Press, 1996), 68.
Historian Bill Cecil-Fronsman argues that “Common whites did not . . . live in a purely subsistence economy in which they never bought or sold anything.” Bradley Bond agrees that piney-woods people did not live in complete isolation or by self-sufficiency, but participated in the market economy. Most used the market to acquire finished goods and probably to supplement the grain they grew. To acquire the money for what they needed to buy, small farmers produced crops for the market economy or engaged in home manufacturing. In the piney woods turpentine production often provided a family of small means the only staple they could produce from the sandy pine land. Despite little capital, the father and older boys could still cut boxes and chip while the wife, girls, and younger boys dipped. Such a family operation could turn a profit—even if it had to rent the boxes, buy the barrels, and pay to have the product hauled to the market or to a larger operator who would buy the gum. Edmund Ruffin observed that white families living in the piney woods relied almost solely on tar and turpentine for a marketable product. They cleared only small patches for cultivating sweet potatoes, the only crop that grew well in the sandy soil.

Piney woods folk not only produced naval stores themselves but worked for large operators as well. At Richlands Plantation, for example, poor white families aided with fire

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prevention. With insurance impossible to obtain for such a combustible business, the only protection from fire was for piney woods whites to police the forest and extinguish any flame as soon as possible. Log cabins in which the families lived dotted the expansive forest of twenty thousand acres. They lived rent-free and could cultivate as much land as they chose, which was rarely more than a garden. Typically the women worked their plot and raised children while the men hunted and fished and the children gathered wild berries. In return, these families rendered several services to the plantation, most importantly guarding against fire. Whenever fire broke out, it was the families’ responsibility to extinguish it. If flames got out of control, they were to blow horns to summon the other families in the forest to assist. Their secondary task was to tend the plantation’s livestock which grazed loose in the forest. Once a week they provided salt and care to the cattle herd, and each night they drove the sheep into a pen for protecting from predators. The white families also cared for the plantation’s bees and gathered the honey for the big house. When the plantation’s roads required repairs, they performed the work. To earn cash they sold their game, poultry, and berries to the plantation. Avirett reported that these poor whites kept to themselves. “They never mingle with the more thrifty white people,” he explained, “while the negroes on the estate look down upon them, calling them, most disdainfully, ‘poor white trash.’”10

Travelers through the piney woods also spoke despairingly of its white residents. Edmund Ruffin described them as “generally poor and indolent” despite ample opportunity for profit from naval stores.11 Strother described their homes as “little better in appearance than the huts of our Western borders.”12


with a cypress bucket, fodder stacks, consisting of corn leaves held above the ground by tall poles, three well-protected sweet potato hills, and empty gourds used for martin houses. Most yards had fruit trees or a scuppernong grapevine. Strother characterized the people who lived these homes as lazy and thieving. As an example of a typical piney woods family, he reported a domestic fight which he had witnessed in which a woman chased her husband around the yard yelling and beating him with a broom stick. "It seems," Strother recounted," that the man having got through the proceeds of the last sale of turpentine, instead of gathering more, as he was ordered, had robbed two of madam’s sitting hens and sold the eggs, the proceeds whereof he had invested in whisky."13

Where Strother described the piney woods people’s backwardness with lighthearted amusement, Olmsted delivered a scathing criticism of them, painting them as “entirely uneducated, poverty-stricken vagabonds.”14 “They are poor,” he wrote, “having almost no property but their own bodies; and the use of these, that is, their labor, they are not accustomed to hire out statedly and regularly, so as to obtain capital by wages, but only occasionally by the day or job, when driven to it by necessity.”15 He observed that piney woods whites commonly squatted on a plot where they built a log cabin which they never bothered to seal on the sides. They cultivated a little corn, potatoes, and soybeans and owned a few hogs which lived in the forest. The men spent most of their time hunting.16 “If they have need of money to purchase clothing etc., they obtain it by selling their game or meal. If they have none of this to spare, or an insufficiency, they will work for a neighboring farmer for a few days, and they will usually get

13 Ibid., 747.
14 Olmsted, Journey in the Seaboard Slave States, 348.
15 Ibid.
16 Ibid., 348-349.
for their labor fifty cents a day, *funding themselves.*"\(^{17}\) However, Olmsted added, farmers did not like to hire them because they could not be relied upon to finish a job or perform it as directed. They also could not be driven to work as fast and as hard as slaves.\(^{18}\) In fact, Olmsted concluded that slaves "are superior in every moral and intellectual respect to the great mass of the white people inhabiting the turpentine forest."\(^{19}\)

Small, independent farmers and turpentiners occupied a slightly higher status in piney woods white society, but as Cecil-Fronsman explains, "the line between poor whites and their more prosperous yeoman neighbors was never rigid."\(^{20}\) Many small producers lived in cabins, although better constructed than those belonging to the poorer whites, and some inhabited framed houses. Their houses still had no glass windows, but did contain more abundant furniture than those of the poorest classes; their yards included a vegetable garden with collards. These small piney woods farmers also owned a few dogs, more hogs, raised more corn than the poor whites, but cultivated very little in way of staple crops. Their property holdings, which in some cases could be surprisingly considerable, consisted mainly of slaves. One small producer worked three slaves, at least one he hired. Because of his farm's poor soil he grew only a little cotton, just

\(^{17}\) Ibid., 349.

\(^{18}\) Ibid., 349-350.

\(^{19}\) Ibid., 348. In Alabama the poorer class of piney woods whites was "distinguished alone for their ignorance and poverty, living almost entirely by the rifle. . . ." The introduction of the turpentine industry, producers in that state hoped, would provide "a means of employment for this class and thus allowing them not only the necessities, but the comforts of life, including schools." Turpentine, they argued, could create "an industrious, well-fed and well-clad people, adding not only to their own comforts by their labor, but elevating themselves into a sober, moral, and intelligent class of citizens, contributing in no small degree to the strength and wealth of the State." "The Southern Pine Forest—Turpentine," *De Bow's Review* 18 (February 1855): 189.

enough for his family to make cloth for their own clothes, and instead concentrated on turpentine.\footnote{Olmsted, \textit{Journey in the Seaboard Slave States}, 350; Robert Russell, \textit{North America: Its Agriculture and Climate} (Edinburgh: Adam and Charles Black, 1857), 160-161.}

Large, specialized operators, whose numbers grew sharply during the three decades after 1830, produced far more turpentine than did yeoman farmers. James Avirett of Richlands Plantation in Onslow County, for example, produced more turpentine than nearly any one else in the business. Although Avirett raised tobacco, rice, sorghum, cotton, wheat, oats, rye, and corn, as well as several hundred head of hogs and sheep, his thirty-thousand-barrel-a-year turpentine operation consumed the largest portion of Richlands' labor. The plantation's twenty-two thousand-acres of pine forest provided enough boxes to keep busy 125 slaves, 2 turpentine distilleries, and several cooperage shops. Born in 1797, John Avirett was descended from German Huguenots who settled in the area in the 1740s and who had become prominent enough by 1791 to host George Washington during his southern tour. As a powerful member of the planter class, Avirett served a term in the state senate and nearly twenty years as Onslow County's sheriff. In his forties when turpentine demand swelled, he used the industry to make his short-lived fortune. His expansive operation lay on the stage road fifty-eight miles north of Wilmington and forty-two miles south of New Bern and occupied level terrain except for a creek that cut through the fields. An avenue of elms, 1,200 feet long and 40 feet wide lead to the big house, which rested on a five-foot high brick pillars. A piazza extended around his three-story residence whose large windows opened to the floor. The out buildings included a kitchen, which was connected to the house by the piazza, three smoke houses, a flour house, a cotton house, and a large storage house. Located to the rear of these buildings were the chicken coops that John Avirett's son James explained, were "well fenced in, secure from the egg-sucking cur of the negro quarter, as well as from mink or weasel at night." Near the poultry yard was a one-acre...
vegetable garden and a weaving room where slaves wove the cotton and woolen cloth used on the plantation. Beyond the quarters was the Richlands’ ginhouse, with shed rooms built around it where carpenters worked. Down the hill from it stood a storage building for groceries and wagons and a corral for the one hundred, fifty horses and mules used on the estate.\(^{22}\)

James R. Grist was another representative large producer, who, like Avirett, lived in relative grand style for the area. While traveling through North Carolina in 1857 the only object that caught Strother’s eye in Washington was the Grist residence, located “at the end of the main street, with beautifully-improved grounds.”\(^{23}\) In the early 1850s Grist of Washington, North Carolina, entered the turpentine business with his father in Beaufort County but later moved to areas near the Cape Fear River and South Carolina. Grist became a wealthy and influential businessmen in eastern North Carolina. He assisted the Banks brothers’ steamboat company by endorsing their loans and using his influence to convince a Wilmington factorage house to use the Banks to carry their freight. Out of gratitude, the Banks in 1854 named their new steamer the James R. Grist.\(^{24}\)

The experiences of Sarah Hicks Williams offers insight into the life of women married to large turpentine producers, like Grist and Avirett. Sarah Hicks of New Hartford, New York had known Benjamin Williams for five years when he first proposed marriage in 1850. Although she was certain of his affection for her, she disliked two characteristics about him—“his owning of slaves” and his “not being a professed Christian.”\(^{25}\) However when Williams renewed his offer


\(^{24}\) Pervical Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861” (Ph.D. diss., Duke University, 1947), 95, 523.
three years later, Sarah, for unknown reasons, agreed to overlook these qualities and accepted.

An ambitious North Carolina doctor, Williams had served in the state legislature, invested in both forest and cleared land, and operated a turpentine operation about seven miles from his Greene County home. After moving to her new home in the North Carolina pine barrens during the fall, she was struck by the region’s isolation and lack of development. During a twenty mile journey from her home to the town of Wilson, she did not “think we passed over a half dozen houses. The road on both sides was bounded by woods, mostly pine, and the trees are much taller and larger than ours [in New York].”

She was also surprised to find that North Carolinians “live more heartily” than northerners, always serving two or three different kinds of meats for breakfast and dinner. Although the portions were more plentiful than those issued to the slaves, Sarah’s diet, which included corn bread, biscuits, and sweet potatoes, resembled that of the bondsmen who labored at her husband’s turpentine operation. But while the slaves probably received salt hog meat, the Williams enjoyed fresh pork prepared in traditional Carolina fashion. “Red pepper,” she observed, “is much used to flavor meat with the famous ‘barbarcue’ of the South and which I believe they esteem above all dishes is roasted pig dressed with red pepper and vinegar.” The Williamses also ate peaches and apples when they were in season.

Sarah occupied her time attending church, receiving visitors or visiting in other’s homes, and helping with housework and even management of the plantation. She shared the doctor’s two-story, wood frame house with her mother-in-law, who acted as mistress of the home. Sarah had her own room, furnished with her belongings, in which she could read and write in privacy.

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25 Sarah F. Hicks to Parents, 7 March 1853, Sarah Hicks Williams Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.

26 Sarah Hicks Williams to Parents, 7 November 1853, Ibid.

27 Sarah Hicks Williams to Parents 10 December 1853, Ibid.

28 Sarah Hicks Williams to Parents, 10 October 1853, 17 November 1853; 10 December 1853, Ibid.
When not engaged with church or visits, she assisted the doctor's mother in sewing cloths for the slaves who worked about the plantation. Sarah explained that although many plantations "keep a seamstress to do this, . . . Mother Williams has always done it herself with the assistance of her daughters when they were home." They did not, however, sew for slaves who labored at the distant turpentine operation. Sarah persisted in her opposition to slavery, but admitted that she found "no unkind treatment of the servants, indeed I think that they are treated with more familiarity than many northern servants." The slaves' consistent presence "in the parlor + in your room, + all over" unnerved her.

After a couple of years in North Carolina, Sarah gained more responsibility for her home and the plantation, especially when her husband was absent on his frequent trips to tend to his turpentine operation. During his absences, "I see to his business," she explained in 1855. "I am up before sunrise to give out the keys, he told me how to order, + sometimes I steal Mother's thunder I watch, and see what her hands are doing + then I order ours as if I knew it all." She played an increased role in the plantation's management when she moved with her husband to south Georgia in the late 1850s. By 1859 her responsibilities had become so great that she complained "my mind is so filled" with the care of the slaves. She was in charge of "sixteen here [Carleton County], + five up in Ware Co + over thirty getting Turpentine though these latter do not come to me for clothes, or food, still they call this their home + several of them always are here Sundays." She also tended sick slaves who labored at the house as well as those who worked for the turpentine operation several miles away. In October 1860 she was not only

29 Sarah Hicks Williams to Parents, 10 December 1853, Ibid.
30 Sarah Hicks Williams to Parents, 10 October 1853, Ibid.
31 Sarah Hicks Williams to Parents, 22 May 1855, Ibid.
32 Sarah Hicks Williams to Parents, 25 March 1859, Ibid.
tending to her sick cook, but "Jim was sent home from the still half sick, so now I have two to take care of."\textsuperscript{33}

A foundation of slave laborers like Jim supported the turpentine boom of the 1830s, '40s, and '50s.\textsuperscript{34} As larger producers entered the business, adequate labor became a constant concern. Correspondence between members of the Grist family and their overseers is filled with frequent complaints that "we barely have enough to work the business." When in February 1861 three hired hands failed to work out, the overseer explained that he would "manage to work the business with the hands I have, but would be more than glad if you could hire me 4 or 5 hands at once for balance of this year + the next."\textsuperscript{35} Producers could either hire slaves or use their own, and many chose to do both. Mining, lumber, transportation, and turpentine concerns all made considerable use of each kind. Such combined work forces were more common in southern industry than in agricultural enterprises.\textsuperscript{36} In 1859 Ben Williams employed "about thirty or thirty-five hands besides his own."\textsuperscript{37} Hired slaves were vital to the Grist Alabama operation, which n 1851 worked thirty-five slaves belonging to six different owners.\textsuperscript{38} Hiring slaves enabled men of moderate means to enter the expanding turpentine business by freeing them from making heavy initial investments in slave laborers. It was common for producers who were

\textsuperscript{33} Sarah Hicks Williams to Parents, 21 October 1860, Ibid.


\textsuperscript{35} James R. Grist to Father, 4 February 1851, Grist Papers.


\textsuperscript{37} Sarah Hicks Williams to Parents, 7 November 1859, Williams Papers.

\textsuperscript{38} Benjamin Grist to Allen Grist, 21 January 1851, Grist Papers.
starting in the business to purchase or rent several hundred to a thousand acres and hire slave laborers. After a few years they could make enough money to buy slaves and possibly a still. The ability to hire slaves strengthened the institution by increasing small slaveholders’ and nonslaveholders’ dependence on the labor of bondsmen.\textsuperscript{39} One producer, however, discouraged using hired slaves, “for they will invariably put more mean tricks into the heads of your own negroes than they ever knew before.”\textsuperscript{40}

Both purchased and hired slaves in the naval stores industry lived distinctive lives from bondsmen laboring in agriculture. Historians have offered two interpretations of the lives of industrial slaves. Ronald L. Lewis and Charles B. Dew question whether industrial slavery was “the most brutal phase of the regime.”\textsuperscript{41} Dew, who studied slaves in the iron foundries in Virginia, and Lewis, who examined slave labor in the coal and iron industry in Virginia and Maryland, argue that Starobin’s generalizations do not apply to life and labor at the forge. Lewis shows how industrial slaves challenged their masters’ authority and consequently improved their quality of life by negotiating extra rations, gaining more autonomy, and receiving payment for work performed beyond their normal tasks. Similarly, Dew’s work, especially his Bond of Iron, demonstrates that in iron manufacturing the slaves’ skill and determination, combined with southern iron producers’ desire to maintain an appeased, and thus more reliable, labor force, created a middle ground in which those in bondage could exercise some control over their working conditions, family affairs, and livelihoods. Lewis and Dew convincingly substantiate their conclusions about iron manufacturing and coal mining; these findings may be valid for

\textsuperscript{39} Pervical Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861” (Ph.D. diss., Duke University, 1947), 42; Starobin, Industrial Slavery, 135.

\textsuperscript{40} G.W. Perry, A Treatise on Turpentine Farming, (New Bern, NC: Muse & Davies, 1859), 120.

\textsuperscript{41} Ronald L. Lewis, Coal Iron and Slaves: Industrial Slavery in Maryland and Virginia, 1715-1865 (Westport, CT: Greenwood Press, 1979), 8.
cotton mills, salt works, and the chemical industry as well. But they do not hold entirely true for
the naval stores industry, an enterprise that operated in isolated forests and was less “industrial”
than iron manufacturing.42

Their experiences conform more to Robert S. Starobin’s generalized description of
industrial slavery.43 Industrial slaves, he argues, were men, although a few women and children
also labored in such enterprises. The majority of industrial slaves lived not in large cities but in
rural areas, small towns, or on plantations. Generally their employer owned them; only one-fifth
were hired. But in extractive industries, such as turpentine making, an integrated workforce of
owned and hired slaves and a few white laborers became common. As with agricultural slaves,
overseers or drivers commonly managed industrial slaves, not their owners or employers.
However, Starobin writes that “working conditions were usually worse than those for laborers

42 Ibid., 8; Charles B. Dew, Bond of Iron: Master and Slave at Buffalo Forge (New York:
W. W. Norton, 1994); also see Charles B. Dew, “David Ross and the Oxford Iron Works: A
Study of Industrial Slavery in the Early Nineteenth-Century South,” William and Mary
Quarterly, 3d Ser., 31 (April 1974), 189-224; Charles B. Dew, “Disciplining Slave Ironworkers
in the Antebellum South: Coercion, Conciliation, and Accommodation,” American Historical
Industrial Slave in the Old South,” in Region, Race, and Reconstruction: Essays in Honor of C.
Vann Woodward, ed. J. Morgan Kousser and James M. McPherson (New York: Oxford
University Press, 1982), 199-239.

43 Such a study supports Ira Berlin and Philip D. Morgan’s argument that “the legacy of
slavery cannot be understood without a full appreciation of the ways in which slaves worked.”
These historians maintain that, because slavery was above all an institution of forced labor and
slaves spent most of their time at work, studies that focus on slave families, religion, and culture,
while important, describe only a portion of the bondsman’s life. If work was the central
component of the slaves’ existence, it should become the center of scholarship on slavery. New
studies, Berlin and Morgan argue, should examine the various labor requirements and the
numerous and complex factors that shaped slave work and should consider “the requirements of
particular crops and crafts, which shaped the nature of the workforce, the organization of
production, and the division of labor.” These factors should be studied in relation to the
geography of the production site, the size of the slave labor force, the proportion of slaves, free
blacks, and whites in the labor group, and the system of slave management used. Ira Berlin and
Philip D. Morgan, “Labor and the Shaping of Slave Life in the Americas,” in Cultivation and
Culture: Labor and the Shaping of Slave Life in the Americas, ed. Ira Berlin and Philip D.
engaged in southern farming, since industrial development often demanded longer and harder working days than did plantation agriculture.” Starobin argues that “the tendency to drive industrial slaves to the utmost, and to feed, clothe, and shelter them at subsistence levels, as well as the inadequate medical knowledge of the time, contributed to a tragic incidence of disease and fatality in virtually all industrial occupations.” “The rigors of bondage and the hazardous nature of southern industries,” Starobin concludes, revealed that the conditions experienced by industrial slaves were very different from those of plantation laborers.

More than anything else, the longleaf pine’s seasonal growth cycle shaped the turpentiner’s work schedule. In large trees the center, dark-colored wood, the heartwood, is physiologically dead. Its cells no longer function and it does not grow. Sapwood, a younger and lighter colored wood, surrounds the heartwood and facilitates the movement of nutrients and water between the roots and the needles. A thin layer of cells called cambium surrounds the sapwood which is in turn encased in a layer of inner bark called phloem. Trees grow each year by the division of cambium cells which create a layer of new wood called xylem. All pine trees contain resin ducts, tiny tubes that run horizontally and vertically, creating a network in the sapwood that extend from the inner layer of bark to a depth of one inch or more into the tree. When the tree reaches maturity, these passages become lined with a tissue, epithelium, from which resin is secreted. The resin serves as a protective outer coating in case the bark is damaged and falls away from the tree. In such instances resin oozes from the ducts over the wound to create a protective layer that diseases and insects are unable to penetrate and thereby provides time for the bark and cambium layer to heal. Resin is not sap. The epithelium cells manufacture resin only when required to protect the tree; it does not circulate through the tree as sap, a water-based solution that does. Resin ducts are particularly large and abundant in longleaf

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44 Starobin, Industrial Slavery, 11-12, 36, 37, 63, 138.
pines. The intersection of vertical and horizontal ducts may number more than fifty million per cubic meter. Moreover the gum of this species does not harden as rapidly when exposed to air and water and flows more freely over the wood than in other southern pines.45

The longleaf's resinous quality was widely recognized in early America. Naturalist F. André Michaux reported that its "resinous matter, which is abundant, is more uniformly distributed than in the other species..."46 He argued that, whereas the loblolly pine afforded "turpentine in abundance," it did so "in a less fluid state than that of the Long-leaved Pine."47

When beginning a turpentine operation, producers attempted to identify pine acreage that they believed would yield the most abundant resin. G. W. Perry, a producer from Craven County, North Carolina, recommended that turpentiners concentrate their efforts on healthy, straight trees with large tops. In 1855 turpentine producers in Alabama were informed that thick stands would not produce as much turpentine as those more sparsely placed and therefore free to grow with less competition.48 Another producer agreed that "the best trees are young, thriving, on pretty


47 Ibid., 125.

good soil, of quick growth, having the most sap-wood. If found on low, level, or moist lands, they will yield all the better. Dry seasons are unfavorable for a large crop of turpentine, and, of course, trees on lands that suffer easily from drouth are least profitable for market. Other observers also commented on the importance of soil quality. Perry explained that the sandy and gravely land was the best for making turpentine because land with a good clay foundation produced straighter trees. He argued that poor, moist soil grew less resinous trees that would fill the boxes only slowly. And he was sure that mountainous or hilly land would never make much turpentine. One report observed that “the soil best adapted to the production of the turpentine pine should be of light and porous nature, with a subsoil of clay, capable of retaining moisture.”

Along with soil type, producers realized precipitation influenced resin production. Perry reported that during dry periods trees produced less resin but that excessively wet periods could have a similar effect. Turpentine ran best with moderate ground moisture. In areas where water drained slowly, Perry recommended ditching and furrowing before beginning a turpentine operation. Properly prepared land, he argued, would yield twice as much turpentine.

Once producers had selected a likely forest, beginning in November and ending around the first of March, workers performed the first and most important procedure, boxing. During these cooler months the sap was stored in the roots and would not rise to the needles until spring, so the procedure did not immediately interfere with the pine’s vitality. Ideally hands cut boxes during November, December, and January so the tree could have more time to adjust to its wound before the resin began to flow in the spring. Using a special ax with an elongated head,

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50 Perry, Treatise on Turpentine Farming, 18, 84, 134, 154.

51 “Turpentine Product of the South,” 61.

52 Perry, Treatise on Turpentine Farming, 9-10, 20.
workers cut a hole or box, as it was called, eight to fifteen inches wide and three to four inches deep, at the base of a pine tree trunk. The boxes were cut down at an angle and could hold one to two quarts of raw turpentine. Laborers had to use care when cutting boxes. First they decided the number of boxes to cut into the pine, which depended on the tree's size. Pines less than one foot in diameter could not support a box as readily as larger trees could. If smaller ones were to be tapped, they could have only one small box; a full quart-size box would cause the tree to fall or to decay prematurely. In no case were workers to allow the box to extend deep into the tree's heart. Larger trees could support larger boxes, and trees of great size could support multiple boxes, usually around three. One Harnett County man believed that very large trees could hold as many as twenty boxes. In such cases the ideal placement of the boxes was side by side with four inches of bark between them, with a third or more of the tree's face left uncut for circulation of sap between the needles and the roots. Some producers, instead of cutting all the possible boxes at one time, worked only one side of the tree for five or six years, then back boxed the opposite side when the yield of the old boxes diminished.53

Second, workers had to adapt boxing methods to their employer's particular specifications. Some producers preferred the boxes cut at the swell of the root so they would remain safely away from the heart. For smaller trees the box began six to eight inches from the ground. Other producers found boxes cut as high as eighteen inches from the ground more beneficial. Although increasing the risk that the heart of the tree might be cut, putting the box

farther off the ground insured against rain washing into it. Boxes that sat damp during the winter months could cause disease and decay at the tree's base.

Finally, the position of the box also depended on the configuration of the tree. If a tree leaned, the best location for the box was on the side opposite the direction of the lean. Not only did this side generally have the most prominent root, but it was also the only position that guaranteed a sufficient amount of raw turpentine would reach the box. If a box was located anywhere else on such a tree, the gum would fall outside the box in increasing amounts as the scarred face moved up the trunk with every harvest season. When the shape of the tree permitted, producers found that placing boxes on the north side was beneficial. This protected gum in the box from evaporation caused by the sun's heat and ensured a higher grade of gum, which would produce more spirits.54

Boxing required not only care but strength, skill, and experience. Strong men could be trained to become adequate boxers in several days, and the amount of work performed by box cutters varied with the skill of the worker and the demands of the producer and overseer. All agreed that new hands could not cut as many boxes as experienced ones and that driving them to do so would result in low-quality boxes and inadequate yield from the orchard.55 People planning to enter the business were advised that "beginners will not cut at first more than 50 boxes a day, and there is nothing gained by asking them too high, until they have got well used to the proper shape and size of boxes."56 Producers valued slaves skilled at boxing. In 1851


Grist’s manager reported that he was “cutting boxes with all of the best hands + giting timber + distilling with the ballans I have a good many green hands + they ar hard to learn to cut boxes.”

In 1853 James R. Grist purchased a slave named Dick who was skilled at box-cutting. Dick’s former master informed Grist that he was a potentially “very valuable boy, he is certainly one of the best axe-men I ever saw, but his disposition is too irascible to work any kind of horse or mule.” White managers accepted the idea that “Negroes are generally expert with the axe.”

An experienced laborer was expected to cut 75 to 80 boxes a day or 450 to 500 a week. However, exceptional workers could cut 90 to 100 a day. On one operation the best boxers reportedly cut 125 a day. The number of boxes cut in a day also depended on the number of daylight hours. As days grew longer, workers were usually expected to cut more boxes. The size of the pines and their distance from each other also determined the hand’s task. Because larger trees could support more than one box, laborers could spend more time cutting and less time walking from tree to tree. The distance of the trees from one another also influenced walking time. If trees grew far apart, workers spent a larger portion of their time walking to them. On average an acre contained about 100 boxes.

After the boxes were cut they had to be cornered. Usually performed around the first of March with an ordinary ax, cornering involved removing a one-inch triangular chip from the top two corners of the box. Each corner could usually be cut with two strokes. One gash rose

57 Benjamin Grist to Allen Grist, 21 January 1851, Grist Papers.
58 I. C. Sutherlan to James R. Grist, 27 August 1853, Ibid.
diagonally from the apex of the box and the other rose perpendicularly from the corner of the box. The ax cuts had to be precise, because the angle of the corners guided the gum into the box. While some producers calculated that workers should corner 500 to 600 boxes a day, others reckoned the task at 600 to 800 boxes. 61

Once they had been cornered, the boxes began to fill with gum and had to be dipped. The number of dippings per season varied from four to seven, with more dipping performed during the tree's first two years of harvesting. This operation required a dipper, an instrument with a spade-shaped blade and a handle. The harvester collected gum by thrusting the dipper into one end of the box, pushing it to the bottom, and bringing it up to the opposite side—all in one quick motion. The sticky contents of the box adhered to the flat surface of the dipper. As laborers dipped each box, they carried the gum to one of two buckets. The buckets usually held eight gallons and had bases wider than their tops, making them less likely to spill. A strip of hoop-iron attached to the edge of the bucket served as a scrapper that cleaned the gum off the dipper. When the first bucket was full, the slave carried it to a forty-gallon barrel, turned it upside down, and left it to drain while they went back to fill a second. When the second bucket was full, it took the place of the first. Although dipping was a light task requiring little physical strength, it was a dirty operation that smeared the workers' hands and clothing with gum. 62

Many factors influenced the number of boxes that could be dipped and the consequent amount of gum that could be harvested. Weather conditions, for one, affected the dipping

61 MacLeod, "Tar and Turpentine Business," 14; Schorger and Betts, Naval Stores Industry, 16; "Product of Turpentine at the South," 303; "Turpentine: Hints for Those About to Engage in Its Manufacture," 486.

frequency. Temperature influenced the raw turpentine's consistency and thus the ease and speed with which it could be dipped. In hot weather it had a viscous quality but when the thermometer dropped it stiffened. G. W. Perry explained that "by the continuance of cool weather, the dipper will be hard to get down in the box, and if the turpentine be left therein, it will remain stiff until the return of warm weather in the following spring." Dry weather also affected gum yield.63 The manager of the Grist operation observed that "all of work is going on well but it is too dry for the pines to run well."65 Wet weather also slowed dipping. One producer explained that "an early or backward spring or fall, long drouths, during which the tree almost stops running, or heavy driving rains which fill the boxes with water and float out the turpentine, all have their effect on the number of drippings [sic], which depends otherwise on the frequency and care with which chipping is done."66 Perry recommended that in bad weather, the forest workers be put to assisting the coopers hoop barrels. When it rained continuously one March day in 1856, the coopers at G. I. Germond's turpentine operation in the region of south Georgia and north Florida continued to work in their shop, but the other hands were put to shelling seed corn. Finally, the dippers' task depended on the age of the boxes. Because newer boxes produced more gum than older ones, more time was required for emptying the buckets and fewer boxes could be dipped. Workers could manage dipping 10,000 to 12,000 older boxes and perhaps as few as 8,000 new ones a week.67

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63 Perry, Treatise on Turpentine Farming, 32, 123.
64 Ibid., 116-117.
65 Benjamin Grist to James R. Grist, 17 July 1860, Grist Papers.
67 18 March 1856 entry, Gilbert Isaac Germond Work Journal, Department of Special Collections, George A. Smathers Libraries, University of Florida; Perry, Treatise on Turpentine Farming, 88; "The Pine Forests of the South," 197; Johnson, Ante-Bellum North Carolina, 488; William Kauffman Scarborough, ed., The Diary of Edmund Ruffin, vol. 1, (Baton Rouge:
Because some stands produced more gum than others, which meant the hardest worker could actually bring in less gum, Perry advocated not tasking dippers by the barrel but by the number of boxes. The amount of barrels dipped in a day was not necessarily an indication of a slave's effort. In March 1856 G. I. Germond observed that his "boxes are not filling well," consequently, the seven hands who had been dipping "could not get their task." In fact the amount of gum collected by individual dippers could vary significantly. In 1855 fifteen slaves labored for one week dipping boxes and collected an average of 44.5 barrels of gum. Two collected as much as 48 barrels and one collected only 32 barrels. Like boxing, the size of the task varied with the individual producer. Some expected workers to fill from four to seven barrels with raw turpentine a day. Truly exceptional dippers could fill ten. Of turpentiners who tasked by the box, some found 1,800 boxes a day sufficient, others apparently tasked their laborers as high as 3,000.

Once gathered, producers strove to get their resin, especially the highest quality and most valuable gum, to distilleries quickly before it deteriorated. Virgin dip possessed a thin, oily, transparent quality and produced the highest quality rosin. Every year a tree was worked, the dip became thicker and darker, moving from a light cream color toward an orange. Contemporary observers explained the phenomenon as a result of light wood forming around the box and

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68 Perry, Treatise on Turpentine Farming, 116-117.

69 24 March 1856 entry, Gilbert Isaac Germond Work Journal.

70 Michaux estimated that three thousand trees could yield seventy-five barrels of raw turpentine and twenty-five of scrape a season if they were dipped five or six times. Michaux, North American Sylva, 141; M. Jones to James R. Grist, 30 October 1855, Grist Papers; "The Pine Forests of the South," 197; Johnson, Ante-Bellum North Carolina, 488; Scarborough, Diary of Edmund Ruffin, 52; MacLeod, "Tar and Turpentine Business," 14-15; "Turpentine: Hints for Those About to Engage in Its Manufacture," 487; McMillan to Southern Cultivator, 172.
staining the gum which flowed into it. Because lightwood did not form until the first winter after the box was cut, the virgin turpentine was not discolored. Since virgin dip was much more valuable than gum harvested from older boxes, it was important for hands to keep it separate and best to get it to market quickly.\textsuperscript{71} Spirits evaporated rapidly from the gum, especially in hot, dry weather. Soft gum was the most susceptible to the effects of heat. It was recommended that “as fast as they are filled the dip barrels should be hauled to the still and emptied into it. If left in the woods they lose by leakage, and the quality of the gum for yielding spirits of turpentine is impaired.”\textsuperscript{72} Strother explained that “the produce is carried to market on a sort of dray or cart which holds but two barrels, consequently the barrels are always seen setting about in the woods in couples.”\textsuperscript{73} One strong hand with a wagon and two mules could haul the turpentine dipped by ten hands for an average of three miles and also be able to supply the workers with provisions and empty barrels. Hauling in wet weather could be difficult especially down the muddy cart paths that wound through the pine forest.\textsuperscript{74} An overseer managing an Alabama operation reported that “the ground is so wet we cannot run the wagon to any advantage hence I stop.”\textsuperscript{75}

A pine would bleed only as long as its wound was fresh. Within seven or eight days the gum crystallized at the opening of the wounded resin ducts, and so fresh wounds were required about once a week in warm weather, less often during cooler periods.\textsuperscript{76} Chipping, as this

\textsuperscript{71} “Product of Turpentine at the South,” 304; Perry, \textit{Treatise on Turpentine Farming}, 124; Description of turpentining, Harrington Papers; “The Manufacture of Turpentine in the South,” 453.

\textsuperscript{72} “The Pine Forests of the South,” 197.

\textsuperscript{73} Crayon, “North Carolina Illustrated: The Piney Woods,” 745.

\textsuperscript{74} “Turpentine: Hints for Those About to Engage in Its Manufacture,” 487; Perry, \textit{Treatise on Turpentine Farming}, 110.

\textsuperscript{75} Thomas F. Strikney to Allen and James R. Grist, 26 February 1861, Grist Papers.
operation was called, was done with a hacker or shave, a circular piece of iron with a sharp lower edge and a two-foot handle. It involved cutting the bark away just above the box and extending the cut to the corners or outer edges of the box. Each new chip, located just above the last one, extended the face of the box upwards after each task. With each stroke, the chipper cut a one-fourth inch furrow-like gash through the bark and into the sapwood. A narrow scar, one-half inch up the surface, would suffice, however, the chip length was commonly one inch broad, causing the face in some cases to rise two feet each year. Because each chip was cut at the upper edge of the last one, the oldest orchards contained trees with faces extending up twelve to fifteen feet. When the face reached shoulder height, workers switched to using a puller, a long-handled tool with a metal scrapper on the end, which allowed them to reach the high faces. Perry warned that some hands tried to pull early because it was easier than using the hack. This practice should be discouraged, he argued, because the puller caused the face to rise faster than did the hack. "Hacking," he explained, "is to strike with the tool, and it requires a slight stoop to cut the right quantity, and do it well. I have found it necessary to threaten some hands before I could get them to hack my low faces." Producers sought well-trained workers for the task since the skill of the chippers determined how many years an orchard could be harvested. If the gashes were too deep, the tree's life was shortened; if the cut was too broad, the face would soon rise out of reach and the tree could no longer be harvested. Moreover, producers required that this difficult task be executed with considerable speed. Although some producers calculated that chipping 800 to 1,000 faces a day for average laborers and 1,200 to 1,500 for better workers was standard, others found that 12,000 to 17,000 faces a week were possible for the average chipper. A few

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76 In fact, sixty-seven percent of the total resin flow occurs within twenty-four hours of the cut and tapers off sharply afterwards. Cold weather, 45° F. or below, could either slow or stop gum flow. Brown, *Forest Products*, 184; Description of turpentining, Harrington Papers; V. L. Harper and Lenthall Wyman, *Variations in Naval-Stores Yields Associated With Weather and Specific Days Between Chippings* (Washington, DC: United States Department of Agriculture, 1936), 10, 15.
extraordinary laborers were reported to have chipped 20,000 faces a week. In the most sophisticated operations hands specialized in either dipping or chipping. It was recommended that “the dipping should be done by hands employed for the purpose, and the hackers should continue their work without changing the proper interval between the hackings of each tree.” It was also suggested that chipping be “done by the strongest and most expert hands, these should be kept at it regularly through the season, while women or inferior hands can dip very well.”

Four to six chippings were required to fill a box with turpentine.

The season’s last chipping occurred in mid-October and the last dipping around the first of November. After this, scraping began. Scrape was gum that had hardened to the face, lost much of its spirits in evaporation, and was therefore only half as valuable as liquid gum. It was important to remove the scrape promptly before high winds could cause the pine to sway so violently that the hardened turpentine fell off. Workers used a small blade attached to a long handle to dislodge scrape from the face. They then gathered it in a specially designed box that measured about two and one-half feet square and was open at the top and one end. The bottom of the opened end was supported by the tree and the closed end sat on two constructed legs or sometimes wheels. When collecting scrape, laborers would drag or roll these boxes through the forest, lean the open end against the tree, just below the face, and pull the scrape down into them.


78 “The Pine Forests of the South,” 197.


80 “Product of Turpentine at the South,” 304.
Each box held 100 to 150 pounds of scrape. After the boxes were full of scrape, it was transferred into rosin barrels, pounded in, and hauled to the still. Scrape collecting was usually completed around December or January.  

When the boxes stopped filling and the scrape had been collected, the turpentine laborers' work was still not finished. If new pine forests were to be opened for the next season, the strongest and most skilled laborers began cutting boxes immediately. The laborers who were not boxing cleared grass, pine straw, and tree limbs from the bases of trees and burned the debris. Still others collected the timber needed to make the barrels for the next season. At one operation a tar kiln was fired in mid December when the turpentine work was almost completed. In 1851, De Bow's Review reported that, "like the engagements of a farm-hand, in always finding something needful to be done in every day of the year, and something that should not be neglected; so with the turpentine hand, the whole year has its various demands upon him in their proper season, so that there is no time to spare from his turpentine crop." Similarly, in 1846, a producer writing from Washington had noted that "the hands who tend turpentine have no time for any other business." But if the turpentine production was part of the operation of a traditional agricultural plantation, some laborers were used for work unrelated to turpentine. A sample of operations listed for sale in the 1840s and 1850s indicates that less than half included

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81 MacLeod, "Tar and Turpentine Business," 15; "The Manufacture of Turpentine in the South," 453; "Product of Turpentine at the South," 304-305; Ruffin, "Notes of a Steam Journey," 250-251; Schorger and Betts, Naval Stores Industry, 18; Perry, Treatise on Turpentine Farming, 109.

82 Benjamin Grist to Allen Grist, 21 January 1851, Grist Papers; "Turpentine: Hints for Those About to Engage in Its Manufacture," 488; John Carr to Sir, 15 December 1858, Thomas David Smith McDowell Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.

83 "Product of Turpentine at the South," p. 305

84 McMillan to Southern Cultivator, 172.
any crop land. Of those that did, there was an average of just over 240 acres which could potentially be cultivated. The most common crops grown included corn, peas, potatoes, oats, and wheat. Few operations produced any cotton.\textsuperscript{85} Joining the field hands, turpentine laborers sometimes opened ditches, cleared new ground, trimmed hedgerows, mended fences, and repaired roads. On February 27, 1856 G. I. Germond had three slaves—Dick, Moses, and Adam—getting timber for a pig pin. The next day his slaves cleared a field for planting and burned of another tract. The day after that they burned over another area.\textsuperscript{86} James Battle Avirett, whose father owned Richlands Plantation, wrote that only “by joining these two industries, the [turpentine] orchards and the plantation,” could the plantation be maintained.\textsuperscript{87}


\textsuperscript{86} 27, 28, and 29 February 1856 entries, Gilbert Isaac Germond Work Journal.

\textsuperscript{87} Avirett, Old Plantation. 68-69 (quotation on page 69).
Certainly, distillers, who were the most skilled turpentine workers, were too busy for such tasks. To insure a high-quality product, they distilled the gum and scrape as quickly as possible. Distilleries were often two-story structures. A wood or occasionally an oil furnace was at ground-level, and a copper still sat above it on the second floor. They were located near streams, which provided water to cool the condensing tube, or worm—the long, coiled tube in which the spirits of turpentine were transformed into a liquid. Although these stills ranged in capacity from five to thirty barrels, most had a capacity of between ten- and twenty-barrel capacity. To charge or fill them, workers brought barrels of gum to the second floor, often by rolling them up a ramp, and the distiller removed the head of the still and dumped in the gum. He then replaced the head, connected it to the condensing tube, and put the tube in its tank to cool while the turpentine distilled. When everything was ready, he fired the furnace. Generally the distilling process lasted two or two and one-half hours. The first turpentine to flow from the worm had a green tint from the oxidation of the copper, even when the still was fired regularly.88 The frequency with which a still was fired depended on the volume of gum coming from the woods. At the peak of the season the operator of the Grist Alabama operation had “to run my still three times a day keep up.”89

Because of the primitive nature of mid-nineteenth-century distilling technology, still operators faced significant challenges in successfully processing a charge of gum. Distillers first needed to bring the still temperature to a steady, gradual rise to ensure that the gum heated

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88 Olmsted, *Journey in the Seaboard Slave States*, 344; “The Pine Forests of the South,” 197; “Production of Turpentine in Alabama,” 561; Although Tatum is describing experiences at a pine woods distillery in the early twentieth century, the still was the same as those used in the antebellum era. Fitzhugh Lee Tatum, interview by Ruth L. Stokes, 19 October 1974, transcript, Southern Oral History Program, Southern Historical Collection, The University of North Carolina at Chapel Hill, 1; Panshin et al., Forest Products, 453; Schorger and Betts, Naval Stores Industry, 29; A. David King, III, interview by author, notes in author’s possession, Georgia Agrirama, Tifton, GA, 14 June 1996.

89 Benjamin Grist to James R. Grist, 7 July 1860, Grist Papers.
evenly and distilled thoroughly. Heating the kettle too quickly would result in the bottom becoming excessively hot and burning the gum. When adding wood, distillers needed to know the direction of the temperature in the kettle. Oak wood burned slower and held the heat longer, but pine wood, which was consumed much more quickly, was easier to control. When heating the still distillers also needed to consider the quality of the gum that they were about to distill since different grades of gum distilled at slightly different temperatures. Higher grades required less heat than lower ones; scrape required the hottest temperatures. Because antebellum producers had not learned to add water, which would have aided the distilling process, distillers had to cope with serious difficulties. In the absence of water, raw turpentine, which is seventy-five percent rosin and twenty-five percent spirits, does not boil until it reaches around 363° F. However, rosin begins to decompose when it reaches 392° F., coloring the spirits yellow and thus lowering the quality. Therefore, the distiller had a margin of error of only 29° F. Making his task even more challenging, the property of resin that causes its temperature to rise rapidly as it distills. Only rarely, then, was more than a portion of the turpentine distilled before the rosin began to decompose. If the temperature fluctuated too far the disastrous consequences could threaten life and property. In cases when the fire grew too low, the distilling mass began to cool trapping the spirit vapor within the rosin causing the volume in the still to increase, boil over, and create a danger of five. If the still temperature rose too quickly, causing the vapor to grow in the still to grow too abundant, a similar situation could occur. Because the temperature of the rosin was critical in the process, distillers needed to know exactly when to extinguish the furnace. Since stills had no gauges, however, workers had to rely on other methods to monitor the progress of the gum. They could collect the distilled emissions from the worm in a clear drinking glass and then examine the proportion of water and turpentine. Gum releases water as it distills and the longer the still ran, the more water it emitted. Or the distiller could place his ear
against the lower end of the worm to listen to the gum boiling. An experienced worker could determine from the sound what stage the gum had reached.

The distillation of gum resulted in two products: rosin and spirits of turpentine. Crude turpentine yielded from six to eight gallons of spirits per barrel of gum, depending on how soon it was stilled and its purity. Generally five gallons of gum yielded one gallon of spirits. During distillation a mixture of ninety to ninety-five percent spirits of turpentine and five to ten percent water flowed from the worm into a fifty-gallon barrel. Because turpentine is lighter than water, it floated to the top where it could run off into another barrel or be dipped off. Rosin remained in the still. When the distilling of a charge was completed, the rosin was drained from the still through a gate at the bottom. It flowed through a series of screens, which filtered out wood chips, dirt, and other foreign matter, and into a cooling vat. If the hot liquid rosin did not cool and become more viscous before it was put into barrels, considerable loss could occur through leakage. After the liquid had cooled sufficiently it was dipped into barrels for shipment.

Workers who could perform the complicated distilling process were scarce and expensive. A white distiller earned between $500 and $600 a year, and a hired slave distiller cost generally more than a less-skilled turpentine worker. Evidence suggests that whites usually served as head distillers, although their assistants were likely to be skilled slaves. At a fifteen barrel still, Olmsted found “one white man and one negro employed under the oversight of the owner.” As the naval stores industry grew during the 1840s and 1850s, distillers became harder to find, and producers advertised for their services. Some producers even attempted to train their own slaves to operate a still.  

90 King, interview; Schorger and Betts, Naval Stores Industry, 12-14, 30-31; Panshin et al., Forest Products, 453; Robson Dunwody, “Proper Methods of Distilling and Handling in the Production of Turpentine and Rosin,” in Naval Stores: History, Production, Distribution and Consumption, ed. Thomas Gamble (Savannah: Review Publishing & Printing Company, 1921), 128; Tatum interview, 1, 4; Hickman, Mississippi Harvest, 126; Olmsted, Journey in the Seaboard Slave States, 345-346 (quote on page 346); “Production of Turpentine in Alabama,”
The great volume of naval stores refined at stills required a large number of barrels for use as shipping containers. Without them, turpentine operators had no way to package their product. In 1850 J. I. McRea complained from Elizabethtown in Bladen County that he had “been trying to make some turpentine this year and find that I will not have hoop poles enough to make my barrels.” He hoped to buy one thousand poles so he could finish his job.91 In 1853 J. W. Wheeler ran into similar trouble when he explained that “I am don my crop and I cant get barels to do any thing with turpentine.”92 When the cooper at one operation ran away, the remaining coopers could not keep up with the demand, and the still had to stop for lack of spirit barrels. To alleviate the barrel shortage problem, during the 1840s and 1850s, producers began importing spirit barrels from the North. Commonly these casks were second-hand barrels that had been used to transport naval stores to New York or Boston and were returned for resale in lots of five to six hundred.93

Because barrels were essential and required in such large numbers, as a general rule, every fifth man in a naval stores operation worked as a cooper. Unlike distillers, most coopers in the turpentine industry were slaves. Constant demand for them made them among the more expensive turpentine laborers. As early as the 1780s, Johann Schoepf found that “A cooper, indispensable in pitch and tar making, cost his purchaser 250 Pd., and his 15-year old boy, bred

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91 J. I. McRea to Thomas S. D. McDowell, 16 September 1850, McDowell Papers.

92 J. W. Wheeler to Thomas S. D. McDowell, 12 July 1853, Ibid.

to the same work, fetched 150 Pd." 94 In the mid 1850s the cost of hiring slave coopers ran from $1.50 to $2.00 a day. They labored all year. They constructed barrels during harvest season, some reportedly singing as they worked; during the off season they collected timber for the next year’s staves. Since rosin hardened once it cooled, making it highly unlikely to leak, cheaply made barrels with loose pine staves could suffice. And because craftsmanship was not important, a cooper could make eight to ten rosin barrels in a day. Raw turpentine barrels, though, were more carefully constructed. With a forty-gallon capacity, these barrels were made from good pine staves and fastened with six light iron hoops. Coopers commonly constructed dip barrels from higher grade staves than those used in hauling scrape. Spirits of turpentine barrels usually held forty to forty-five gallons and were also built with great precision. They were made of well-seasoned white oak staves and were tightly looped with strong iron hoops. To protect against leakage, these barrels were given a coat of glue, and the exteriors were thickly varnished or painted. While ordinary coopers could be trusted to make rosin and gum barrels, only expert coopers could make spirit barrels, which normally required half a day to assemble. 95

As during the colonial era, however, naval stores barrels were not always properly constructed. In 1860 J. H. Richardson’s factor in Wilmington informed him that the barrels containing his spirits of turpentine had leaked badly in transit and required new casks when they arrived in Wilmington. The original ones, he wrote, were “good for nothing but for Rosin,” the least viscous naval stores product. 96 That same month Richardson learned that “This lot of spirits


96 William H. Turlington to J. H. Richardson, 17 July 1860, Turlington Papers.
had leaked a good deal owing to its long duration on the river. You will see it took nearly two
brels to fill up the lot - Every brel of this was in same bad condition." His factor sent back "10
casks that you can use for [raw] turpt but dont put any more spts in them." However, even the
best turpentine casks occasionally leaked. Olmsted reported that evaporation was inevitable
given the volatile nature of spirits. Stave making machines, first introduced during the 1830s,
made smoother, more uniform staves which resulted in tighter barrels and reduced problems with
leaking. By at least the early 1840s mechanically-dressed staves were available in North
Carolina. However, not many producers used these machine-made staves. While traveling
through the South, a northern agent for barrel-making machinery passed the Grist turpentine
works. Upon inspection of the cooperage house, he reported that he could "improve your
coopers by working with them one week that they can make three or four more barrels per day to
the man[]. They are far behind the times." He also claimed that he could "furnish a machine to
cut heads ready for putting in the barrel and one hand will cut from six hundred to 1000 per day,
Price $150.00." No more is said regarding the barrel technology, but it is safe to assume that
Grist, like other turpentiners of his day, continued to rely on the labor-intensive, traditional
method.

From barrel-making to boxing, the turpentine production schedule hinged on the longleaf
pine's seasonal growth cycle. Workers cut boxes during cool weather, when the trees entered

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97 William H. Turlington to John H. Richardson, 25 July 1860, William A. B. and John
H. Richardson Papers, Special Collections Library, Duke University.

98 Olmsted, Journey in the Seaboard Slave States, 345-346; Pervical Perry, "The Naval
Stores Industry in the Ante-Bellum South, 1789-1861" (Ph.D. diss., Duke University, 1947), 80;
Carroll B. Butler, Treasures of the Longleaf Pines: Naval Stores (Shalimar FL: Tarkel

99 C. L. Benson to Mr. Grist, 1 October 1855, Grist Papers.

100 Ibid.
their dormant period, and began chipping faces and dipping gum once wood growth and resin ducts activity resumed in the spring. As the pines' resin production peaked during the hottest summer days, the pace of chipping and dipping increased. Rainy periods, during which water soaking the ground and standing in the boxes rendered efficient work impossible, and drought conditions, which reduced the pines' resin-production ability, could lower labor intensity even during this peak period. In autumn, once temperatures cooled and the daylight hours grew shorter, the pace of work in the forest slowed. But as the intensity of gum harvesting declined during the colder months, the energy of naval stores laborers shifted to such other necessary tasks as raking around the base of trees, gathering wood for staves, and coopering. Thus the seasonal labor pattern, shaped by the longleaf's twelve-month cycle, provided for the most efficient labor use.

Naval stores producers turned to slave management techniques to organize and control their labor force around this annual schedule. Under slavery, two distinct methods of labor management developed: the task system and the gang system. Under the latter, plantation owners gave a gang of slaves an allotment of work that they were expected to complete as a group. This system worked best in the open fields where the overseer had a clear view of their performance. Where slaves could not be closely supervised, producers preferred the task system. Under it, individual slaves worked at an allotted task. Each slave could set the pace, taking as little or as much time as necessary to complete the assignment, as long as it was performed to the producer's satisfaction.101

Because dipping, chipping, and boxing required workers to fan out in all directions through the expansive pine forests, producers found that the task system worked best for harvesting turpentine. Many of these forests were large and isolated, such as the one at

101 Stampp, Peculiar Institution, 54-55.
Richlands Plantation which covered twenty-two thousand acres. *De Bow’s Review* described “a suitable place for operations” as one “where one or two thousand acres of proper pines lie in an unbroken body, convenient to water transportation.” To organize the tasks, producers marked off turpentine orchards in grids of continuous blocks. They created these blocks or crops by blazing a line of trees and further dividing each crop with rows of stakes placed at fifty-yard intervals, cutting the forest into half-acre squares. Tasks consisted of ten thousand boxes or roughly one hundred acres. In most instances laborers had approximately one week to complete work in the task area Without such a division, reportedly, “the overseer of several hands cannot possibly inspect their work with any accuracy, nor can the hands, however faithful, avoid skipping a great many boxes in cornering, dipping, and chipping.”

Even though their workers were organized under the task system, producers expressed concern that isolation in the forest would allow laborers to work slowly and carelessly. Some worried that, unless they were carefully watched, their chippers would cut only the obvious trees around the perimeter of their allotment and would neglect those in the center that were more difficult to detect. A producer who explained that “Watchful care will be necessary in attending to the hands, or the cunning old negroes will frequently neglect to chip the pines regularly,” believed that the work was best monitored by “looking on the surface for the chip which has lately fallen, as that will retain its new color long enough to enable you to discover


whether the tree has been recently chipped or not."\textsuperscript{106} Turpentiners were also concerned that "streaks on the face would be made too short, the chip too shallow, or trees chipped only on one side, the side the producer or overseer would see when they passed."\textsuperscript{107} \textit{De Bow's Review} warned producers that "it is important... to see that the hands perform their task properly, and not allow them to mislead you, as they will frequently do, by saying they perform their task, without half doing so."\textsuperscript{108} Producers were also advised that "in task work like this [turpentine], constant watchfulness will be necessary to insure faithful execution of the work."\textsuperscript{109} In 1851 James R. Grist believed that he had a "good lot of boys + they will do well with proper attention."\textsuperscript{110} In late summer 1852 he "rode over a portion of the boxes... + will go over the Ballance with Mr James to day – I find them well faced + well chipped."\textsuperscript{111} After similar inspections, G. W. Perry advised that good hands should not be confronted about trees that they may have missed for it would shame them. He believed that producers should instead mark the missed trees so slaves would not "lose confidence in their owners, and fail frequently to do their duty, when they would not have done so otherwise."\textsuperscript{112} It was also suggested that producers mark the trees where the next chip should come so the slaves would know they were being closely watched.\textsuperscript{113} Perry also recommended that producers not show excessive anger over poor work or too much gratification for improvement. "This treatment," he explained, "keeps them in

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\textsuperscript{106} Perry, \textit{Treatise on Turpentine Farming}, 75.
\textsuperscript{107} Ibid., 114.
\textsuperscript{108} "The Manufacture of Turpentine in the South," 453.
\textsuperscript{109} "The Pine Forests of the South," 196.
\textsuperscript{110} James R. Grist to Father, 4 February 1851, Grist Papers.
\textsuperscript{111} James R. Grist to Father, 17 September 1852, Ibid.
\textsuperscript{112} Perry, \textit{Treatise on Turpentine Farming}, 115.
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their proper places; and as they perceive, by your daily conduct, that things pass over and are settled at the same time, a confidence is engrafted in the negro toward his owner. Masters may rely upon it that hands will work better from firm conviction than any other way."114

The task system also aided owners and overseers in organizing their labor force into multi-unit work groups. Because harvest season for turpentine was limited to the warmer months when the tree produced resin, none of the directly related operations—chipping, dipping, scraping, and distilling—could wait until the slower season. Therefore, in the more active periods different hands performed a variety of tasks. Olmsted witnessed an operation employing two men at a still, twenty-five chippers and dippers, two coopers, and several wagoners.115 In October 1855 a Grist overseer had "ten hands dipping turpentine + four hands getting timber, five hands at the still, six hands coopering, one hand cutting wood, one heading rosin + four hands helping."116 But by November the overseer had altered the tasks. He had "five hands scraping . . . + 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."117 By assigning tasks to the forest hands, such potentially chaotic arrangements were better organized.

In most situations slaves preferred the task system to gang labor, for it afforded a relative degree of autonomy. This system worked best in areas such as rice fields and turpentine forests where the tasks were clearly marked. Laborers could work at their own pace and enjoy free time if their job was completed early. Although their work was inspected, they escaped the persistent driving that gang laborers endured. Under this arrangement, each hand's work was more easily

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113 Ibid., 114.
114 Ibid., 118.
115 Olmsted, Journey in the Seaboard Slave States, 346.
116 M. Jones to James R. Grist, 24 October 1855, Grist Papers.
117 M. Jones to James R. Grist, 5 November 1855, Ibid.

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monitored. Despite their preferences, agricultural slaves most commonly worked in gangs. They remained under the constant surveillance of a driver or overseer who kept them working at a brisk pace. All laborers, no matter how well or fast they worked, continued their labor until all workers in the gang were discharged in the evening. They had no way of earning incentive payment for hard work or free time for work completed early. Nor did the gang laborers have any opportunity to develop self-reliance or to exercise control over their work schedules; every workday was the same as the one before.\textsuperscript{118}

Many producers believed that their slaves preferred task work in the turpentine forest over gang labor in agriculture. One remarked, “no set of hands have ever been known to willingly leave it and go back to cotton.”\textsuperscript{119} Olmsted found “the negroes employed in this branch of industry . . . to be unusually intelligent and cheerful.”\textsuperscript{120} Accepting these claims, the leading historian of the naval stores industry, Percival Perry, writes that “once trained in turpentine operations, blacks preferred turpentining to other forms of farm labor because it was based on the task system and they were somewhat more independent in their work.”\textsuperscript{121} He also finds that “turpentine plantation slaves worked as part of a production team, yet at an individual task, rather than in gang labor. This may have contributed to a sense of independence, responsibility, and greater contentment.”\textsuperscript{122} While Perry accurately describes labor under the task system, his

\begin{footnotesize}
\textsuperscript{118} Stampp, \textit{Peculiar Institution}, 54-56.


\textsuperscript{120} Olmsted, \textit{Journey in the Seaboard Slave States}, 348.


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general conclusion that this made work in the turpentine forest more pleasant than agricultural labor is questionable. Both the task and gang systems had advantages and disadvantages, but “in the long run,” as Kenneth M. Stampp maintains, “the rigors of either system were determined by the demands of masters and overseers.” The type of work and amount of labor expected of turpentine slaves greatly affected the relative difficulty of their tasks. Moreover, Perry fails to consider important factors related to the isolation of the camps—the realities of work that significantly shaped the lives of slaves.

Although turpentine workers did not endure the same drudgery that gang laborers did, the task system, as used by naval stores producers, denied the slaves the “community in labor as well as in life generally” that they so desired. On many agricultural plantations the task system facilitated close contact amongbondsmen. Slaves who received allotted rows to hoe in cotton fields worked closely with other slaves, as did those laboring in adjoining rice patches. However, in the turpentine forests, workers encountered a different situation. Because producers marked their tasks in half-acre squares, and boxers, dippers, and chippers were assigned several tasks, laborers were placed at considerable distances from one another and lacked social interaction to break the monotony of their work.

For many turpentine laborers, loneliness did not end with their work day. Producers, taking advantage of mid-nineteenth-century transportation improvements, purchased virgin forests and moved their stills, overseers, slaves, and equipment into isolated camps. The camps were commonly so far away from agricultural plantations that men in the labor force had no regular contact with their families and, for the most part, no female companionship. Only a few women and children worked in the antebellum naval stores industry because, except for dipping,

123 Stampp, Peculiar Institution, 56.

the tasks required strong arms and backs. Most of the jobs—boxing, chipping, and cornering—demanded considerable strength; therefore, men dominated the labor force.\textsuperscript{125} As the \textit{Southern Cultivator} reported in 1846, "the same boxes will stand tending or chipping from eight to ten years, which labor is performed by males, both white and slave, women and children not being very serviceable."\textsuperscript{126} At Benjamin Williams’ operation in southeast Georgia, the slave women and children stayed at his home where his wife was in charge.\textsuperscript{127} Men were deprived of the emotional support of their relatives and friends. In discussing the lamentations of lonely slaves, Genovese writes, "Their hollers provided a counterpart to plantation work songs, but ranged beyond a direct concern with labor to a concern with the most personal expressions of life’s travail. As such, they created a piercing history of the impact of hardship and sorrow on solitary black men."\textsuperscript{128} Some turpentine slaves, however, took measures to alleviate their loneliness. At Williams Georgia operation, it was reported that without permission or passes to leave, "some of our turpentine hands will work all day + then walk eight or ten miles to dance all night."\textsuperscript{129}

Labor incentives were commonly used in the naval stores industry to stimulate lonely and unhappy workers to greater productivity and to encourage them to work during their own time. Incentives came as cash rewards for completing more than their assigned tasks and as time off for finishing tasks early. Because such tasks as boxing and chipping were vitally important and overseers had difficulty monitoring each hand’s work, incentives helped to assure that slaves


\textsuperscript{126} McMillan to \textit{Southern Cultivator}, 172.

\textsuperscript{127} Sarah Hicks Williams to Parents, 11 March 1860, Williams Papers.

\textsuperscript{128} Genovese, \textit{Roll, Jordan, Roll}, 324.

\textsuperscript{129} Sarah Hicks Williams to Parents, 25 March 1859, Williams Papers.
performed work properly. In 1854 Williams was so pleased with his workers that he paid some of them as much as fifty dollars during the season. In the winter of 1856, eleven slaves at one operation in the vicinity of south Georgia and north Florida earned an average of $8.23 for extra work cutting boxes. The most made was $19.20 and the least was $1.69. At Richlands Plantation, laborers could earn from 40¢ to 60¢ by continuing their work on Saturdays. To encourage speed, tasks were designed to allow a free day (usually Saturday) in the work week.\textsuperscript{130} James B. Avirett explained that laborers “must be stimulated to their best work . . . by so regulating their work that a portion of each week is their own to do as they please with.”\textsuperscript{131}

Turpentine producers, like virtually all slave masters, also employed punishments, especially the whip.\textsuperscript{132} Slaves received beatings for not working fast enough, for failure to complete tasks, for complaining, and simply because their master arbitrarily decided to punish them. G. W. Perry found that his turpentine slaves “required whipping every time after dipping when chipping was commenced.”\textsuperscript{133} As a solution to poor work, he considered whether the slave “knows how to course pines well or not, and whether his tool is in good order or not, and thrash[ed] him accordingly.”\textsuperscript{134} In May 1856 G. I. Germond punished one slave for allowing his horse to get away and then lying about it. That same month he found three slaves had been negligent with their hacking and each received forty lashes. Germond did not always resort to


\textsuperscript{131} Avirett, \textit{Old Plantation}, 70.

\textsuperscript{132} Thomas D. S. McDowell Account with R. H. Riualdi, 2 June 1860 entry, McDowell Papers.

\textsuperscript{133} Perry, \textit{Treatise on Turpentine Farming}, 98.

\textsuperscript{134} Ibid., 114.
the whip to punish his slaves. When he suggested that one hand had not cleared around his task of trees, he “told him that I had no confidence in his Honesty + that I should watch him very close + if I detected any such thing in him again that I would Punish him (or any other one for a similar offense) by not allowing to Work at task work any more for the year.” In March 1856 he “Brought Lymons home with hands tied behind him + locked him up in the Smokehouse till night to punish him for going to Mr. Simpsons without a pass on Saturday.”

Observations by scholars on slavery and supervision help explain why the turpentine industry’s form of labor organization and combination of incentives and punishments took the shape that they did. Economist Stefano Fenoaltea explains that in managing slave labor, pain and reward incentives were best used in various combinations for different types of work. Pain incentives were the most effective at generating greater worker effort but did not promote carefulness. For labor-intensive activities where brute effort, not precision, was important, as in breaking rocks, slaves most often worked in gangs and were punished with physical pain if they fail to work fast or hard enough. Because the threat of pain produces high anxiety levels, it does not facilitate carefulness. Not only did anxiety impair the slaves’ ability to work carefully, but threats could generate ill-feeling among the slaves and lead to intentional carelessness. Rewards, which tended to cause a reduction in work effort and productivity, however, did lead to labor with greater care. Slaves who worked by reward incentives, Fenoaltea continues, were more typically self-supervised and less likely to work as part of a gang. In this case, by allowing the slaves to retain a portion of their production they could be made to work with less supervision. Fenoaltea maintains that masters typically used a combination of pain and reward incentives. They adjusted the levels of each until the maximum benefit for the specific job was reached.


136 10 March 1856 entry, Ibid.
Fenoaltea also argues that slavery was most likely used in occupations where the working conditions were unpleasant and free workers would require a high percentage of the product produced in order to voluntarily perform the labor. Economic historian Ralph Shlomowitz makes similar points in his study of southern sharecropping. Slaves, he explains, could be made to work long hours and intensely under hard conditions and at a higher level of participation than free labor. Like Fenoaltea, Shlomowitz finds that the character of slave supervision was largely determined by the nature of the work they were to perform.137

The difficult work involved in turpentining, carried out in the isolation of the southern piney woods, required slaves to provide reliable and adequate work force. Physical punishments, such as the whip, were needed to force the slaves to perform the long hours of such backbreaking work as boxing and chipping. However the workers, spread out across the forests could not be closely monitored. Yet the slave workers absolutely had to carry out tasks with precision. If the boxes were improperly cut, they could permanently ruin the turpentine harvest for those trees. Poor chipping could diminish the turpentine yield and at worst kill the trees. Incentives such as time off and small cash payments were therefore required to ensure that the work these slaves were forced to perform was done well.

As with expansive agricultural plantations, large turpentine operations relied on overseers or foremen to be watchful. Usually referred to as "woodsriders," these men rode through the forest on horseback inspecting each worker's task. Given the distance of each laborer from other workers, a single overseer could supervise no more than twelve slaves.138


Producers sought overseers familiar with turpentine production. One North Carolina turpentiner desired “some competent person who thoroughly understands the business, to over see hands in getting Turpentine.” In 1850 a producer near Wilmington sought “A Man of sober, industrious habits, an experienced farmer, with some knowledge of the Turpentine business.”

James Avirett complained about the overseers at his plantation, Richlands. He described them as low class whites who could not be relied upon to run the turpentine operation well and who by their third year acted as if they owned the enterprise themselves. Consequently, Avirett relied also on black drivers. Because the overseers’ success was often measured by the amount produced under their supervision and not by the health of the slaves under their care, they usually drove the hands hard. In August 1854 an overseer employed by James R. Grist reported: “I shall dow all in my power to make all I can for I am Working for my self as well as for Grist + Daves for my work has to be my recommendation in the State sow it is to my interest to make all I can.”

Another letter reports that “I am driving a head + doing all I can to get as much done [of] the turpentine as feasible.” This fast-paced driving was especially true in the case of hired slaves. While their labor was highly valued, their welfare was only of temporary interest to their employers and overseers.

“The hired slave,” so commonly used by producers, according to Kenneth Stampp, therefore “stood the greatest chance of subjection to cruel punishments as well as to

141 Avirett, Old Plantation, 117-118.
143 Benjamin Grist To James R. Grist, 21 October 1855, Ibid.
144 Stampp, Peculiar Institution, 82-84.
overwork." Their employers had little incentive to treat them kindly. Peter Kolchin explains that being hired out placed slaves “under the authority of someone who lacked the owner’s incentive to treat them decently; the hirer-slave relationship was far more fundamentally utilitarian than that between master and slave.” Because the slaves’ time was the commodity purchased and the value and overall well-being of the slaves was of financial concern only to their owners, employers generally sought to extract as much work as possible from hired slaves and gave little attention to their welfare. This meant that their work hours were long and their shelter, clothing, and provisions lean. Robert S. Starobin writes that under these circumstances “conflicts between masters and employers of industrial hirelings occasionally arose.” Too, the use of hired slaves in an isolated setting, combined with the environment of the turpentine forest and the migratory nature of the industry, created living conditions for the naval stores slaves that were comparably worse than those of bondsmen in agriculture. Because of their isolation, turpentine operations were often hidden from travelers and were seldom visited by anyone but the owner of the operation. With no witnesses to their treatment of laborers, naval stores producers experienced little outside pressure to provide properly for them.

The owners of slaves hired to turpentine producers expressed concern for their hands’ safety and health. One irate owner from Wake Forest wrote that his slaves, John and Albert, had run away because they were overworked and underfed. It was his “expectation that those who hire them will see that they are taken proper care of in every respect. The plan of giving up the management of hands entirely to overseers who have no feeling, is to my mind most shocking.” The owner requested that Grist “deal leniently with the runaways, as they are first

145 Ibid., 185.


147 Starobin, Industrial Slavery, 131.
of my negroes which have left you, and I feel confident—there was some improper oppression
which drove them to it." He requested a report on the condition of his other slaves in Grist's
hire.149 When one slave owner hired his laborers out to a turpentine operation only to learn that
they got so sick they were unable to work, he became "very much displeased with the business +
is anxious to take them home."150

One facet of the turpentine slaves' poor living conditions was housing. In the decades
before the Civil War the quality of plantation slave quarters ranged from relatively roomy
cottages with brick or stone fireplaces and glazed windows to one-room log cabins with dirt
floors and chimneys crudely fashioned of clay and sticks.151 The latter were, in the words of
Stampp, "cramped, crudely built, scantily furnished, unpainted, and dirty";152 housing for
turpentine laborers was probably even worse. Plantation quarters were built for extended use (as
long as the plantation operated), but turpentine operations, which were in a forest and usually
distant from the plantation, lasted for no more than ten years. Therefore housing was intended to
be temporary, and was often little more than sheds. In similarly transitory operations such as
fishing, shingle, and lumber camps, the quarters were only crude lean-tos.153 Ruffin described
the living quarters of shingle-getters in the Dismal Swamp as "houses, or shanties . . . barely
wide enough for five or six men to lie in, closely packed side by side—their heads to the back


149 Ibid.

150 Thomas F. Strikney to Allen and James R. Grist, 26 February 1861, Ibid.

151 Kolchin, American Slavery, 114; Robert William Fogel and Stanley L. Engerman,
Time on the Cross: The Economics of American Negro Slavery (Boston: Little, Brown and

152 Stampp, Peculiar Institution, 294.

153 Starobin, Industrial Slavery, 60; Porte Crayon, "The Dismal Swamp," Harper's New

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wall, and their feet stretched to the open front, close by a fire kept up through the night. The roof is sloping, to shed the rain, and where highest, not above four feet from the floor.”\textsuperscript{154} Cabins built to house turpentine workers in the early 1900s, reported to be much like those inhabited by enslaved turpentine laborers, “were one room huts, made of pine poles and possessing neither floors, doors, nor windows.”\textsuperscript{155}

The housing arrangement at Avirett’s Richlands Plantation was atypical of turpentine cabins, being of relatively high quality and situated in close proximity to the master’s house. The cabins were to be found on the right side of the elm-lined drive leading to the big house. The forty or more cabins were built back from the drive and arranged along a seventy-foot long street, in the middle of which was a communal well. The cabins’ sizes varied, Avirett assigning the larger ones to the larger families. The average cabin size was approximately thirty feet long and twenty-two feet wide with two rooms downstairs, one for cooking and living and the other for sleeping. These houses had an upstairs and most had fire places. The two most comfortable houses Avirett reserved for the two foremen. Housekeeping standards varied. Some cabins were kept neat and well-maintained with Spanish moss mattresses made by the slaves and covered with blankets furnished by the plantation store and quilts and comforters the slaves made themselves. Avirett made efforts to keep the quarters sanitary. Every week the plantation foreman inspected the cabins and demanded cleanliness. He also expected the yards to be clean and the trash collected on a compost heap. Twice a year he ordered the cabins whitewashed. During the malarial season, Avirett had old salt vats dating to the War of 1812 filled with rosin.


\textsuperscript{155} While the cabins described were built for laborers in the Mississippi turpentine forests, they serve to illustrate the most likely conditions of housing for slaves in the North Carolina operations. Hickman, Mississippi Harvest, 147 (quotation) and 152; Forney, “Kin to Kant,” 17.
and burned in the quarters and around the big house. It was believed that the burning rosin
would not only kill the mosquitoes, but the fumes would purify the air.\footnote{Avirett, \textit{Old Plantation}, 58-59.}

Some producers provided for religious services in these crude quarters. In 1855
Germond “attended services at the Negro quarters at 11 O’clock[.] I read from the 12 chapter of
Matthew + tried to explain its contents as best I could.”\footnote{30 January 1855 entry, Gilbert Isaac Germond Work Journal.} At Williams’ Greene County, North
Carolina operation the slaves “can go to Church (Preaching, as they say) on the Sabbath. Indeed,
a majority of the congregation is colored. On Sundays they dress up and many of them look very
nice.”\footnote{Sarah Hicks Williams to Parents, 22 October 1853, Williams Papers.} A distance of six miles from the producers home, the church was “a rough framed
building in the midst of woods. With a large congregation consisting of about equal numbers of
white + black. . .” Meetings were held twice a month and lead by uneducated preachers.\footnote{Sarah Hicks Williams to Parents, 10 October 1853, Ibid.}

Turpentine slaves appear to have been more poorly clothed than those working in
agriculture. Each plantation hand commonly received four shirts, four pairs of pants, and one or
two pairs of shoes each year. Every several years they were issued a hat or blanket. Some
turpentiners followed a similar pattern. Each year Avirett provided his slaves with three suits of
clothing, three pairs of shoes, two blankets, one wool hat, one straw hat, and wool and cotton
from which the slave women made socks and stockings. Those who had to work in bad weather,
such as coachmen, also were given overcoats and those who labored at ditching received a pair of
brogans. Slaves spun thread, wove cloth, and sewed clothing on the plantation. They used barks
to dye the material.\footnote{Avirett, \textit{Old Plantation}, 58-59.} But in the naval stores industry, producers did not always use this
distribution pattern, especially not for the slaves they hired. Owners tried to ensure that their slaves received proper clothing by including instructions in their contracts. The Francis Harper heirs required that whoever hired their slaves had “to furnish the males Three Suits Cloths one to be of woolen, one pr. shoes, and two if worked in Turpentine one pr. of stockings + one Hat + blanket. . . . All to be new and well made.” But these instructions were not always followed. An angry slave owner wrote to the turpentine producer who had hired his slaves, “My Negroes told me they had not got all their clothing, their hats Blankets & c.” One turpentine producer in Fayetteville presented his slaves with cloths as needed, which caused clothing to be unevenly distributed. One slave, Bill, received two pairs of pants, two shirts, a pair of shoes, and a blanket. Another, Obey, received two pairs of pants, two shirts, a pair of shoes, and a coat. But Lewis was given only one pair of pants. G. W. Perry complained that his turpentine slaves would make it known when it was time for their clothing allowance or when their clothes and shoes had given out. He reported that he “had them to walk by me, and let the old shoes drop off their feet, so that I should notice it, and at other times to complain that their feet were badly cut up, for want of shoes.” When one slave persisted in demonstrating how his worn out shoes would easily drop off his feet, Perry “let him repeat it until I felt satisfied that he knew I noticed it: I then had him whipped, without telling him the cause, and whether he understood it or not, he never tried a repetition of the maneuver.” Slave cloths were usually made of “Negro Cloth.”

161 Kolchin, American Slavery, 114; Fogel and Engerman, Time on the Cross, 116-117; Starobin, Industrial Slavery, 54-57.

162 Contract to Hire Slaves, 2 January 1849, Francis Harper Papers, Special Collections Library, Duke University; Miller and Smith, Dictionary of Afro-American Slavery, 521.

163 Starobin, Industrial Slavery, 57.


165 Perry, Treatise on Turpentine Farming, 120.
Manufactured primarily in northern mills, this cloth was durable and sturdy but uncomfortably rough. Plantation mistresses often sewed their slaves' clothes, but larger and more organized operations employed slave women for this task. In some cases the slaves made their own clothes. Evidence suggests that clothes for turpentine workers were made at the forest camps. On Ben William's Georgia plantation the white women made clothes for the agricultural laborers but not for the turpentine workers. James Grist shipped cloth directly to one of his turpentine operations in Columbus County. He also shipped in shoes.¹⁶⁶

Holidays, especially Christmas were important to slaves. Masters customarily gave them at least one or two days off and sometimes a week or more. Many masters allowed their slaves to have a feast and some gave them presents. But hired slaves, who worked some distance from their homes, and workers such as turpentine slaves, who labored in camps many miles from their master's house, were often not allowed to return home on special occasions.¹⁶⁷ One slave owner wrote to the turpentine producer who had hired his slaves, "I am quite willing . . . that they should remain with you during the Christmas holidays. It can do them no good to come home. . . and . . . their stay will be so short, that they cannot expect to enjoy themselves much."¹⁶⁸ However, evidence suggests that producers permitted limited holiday celebrations in the camps. For Christmas 1860 the slaves in one turpentine camp received "2 hogs + a barrel of Flower +

¹⁶⁶ "Production of Turpentine in Alabama," 561; M. Jones to James R. Grist, 5 November 1860, Benjamin Grist to James R. Grist, 21 October 1855, and List of Negroes belonging to Mr John W. Grist Worked by Grist + Strikney during the year of 1860, Grist Papers; Stampf, Peculiar Institution, 290-291; Genovese, Roll, Jordan, Roll, 551; Sarah Hicks Williams to Parents, 10 December 1853 and 25 March 1859, Williams Papers.

¹⁶⁷ Stampf, Peculiar Institution, 365; Genovese, Roll, Jordan, Roll, 573; According to Sarah Williams in Georgia, the slaves who worked in the distant turpentine orchards still considered their master's plantation their home. Sarah Hicks Williams to Parents, 25 March 1859, Williams Papers.

¹⁶⁸ Starobin, Industrial Slavery, 95.
potatoes so they can have a dinner. . ."169 The overseer promised to "due my best to keep the negros all strat [straight] + satisfied[.] I hope that they will behave well."170

This Christmas dinner menu differed little from the provisions issued to turpentine slaves for every other day of the year—cornmeal flour, salt pork, and often potatoes. On some small operations, producers worked in the forest with their slaves and also engaged in agriculture. Some larger operators attempted both farming and turpentining but most often they gave more attention to turpentine and agriculture was only to supply the turpentine operations. It appears that the Grist operation produced their corn and some of their pork. A portion of their pork was supplied by hogs which ranged freely in the pine forest and which were frequently hit by the train. In one day eight were killed. Another operator also raised hogs as well as potatoes. Although some turpentine producers tried to provide corn and bacon for their own needs, most operators typically purchased provisions for their work force.171 Olmsted observed, “few turpentine-farmers raise as much maize as they need for their own family; and those who carry on the business most largely and systematically, frequently purchase all the food of their hands. maize and bacon are, therefore, very largely imported into North Carolina . . .”172 He found that, “the farmer in the forest, makes nothing for sale but turpentine, and, when he cultivates the land, his only crop is maize.”173 When these supplies arrived, usually by boat or railroad, they


170 Ibid.


172 Olmsted, Journey in the Seaboard Slave States, 338.

173 Ibid.
were locked in storehouses. Because purchasing food was the largest cost of supporting a slave, producers kept rations at a subsistence level, especially when they hired slaves and therefore had less self-interest in their workers' welfare. Avirett issued his slaves their food rations on alternate Saturday afternoons. For two weeks each slave received one-half bushel of cornmeal, seven pounds of pork, potatoes, rice, sorghum, and tobacco. Another source of provisions for Richlands slaves was from a small store that a slave named Philip ran from his cabin. He traded in such basic goods as coffee, tea, sugar, cheese, cakes, peanuts, calico, and home brewed beer. The slaves paid with the money they earned for extra work and often with raccoon, rabbit, and squirrel pelts. The slaves did their own cooking. In warmer weather it was done outside under brush shelters. Plantations, where food was more often produced, afforded slaves greater opportunity to raid smokehouses, chicken coops, orchards, dairies, gardens, and corn fields. Turpentine workers found stealing food more difficult. But naval stores laborers did have one advantage over plantation slaves, who during their free time, commonly hunted and fished to supplement their diet. Because they worked in the forest, turpentine slaves had more opportunity to catch wild animals and collect edible herbs. Squirrels, possums, raccoons, rabbits, and turtles were plentiful in the turpentine orchards and occasionally supplemented the workers' diet. In exceptional cases slaves raised some of their own food. Behind their cabins at Richlands plantation the slaves maintained chicken yards and garden plots in which they grew cabbage. Some slaves raised pigs in pins behind their cabins and some raised corn, peas, and cotton. James Avirett explained that slaves worked these plots "On Saturday afternoon or by moonlight."

174 Avirett, Old Plantation, 63-65; Olmsted, Journey in the Seaboard Slave States, 338; M. Jones to James R. Grist, 5 November 1860 and 12 November 1860, Grist Papers; Starobin, Industrial Slavery, 51; Stampp, Peculiar Institution, 282; Genovese, Roll, Jordan, Roll, 486-488, 599-606; Hickman, Mississippi Harvest, 150; Fogel and Engerman, Time on the Cross, 110-111.
. . . instead of going coon hunting.” They could either sell their produce in New Bern or to the plantation.\textsuperscript{175}

Drinking water, unlike wild game, was often scarce in the forests. Where clear, flowing streams ran through the pines, workers had little difficulty obtaining water; but, often there were no such streams. Many workers justifiably feared drinking from the murky, slow-moving streams that they commonly found in the woods. Instead, they carried a hollow reed straw that they used to suck the water collected in turpentine boxes after rains. But during particularly dry seasons, rain water was not available. In the summer of 1860 Alabama experienced a dry spell. At the Grist operation near Mobile it was necessary “to keep Dave hauling water with the carte all the time in the woods to the hands.”\textsuperscript{176} Although it was difficult for workers to obtain adequate water in this manner, the water they drew from the boxes, when able, was probably unhealthy to drink. Evidence suggests that laborers suffered from digestive problems probably caused by ingestion of turpentine.\textsuperscript{177} James Battle Avirett reasoned that the water from the resin boxes was safe, “impregnated as it is with the turpentine,” because it “reaches . . . his liver and keeps him healthy.”\textsuperscript{178} Although Avirett’s assertion is doubtful, scholars have either accepted or refused to question the claims of observers and producers that “the turpentine business is considered a very healthy employment for hands.”\textsuperscript{179} Historian Donnie D. Bellamy writes: “It appears that the naval stores industry was not hazardous to the slaves’ health. The authorities

\textsuperscript{175} Avirett, \textit{Old Plantation}, 48.

\textsuperscript{176} Benjamin Grist to James R. Grist, 17 July 1860, Grist Papers.

\textsuperscript{177} Hickman, \textit{Mississippi Harvest}, 150; Avirett, \textit{Old Plantation}, 69; Benjamin Grist to James R. Grist, 17 July 1860, Grist Papers.

\textsuperscript{178} Avirett, \textit{Old Plantation}, 69.

\textsuperscript{179} “Turpentine: Hints for Those About to Engage in Its Manufacture,” 488; Olmsted reported that “turpentine business is considered extremely favorable to health and long life.” Olmsted, \textit{Journey in the Seaboard Slave States}, 346.
agree with John B. Avirett that the slaves of the turpentine orchards were generally healthy."\textsuperscript{180}

In his 1947 dissertation Percival Perry states that “the turpentine business was considered extremely favorable to health and long life . . .”\textsuperscript{181} But the nineteenth-century accounts that provided the evidence for assumptions were either based on inaccurate observations or were simply biased promotional literature. Turpentine is a local irritant and a central neural depressant that is easily absorbed from the gastrointestinal tract. Its ingestion probably induced flux, a form of dysentery common among turpentine workers, which was characterized by abdominal pain, inflammation of the intestine, and frequent stools. However, because the lethal dose of turpentine for adults is four to six ounces, ingestion through the drinking water was rarely fatal.\textsuperscript{182}

Laborers came into contact with turpentine in other ways. When laboring in the forests, workers’ “hands and clothing become smeared with the gum . . .”\textsuperscript{183} Raw gum is extremely sticky and difficult to clean off clothes and skin. While traveling through North Carolina in 1856, D. W. Kyle reported that he “got turpentine all over me.” Unable to clean it off, he had to throw away his suit and buy a new one.\textsuperscript{184} While its adhesion to workers’ clothing was only a nuisance, its contact with their skin could cause dermatitis. Treatment of this skin irritation is

\textsuperscript{180} Bellamy, “Slavery in Microcosm,” 344.


\textsuperscript{183} “The Pine Forests of the South,” 197.

\textsuperscript{184} D. W. Kyle to John Buford, 29 March 1856, John Buford Papers, Special Collections Library, Duke University.
ineffective until the offending agent is removed. Laborers who found themselves afflicted during the harvest season had to wait until November for a cure.¹⁸⁵

Fumes were another problem, especially around the still, which emitted a pungent turpentine smell.¹⁸⁶ Even workers handling barrels in the pine forest were exposed to spirit vapors. A twentieth-century reporter explained that “it’s like nothing you’ve ever smelled before. Sweet, spicy, raw. Something like sassafras tea but magnified to a degree that almost clears your sinuses.”¹⁸⁷ Fitzhugh Lee Tatum recounted that a still in Bladen County “smelled awful turpentiney!” “After you’d inhale it a while you could feel it all down in your throat...”¹⁸⁸ While no direct evidence indicates physical harm from such exposure, current medical research indicates otherwise. Twentieth-century workers have developed occupational asthma when exposed to such high concentrations of these fumes, which are readily absorbed through the respiratory tract. Some have shown neurological damage and intellectual impairment. Moreover, laboratory test reveal a higher mortality rate among the progeny of rats exposed to turpentine fumes. With these discoveries, strict regulations of such solvents are recommended to prevent tissue lesions in workers and to protect pregnant women.¹⁸⁹


¹⁸⁶ Carraway, interview; Tatum, interview, 5; One of the Grist slaves suffered from sores in his throat, but the cause was not reported. Thomas F. Strikney to Allen and James R. Grist, 26 February 1861, Grist Papers.


¹⁸⁸ Tatum, interview, 5.

¹⁸⁹ M. S. Hendy, B. E. Beattie, and P. S. Burge, “Occupational Asthma Due to an Emulsified Oil Mist,” British Journal of Industrial Medicine 42 (January 1985): 54; Per
Turpentine slaves reportedly complained of "headache, pain in the eyes, arms and legs, their knees hurting them, pain in the back, stiff neck, feet and hands feeling dead, pain across the breast, and a severe griping in the bowels." All these ailments are easily explained as the result of either fume exposure, over work, or turpentine ingestion through the water. G. W. Perry recommended that producers not listen to complains, initially, "just tell them it is a busy time, and you will not allow any such sickness, and that will be sufficient." He believed that if a slave was actually ill the producer could tell easily enough and should give the slave the proper medicine and see that he takes it. Turpentine laborers often sought to cure themselves of maladies by relying on medicines made from forest products. A tea made from the leaves of the yellowtop plant treated flux. The leaves of the dollarleaf plant were also supposed to remedy dysentery and those from the boneset plant relieved vomiting. Butterfly weed was thought to cure diarrhea, while sufferers of rashes, burns, and other skin ailments drank smartwood tea. Black snakeroot tea remedied fever.

In some cases overseers reluctantly permitted sick or injured slaves to return to their owner's home plantation for care and rest or visit a doctor. In 1860 one sick slave at Williams' Georgia operation was sent to Williams' residence where his wife looked after him. After "boy Moses," who worked at another operation, had suffered from sores in his throat for several weeks, his overseer wrote, "though I regret very much to have him off the place[,] . . . I would

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190 Perry, Treatise on Turpentine Farming, 120.

191 Hickman, Mississippi Harvest, 150-151.

192 Sarah Hicks Williams to Parents, 21 October 1860, Williams Papers.
suggest to let him go back to the doctor at once . . . as he is not fit to work in turpentine.\textsuperscript{193} He stayed with the Doctor for several months during which time he drove the doctor’s buggy. In return for Moses’ service to the doctor Grist received $25 a month and was not charged for his medical care. In October 1855, five slaves laboring at one Grist operation got sick and were allowed to miss work. In 1860 one slave working for Grist in Cumberland County missed work because of a cold, and another, Ruffin, was allowed to rest from his work for a week. When a hand was kicked in the face by a mule and badly cut, he also rested a week and received care from the doctor. A doctor made regular visits to one of Grist’s North Carolina operations. Between October 13, 1853 and July 29, 1854, a Dr. P. D. Mott saw thirty-eight slave patients at a total cost of $59.50.\textsuperscript{194} When the owner of slaves hired by Grist learned that one had died and another was down with fever, he requested that Grist spare no expense for the welfare and comfort of his other slaves who remained at work for Grist. Also, the owner wrote, “allow me kindly to request you to adhere strictly to the Doctors instructions relative to the administration of stimulants and food. For any thing furnished extra you shale be paid.”\textsuperscript{195}

Another hazard to slaves was the explosive nature of stills and their flammable contents. Given the difficulty of regulating these crude devices, distillers could not always determine the pressure generated by the evaporating spirits of turpentine. Therefore, explosions and fires were common and could kill or seriously injure anyone close by.\textsuperscript{196}

\textsuperscript{193} Thomas F. Strikney to Allen and James R. Grist, 26 February 1861, Grist Papers.

\textsuperscript{194} M. Jones to James R. Grist, 30 October 1855, 12 November 1860, and 16 December 1860, P. D. Mott to James R. Grist, Bill for doctor’s visits, 13 October 1853; Thomas F. Strikney to Allen and James R. Grist, 26 February 1861, Ibid.; Sarah Hicks Williams to Parents, 21 October 1860, Williams Papers.

\textsuperscript{195} S. B. Carraway to John L. Wright, 10 October 1854, Grist Papers.

\textsuperscript{196} Starobin, \textit{Industrial Slavery}, 43; Avirett, \textit{Old Plantation}, 70.
The wilderness conditions of the turpentine forests contributed further to harsh working conditions. Wild animals, poisonous snakes, malarial mosquitoes, ticks, and chiggers found in the pine woods could make turpentine production a miserable, and sometimes hazardous, occupation. The heat and humidity of the southeastern North Carolina coastal plain added to the difficulties. In 1854 turpentine laborers fainted in the forest from these extreme conditions. Moreover, workers could easily lose their direction in the expansive pine forests. In 1859 a hand in a Georgia operation became lost in the woods and wandered for nearly six days before finding his way home. Despite a week of nursing care, he died of fever brought on by hunger and exposure. Because he worked in a turpentine forest, his master had not noticed his absence for three days. In another instance, a hired slave, Willis, who worked for Grist, drowned and another slave, Jack, almost drowned when they tried to remove turpentine casks from a remote platform near a swollen river.\(^{197}\) A defensive James R. Grist explained that “we have not worked or employed Willis by water on the Contrary he was ordered not to go by Mr. Shile our agent; therefore Mr. Pammerly [Willis’ owner] Cannot expect us to pay for him.”\(^{198}\) In such cases, the isolation and loneliness of the turpentine forests, combined with heavy work demands, poor housing, inadequate clothing and food, and unhealthy and dangerous labor conditions, made the slaves’ already difficult work and manner of life unbearable. It is no wonder that the turpentine industry had the reputation for having “ruined more hands than anything else in this country.”\(^{199}\)

Some slaves reportedly resisted these terrible conditions. According to Edmund Ruffin, producers believed the fires that occasionally roared through the pine forests were “committed by


\(^{198}\) James R. Grist to Father, 17 September 1852, Grist Papers.

\(^{199}\) Perry, *Treatise on Turpentine Farming*, 116.
the negroes who would have to attend the trees, to collect turpentine, which labor they dislike very much, because it is solitary. Further evidence of the discontent comes from the stories of runaway turpentine slaves. Although it is impossible to determine the frequency of escapes, evidence of slaves fleeing the James R. Grist operations suggests such acts were not uncommon. In all cases these slaves cited harsh living and working situations as their reason for flight. Two hired slaves, John and Albert, ran away from a turpentine operation in 1853 because they were "over worked and not well fed." John reached Greenville, North Carolina, "in a most exhausted condition," but Albert lost his way. Their owner blamed their harsh treatment for their escape. That same year a turpentine cooper ran away when he and his partner were whipped for working too slowly.

The most dramatic story of escaped turpentine slaves involved two brothers, Ned and Colin, who were purchased from their owner in Sussex County, Virginia, by a slave trader in Richmond. When James Grist bought them, "they were sent off into the pine woods to make turpentine." But they "could not stand the work and the life before them and ran away" in 1854. While they were fleeing across a bridge near Fayetteville, someone shot at them and probably wounded Colin. The two slaves then ran in different directions and became separated. Colin reached Greenville and worked on the Seaboard Railroad until eventually caught by a search party later that year. Ned reached the home of a planter, William Parham, who was a neighbor of his former master in Sussex County and lived not far from Ned's wife and child. When Ned reached Parham, he was very sick and Parham nursed him back to health. While Ned recovered, Parham wrote to Grist, informing him of Ned's condition. According to Parham's letter, Ned

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200 Scarborough, Diary of Edmund Ruffin, 52.

201 L. F. N. to James R. Grist, 18 August 1853, Grist Papers.

202 James to Grist, 23 August 1853, Ibid.
vehemently disliked the work in the turpentine forest. Parham reported that "the work and the manner of life in making turpentine he cannot stand, it is hard work and would kill him by piecemeal, and he had rather be killed at once." Parham advised Grist "not to put him to getting turpentine again, he will cause you more trouble than profit, but sell him at once." He concluded that Ned would be best suited for the New Orleans slave market where a sugar producer would likely buy him.\(^{203}\)

"The work and the manner of life in making turpentine" from which Ned and Colin fled was much like that of other industrial slavery occupations described by Robert S. Starobin. They tended to labor for absentee producers, were worked excessively hard by overseers, and received food, clothing, and shelter of an inferior quality to agricultural laborers. It is also necessary to consider the type and amount of work expected of turpentine slaves and the realities of life in isolated camps, both of which Percival Perry fails to do. Contrary to assertions made by Perry and others, work in naval stores tended to be more grueling than labor in agriculture.

Environmental factors played a major role in the harsh conditions of turpentine making. As geographically isolated and expansive enterprises, turpentine orchards possessed spatial attributes considerably different from those of agricultural operations. Given the size of the pine forests and the methods of harvesting resin, producers could not permit workers to labor in groups. Instead, slaves were forced to spread out widely throughout the forest where their tasks were individually assigned. Since tasks were clearly marked in half-acre blocks, overseers could effectively monitor and evaluate each worker's performance. Although slaves generally preferred task work because of the relative degree of autonomy it offered, in the naval stores industry this independence was accompanied by solitude. The industry denied social interaction that would have broken the monotony of the job. Such loneliness did not end with the workday.\(^{203}\)

\(^{203}\) William F. Parham to James R. Grist, 1 May 1854, 14 November 1854, 20 November 1854, Ibid.
The camps were commonly so far away from agricultural plantations that the male-dominated labor force was prevented from regular interaction with their families and largely denied female companionship. Too, because few visitors journeyed to the isolated camps, production operators and overseers received little social incentive to care properly for their slave laborers, especially for the many hired bondsmen. This lack of supervision contributed to relatively poor housing and food provisions for laborers. The natural setting of the turpentine orchards also accounted for these conditions. Most owners found it infeasible to raise food at the camp sites. Instead, food was hauled into the forests by producers who tended to keep rations at a subsistence level. Unlike many plantation slaves, turpentine laborers lacked the opportunity to supplement their diets with food raided from local smokehouses, chicken coops, and cornfields and gathered from their own garden plots. However, because they labored in the forest, workers possessed more of an opportunity to hunt wild animals and collect edible herbs. The migratory nature of the industry discouraged producers from constructing substantial cabins to house their workers. Instead, laborers could take refuge only in crude shed-like lean-tos that could be easily dismantled, moved, and reconstructed. The unique attributes of the naval stores industry created conditions greatly inferior to those on agricultural plantations, conditions that inevitably led to misery and discontent among the slaves, who after the first decades of the nineteenth century, made up most of the industry's work force.

The isolation of the pine forest also influenced the lives of its white inhabitants. In the remote forest, poor landless whites found plots where they could squat, construct a cabin, and cultivate a small garden with a minimum of harassment. They also harvested small quantities of gum for themselves to trade or worked on an irregular basis for larger producers. Small farmers likewise lived in the piney woods and cultivated a few crops and barrels of turpentine for the market, sometimes with the help of several slaves laborers. The output of these smaller producers, however, paled in comparison to that of the larger operators who made thousands of
barrels of turpentine annually. For such naval stores men as Avirett, Williams, and Grist, the experience of managing a large-scale operation with scores of slaves and several overseers differed little from that of plantation owners. Their intensive exploitation of the longleaf pine matched their heavy reliance on unfree labor.
Chapter Four

A Destructive Harvest:
Forest Degradation and the Turpentine Industry’s Move Southward

By the 1850s turpentine-harvesting practices had severely devastated the North Carolina longleaf pine forests, causing the industry to migrate southward in search of fresh stands. After ten years of boxing, chipping, and burning, a large percentage of turpentinized trees succumbed to reduced vitality, weakened truck structure, insect infestation, and disease. Once gone, the longleaf failed to reproduce itself and a different vegetation replaced the once nearly solid pine growth. As they witnessed their eastern pine forests’ disappearance, some North Carolinians turned against the turpentine industry despite its continued profitability. Beginning with the state’s older naval stores region, producers increasingly switched to staple cotton production which the introduction of new fertilizers made possible. Not all turpentine producers, however, so willfully abandoned their business. Those who refused to make the switch to agriculture moved with their slave labor forces to other southern states and continued the destructive harvesting practices that had driven them out of North Carolina.

The changing nature of the turpentine production from a small-scale business dominated by casual producers who also dabbled in agriculture to one controlled by large and highly specialized operators contributed to more wasteful and destructive practices. When a turpentine operation was a small part of a larger farming enterprise, producers probably used more care to extend the life and efficiency of the forest so that it would not wear out more quickly than the agricultural land. Turpentiners who operated on a large scale and specialized in the business had less incentive to prolong their use of the pines and ran more exploitative operations. The increasing number of such producers in the 1840s and 1850s meant more widespread forest
degradation. The lease system further encouraged destructive harvesting practices. Because the price of the lease was determined by the number of boxes worked, the system encouraged producers to cut as many boxes as possible in each tree. And because the producers paid for the number of boxes, not the amount produced, they tried to maximize their yields by making frequent and deep chippings. As the practice of leasing became more common, it too led to greater inefficiency and waste.¹

Harvesting practices themselves caused considerable harm to the pines. Boxes were responsible for a variety of problems. Producers instructed their laborers to cut boxes in the swell of the pine’s most prominent root. By placing the box here more gum could be collected from trees that leaned. Otherwise gum began dripping outside the box as the face grew higher and extended over the base. Laborers preferred to cut boxes here because they could be made with the greatest of ease and in the least time. But because boxes were usually cut seven inches deep into the root, they could seriously interfere with the flow of sap. In larger roots, which represented a substantial portion of the pine’s root system, the box caused the greatest injury to the tree. Although precise mortality statistics were unknown in the antebellum years, in 1909 forester A. L. Brower estimated that seven percent of boxed trees died from reduced vitality before a stand was worked to its fullest potential. Boxes also weakened the stability of the pines, making them more susceptible to wind. Larger trees were not as vulnerable, but in smaller pines if more than one box was cut into the base they were sometimes nearly severed. Brower reported that a hurricane or strong windstorm could down ninety percent of boxed timber whereas only thirty percent of round timber would fall. Boxes also collected rain water. In stands where gum harvesting continued this was not of considerable consequence, for not only did the continuous

gum flow provide the wood with some protection from the moisture, but in dipping the gum out of the box most of the water was removed as well. Standing rainwater, however, could be especially damaging in abandoned turpentine orchards where the wood's continuous contact with moisture encouraged fungus growth and subsequent decay. Another problem was the occasional practice of trying to deter fire by filling old boxes with dirt at the conclusion of a forests' use. The dirt, which acted like a sponge, held water that might otherwise have evaporated in the box, hastening decay.²

Fire, often intentionally set by the turpentiners themselves, posed a particularly dangerous threat to boxed trees. Historian Stephen Pyne explains that “perhaps nowhere in the country were Indian burning practices more thoroughly adopted and maintained than in the piney woods, in the sand hills, and on the sandy soils where rice or cotton plantations failed to penetrate.”³ Like the Indian, white settlers and turpentiners used burning to reduce fuel as a means of preventing conflagrations, to open the choked woods for easier passage, to encourage more abundant grazing grasses, and to reduce pests.⁴ Despite efforts by turpentiners to guard against the damaging effects of fires on their forests, accidental tree burning was all too frequent. Edmund Ruffin observed that although producers took care to control their burning, “they cannot always command the progress of the fires; and from that, or other less carefully made fires, great havoc is often made among the boxed trees.”⁵ Olmsted found that burning in round timber rarely


⁴ Ibid., 145-146, 149.
harm the trees. In such forests the fire “burns slowly, and with little flame, and the living
trees, the bark of which is not very inflammable, are seldom injured.” Where the trees had been boxed, however, great harm could result. “The chips lie about it, these take fire, and burn with more flame; so that frequently the turpentine in the box, and on the scarified wood above it, also takes fire. . . .”

Such fires either greatly reduced the tree’s productivity or, as was often the case, killed it. Perry explained that “in cases where pines are much burned by the fire, they will never make as much turpentine afterward; it makes the wood dry and tough, kills many of them, and finally renders them useless for turpentine, or so much so that will never run enough to pay.” Perry believed that even raking could hurt the pines, by exposing their roots to the elements. Ruffin noted in 1840 that “without other cause or decay or destruction, the trees will live and yield well until the sides can be shaved no higher. But the spreading of accidental fires seldom fails to kill the tree earlier. For the entire face of the cutting being encrusted with turpentine, and the wood below being converted to solid lightwood, no trees can be more inflammable; and the fire burns so deeply in, as to kill the strips of living bark by heat, or to weaken the trunk so much that it yields to, and is prostrated by, the next storm.” The trees or parts of trees that escaped being burned, he reported, were cut into pieces and burned in tar kilns. While on another trip through North Carolina in the late 1850s, Ruffin attended a tea at which the talk was “of much recent

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7 G. W. Perry, A Treatise on Turpentine Farming, (New Bern, NC: Muse & Davies, 1859), 16-17.

8 Ibid., 28.

9 Ruffin, “Notes of a Steam Journey,” 250.
destruction of the long-leaf pine trees, 'boxed' to collect turpentine, in this neighborhood, by firing the woods."\(^{10}\)

Fires in abandoned turpentine forests caused the most damage. Such stands were highly flammable after three to five years of sitting unattended. With no one to rake around their bases or burn off the yearly collection of debris, trees here often sat surrounded by a thick mass of pine straw, limbs, resinous chips, and pools of resin. Moreover, the turpentined pines, their faces covered with hardened gum and their boxes and bases coated with resin, were incredibly flammable. A fire, started either by lightening, an arsonist, or human carelessness easily ignited the box and climbed up the face. When it did, the dried gum of the face often melted and ran down into the box, increasing the fires' intensity. If such fires did not destroy the tree, they at least burned away much of the fresh growth of new wood around the box and face, thus slowing the pine's recovery from turpentining.\(^{11}\)

As the problem persisted through the 1850s, turpentiners sought tighter controls on burning. Perry proposed an elaborate remedy for controlling wildfire. His plan involved cutting down all dead trees and hiring a man to stay in the forest as a lookout. He also believed, neighbors needed to make agreements that no fire would be allowed without the consent and presence of each area landowner. Finally, he recommended "above all, never allow hands to carry fire into the forest at night, under the pretext of hunting, nor in the day-time, under penalty of thirty-nine lashes, which will be found a good preventive."\(^{12}\) Another producer, who also

\(^{10}\) William Kauffman Scarborough, ed., *The Diary of Edmund Ruffin*, vol. 1, (Baton Rouge: Louisiana State University, 1972), 52.


\(^{12}\) Perry, *Treatise on Turpentine Farming*, 131.
identified fire as a great threat, believed that "the state ought to protect this important interest, by enacting severe penalties against those who set out fire where it can extend among trees boxed for turpentine." Where some producers probably heeded Perry’s advice, the state took no action to discourage fire.

Fires that did not kill longleafs could weaken them, making them susceptible to other problems. One ailment that plagued turpentined longleaf pines was a condition known as dryface in which pitch soaked the inner bark and wood. Pines with this affliction experienced a permanent cessation of gum flow from all or part of the face. In severe cases, lesions formed above and beside the dry area and resin oozed through the bark. Fire contributed to dry face when it burned the gum on the face, killing the living tissue above the face. Poor chipping practices could also exacerbate the problem. Cutting a face wider than half of the tree’s circumference, chipping too deeply into the wood, or working two or more faces on the same tree could weaken the pine by taxing its capability to produce gum and thus lower its vitality. Also, as Perry warned, “if they chipped immediately after burning, the turpentine which is brought down by the fire will run out and leave the grain of the wood open, which will fill them full of dry faces, and occasion the death of many which would have lived had they not been chipped.” He believed that chipping in the late fall as the sap was going down left “the grain of the wood open to receive the cool, dry air.”

However, drought was probably the most significant factor in weakening pines and making them susceptible to dry face. In the longleaf belt the soil possesses relatively low water-
retaining capability, making the region acutely susceptible to periodic precipitation declines. During the average growing season, June through August, nearly all precipitation is lost through evaporation or transpiration. The quantity of available water is not affected by long-term carryover. Consequently, stream and lake water accumulations remain low except during periods of unusually excessive precipitation. The sandy soils can hold sufficient moisture to sustain vegetation growth for only a few weeks during this season. Thus the moisture level of the soil constantly fluctuates with precipitation. Although both surface and subsurface water supplies are usually lower by the growing season’s end, from then, through the cooler months, to the next season, precipitation replenishes depleted surface and subsurface levels.16

During the summer, dry spells stressed turpentine trees’ vitality, increasing their susceptibility to dry face. Pines growing in wetter areas closer to ponds and streams were the most at risk because these trees tended to have more shallow root structures than those growing in areas with lower water tables and consequently suffered more from dry stress. Dryfacing also plagued more trees in crowded stands where pines were less vigorous and consequently had narrower growth rings and a narrower band of sapwood. Such trees were less able to withstand the constant flow of gum and interference with the flow of sap. Older pines could also experience dryfacing. In them the sapwood was narrower and commonly cut through during heavy turpentine work. Young longleaf with an abundance of growing space rarely suffered from dryface. These pines were more healthy with substantial seasonal wood growth and longer healthier crowns. Yet deep chipping could weaken even these healthy specimens to the degree they too deteriorated with dry face. If left standing, dryfaced pines commonly became the host to

various species of sap rot fungi and with time frequently yielded to strong wind. Weakened pines were also susceptible to another menace, insect infestation.  

Because wood-boring insects are attracted to the wounded areas of trees, turpentine faces, especially on weakened pines, were particularly vulnerable to attack. Ips beetles are the most common pine bark beetle and probably killed more turpentine pines than the other bark beetles combined. They are especially attracted to chipped and fire-scarred trees. Infested trees are commonly scattered throughout the forest, but with favorable breeding conditions the ips beetle can kill trees in groups. Because there actually are three different varieties of ips beetles, each with its own preference for part of the tree, they can attack a pine from its crown to the base of its trunk. The smaller-sized, 1/8-inch *Ips avals*, attacks the crown and sometimes the trunk. The medium-sized *Ips grandicollis*, approximately 3/16 inches long, prefers the middle and upper trunk. At 1/4 inches long, *Ips calligrophus* most commonly attacks the lower trunk. But all three can be found in any part of the tree. They may work together in the same tree, their tunnels overlapping, or they might work separately or even in secession. Hundreds of beetles attack at the same time. They become active when the weather turns warm in the spring, boring through the bark until they reach the wood. Then they begin tunneling between the bark and wood, their borrows running up and down the tree in a roughly Y or H pattern. As it bores the beetle lays eggs spaced about 1/16 inch apart along each side of the tunnel. The cream colored worms which hatch from these eggs, bore their own tunnel out from the beetle’s tunnel. They hatch in such numbers that in feeding on the cambium layer they essentially girdle the tree. When these larvae stop feeding after a few weeks, they rest, and metomorphisize into adult beetles. They then burrow out of the tree in search of other trees in which to start the cycle.

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again. The ips beetle carries with it a blue-stain fungus that spreads throughout the burrows and into the wood. Once weak and unhealthy trees have been eliminated, the beetles move on to infest more vigorous species. During the summer when breeding conditions are at their best, a new brood is produced about every four to six weeks. Each tree that they attack and kill produces enough beetles to attack at least five more. As the ips beetles breed through the spring and summer their numbers, by fall, grows enormous. If the winter is mild and dry, the adults remain alive and active, causing considerable tree deaths by late spring and by the next fall the damage may be severe. Normal winter temperatures, however, considerably reduce the ips population and in cases where drought is associated with the infestation, soaking rains usually stop their activity. Trees weakened by ips beetle attacks sometimes attract southern pine beetle and the black turpentine beetle.18

Turpentine borers take advantage of fire-scared and dryfaced pines as well. They rarely attack healthy trees. These grayish-brown and 1-1/4-inch-long beetles lay their eggs only on trees where wood has been exposed by a scar or wound. When the whitish gray grubs with broad flat heads emerge from these eggs, they borrow into the inner wood, often riddling it. This activity can continue within the tree for three years or more, filling it with hollow galleries, thus weakening the tree's stability and making it susceptible to wind. After about three and a half years the life cycle is complete and the adult beetles emerge from the trees in the spring.

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Elliptical emergence holes in dry turpentine faces are the first signs of attack. For trees already undermined and broken off, the beetles’ tunnels indicate their work.\(^9\)

The black turpentine beetle also takes advantage of longleafs stressed by turpentining. The dark brown or black 1/4- to 1/3-inch-long beetles prefer freshly cut stumps, but also invade weakened as well as apparently healthy trees. The most severe infestations occurred in slash and loblolly pines but because it is attracted to fresh resin and scorched bark, longleafs that had been overworked through excessive turpentining offered an acceptable home. The black turpentine beetle’s habits are different from those of any other bark beetle. They rarely attack above the tree’s bottom six feet and usually only the bottom two feet. The adult beetles borrow through the outer bark and stop when they reach the soft phloem. Then they begin to make a vertical gallery 1/2- to 3/4-inches wide, and around twenty inches long, usually in a downward direction. Along the sides of the gallery they lay groups of seventy to two hundred or more eggs. The eggs are laid on a soft cushion of pulverized bark which may serve as an incubator as well as protection from predators. When the eggs hatch in ten to fourteen days, the creamy white 1/3-inch-long grubs begin to feed in groups, side-by-side, on the cambium, working their way from the egg gallery. They eventually eat out an irregular fan-shaped patch that may be twelve inches across. Where several broods occur at approximately the same height on the trunk, the larvae can actually girdle the tree. After ten to fourteen days the new adults bore out through the bark and start a new generation. From two and a half to four months are required for the development of the turpentine beetle from egg to adult. Two generations usually develop each year. Attacks on single trees last four to seven months.

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\(^9\) F. C. Craighead, “Insects That Attack Southern Pines,” Austin Cary Memorial Forestry Collection, Department of Special Collections, George A. Smathers Libraries, University of Florida, 2; Bennett, Chellman, and Holt, Insect Enemies, 16.
The black turpentine beetle kills more slowly than other bark beetles. Usually only a few beetles attack each tree, making their buildup to outbreak proportions slow. They are most active from early in the spring to late fall but during mild winters, especially in the gulf South, they may remain active all year. When the beetles first attack a stand they most commonly concentrate in a small number of trees, usually no more than one half dozen. By the end of the season they may be in ten to fifteen percent of the trees. After the beetle attacks the trunk it quickly moves against the lateral root. If the root’s infestation becomes sever it an hasten the tree’s death. The beetles work slowly and persistently through the year. Light attacks will not kill the tree. 

Turpentine beetle can infest, attack, and kill trees, almost without being noticed until a large number of the trees begin to die. First, the needles begin to fade from their normal green color, to a yellowed green, and finally to a reddish brown. Fading will begin four to eight months after the first attack, but in some cases it may take twelve months or longer. When the fading begins it takes about one month for the tree to change fully to red and about two more months for the foliage to fall off. Only rarely does the population grow quickly enough to cause sudden high mortality in an area. When they attack forests disturbed by fire, logging, or wind, the beetle seldom persists at high levels of population for more than one or two years. But in stands boxed for turpentine the activity could continue for three to five years. Intensely worked trees in dense stretches were particularly susceptible to their attack.  

Although the southern pine beetle is also a dangerous enemy in the turpentine region, its most vigorous activity is in the piedmont region. Only occasionally are huge tracts in the coastal

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plain attacked. The most severe outbreaks occurred after deficiencies in rain, the beetles first infecting the higher and dryer tracts and spreading to other pine stands from there. The pine beetle is the size of a grain of rice and it attacks and kills healthy trees of all ages. They attack in great numbers, boring through the bark, usually in the upper and middle portions of the trunk. They then tunnel through the soft layer of inner bark, making S-shaped galleries along which they lay their eggs. The tiny larvae that hatch from these eggs feed on the inner bark until they are fully grown, a period of about two to three weeks. They then bore into the bark where they developed into new beetles that borrow out and fly away. Three to five generations may be produced in a year. By attacking in such large numbers, these beetles quickly destroy the cambium layer causing the trees rapid death. Often the blue stain fungi follows the pine beetle infestation, causing even more weakening of the tree.\footnote{Craighead, “Insects That Attack,” 4-5.}

A variety of other insects made the weakened turpentine trees their home for breeding as well. The southern pine sawyer, a large, gray, molted beetle with very long feelers, lays eggs in small oval pits which it gnaws in the bark. Their eggs hatch into larvae which bore into the bark and through to the sapwood on which they feed. The larvae remain beneath the bark for about twenty days during which time they cause complete destruction of the wood. The pitch moth has a similar breeding pattern. This small moth lays eggs along the edge of faces and when the eggs hatch the larvae bore into the tissue. Although frequently abundant, they cause little serious injury. However, in association with other insect infestations, they can contribute to the trees’ death. Damage from all these insects could be considerable, even if they did not directly kill the trees. The fungi that often accompanied them could cause considerable decay of the wood above the face.\footnote{Ibid., 3,10; Schopmeyer and Maloy, “Dry Face,” 1.}
It is difficult to know precisely which insects plagued the mid-nineteenth-century North Carolina turpentine forest. Twentieth-century entomology and forestry research, however, provide clues as to what probably happened. Yet historians can only speculate because the contemporary observers' limited knowledge of insects resulted in vague descriptions. In his *Treatise on Turpentine*, for example, G. W. Perry identifies a "black bug" as one such invading beetle. That he is describing some form of bark beetle is clear, but the insect that he discusses has attributes of turpentine borers, black turpentine beetles, and ips beetles. He explains that this black bug laid eggs which hatched into a "cutting worm," that fed on the sapwood. He goes on to create such descriptive terminology for the worm as "Ramming worm, Laboring worm, or Forward-moving worm." Clearly this "worm" is the larvae stage of the black bug, but Perry seems to consider it to be another species of insect. He also identified a "black worm," apparently the larvae of another beetle that he believed "is caused by a black fly laying its eggs on the edge of a scar," and a "straw worm," which lives in the boughs of the tree on the green straw attacks pine trees. Perry admits that he is "not able to give the origin of this insect, but have no doubt, from the time of its appearance, that it is produced by some large fly."23

An example of the devastation that insects could cause in turpentined forests occurred in the late 1840s. In 1848 both boxed and round pines in the eastern half of North Carolina began mysteriously and rapidly dying in great numbers. The greatest damage appears to have occurred below the Cape Fear, especially in Brunswick County. One timber owner there reportedly lost 130,000 tress, the task for about twelve hands. Another owner's loss was estimated at an astonishing 750,000 pines. Symptoms of the blight also appeared in several counties to the north. That summer a traveler on the road from New Bern to Kinston and Waynesboro (probably Goldsboro) reported seeing tracts of pine either dead or dying. The death of so many trees

threatened the entire region's economy. One writer in the Wilmington Journal wondered what
the area would do if the problem continued. Many people “are in debt for turpentine land, and
that, too, at a high price,” he explained. “Turpentine is the controlling commodity in this section,
and regulates the price of everything else. Turpentine itself is very low—Turpentine land has
already depreciated more than one-half, and everything else in proportion.” The Journal and
other newspapers speculated about the cause of the trees’ death. The Mobile Herald attributed
the blight to atmospheric conditions. The Tarboro Press thought it was caused by a bug which
laid its eggs in the tops of pines. These bugs, the paper theorized, were attracted to the smoke of
burning rosin which turpentine stills emitted, a theory that seemed logical to some because the
decline of the pine forests came on the heels of the increased number of small back-woods stills.
When in July the pines around Wake Forest College, then located just north of Raleigh, began to
succumb, Professor John D. White’s investigations found that two kinds of small bugs were the
culprit. White observed that these beetles entered the bark by boring a small hole and tunneling
between the inner bark and sapwood. The beetles small size, their ability to kill the trees quickly,
and White’s claim to have identified two different varieties, seem to point more toward ips
beetles as the cause. The problem apparently began in early 1848 when eastern North Carolina
enjoyed a mild winter, which allowed the beetle to continue breeding. By the spring and summer
of that year their numbers were huge and they began killing pines en masse. These insects
continued to thrive into the spring of 1849 until the area suffered a freak snow storm. On April
14 the temperature dipped and the next day sleet began falling. Within five or six hours the
precipitation turned to snow which continued to fall into the night. Before daybreak the weather
cleared and the next day the sun melted the snow, but the brief storm stopped the attack by
reducing the number of adults and larvae. Still, for the year that the insect’s numbers had
increased unchecked, tremendous tree loss resulted and as turpentining continued into the twentieth century infestations would reoccur with similarly disastrous consequences. 

By the beginning of the 1840s the damage to the turpentine forests, brought on by reduced tree vitality, structural weakening, dryface, and insects, was becoming clear. In northeastern North Carolina where naval stores production had continued the longest, the number of longleaf pines was declining.  

Fourteen miles outside of Plymouth, North Carolina, on his way to New Bern, Ruffin observed that the pine trees were “deformed by being skinned for extracting turpentine. ...” In 1843, William Cullen Bryant, a New York City editor and poet traveling from Richmond, was astonished at the number of boxes in North Carolina pines. “This is the work of destruction,” he reported, “it strips acre after acre of the noble trees, and, if it goes on, the time is not far distant when the long-leaved pine will become nearly extinct in this region.” William D. Valentine of Oaklawn Plantation in Hertford County, apparently recognized the consequences of excessive boxing. He not only warned against cutting too many boxes in a pine, but he also suggested chipping only every other year so the tree could “recover from the drain of its fluid which is its blood.” No one, it appears, heeded his advice.

As the longleaf stands died from the effects of turpentining, they failed to replace themselves. In 1840 Ruffin found that the pines around Wilmington had vanished. Although in this particular case the clearing was probably the result of a demand for timber for fences,

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28 Ibid., 31, 33.
houses, and firewood, rather than from turpentining, the result gave an early indication of how removal of the longleaf pines could transform the region's vegetation. The longleaf was not replaced by a second growth of more longleaf, but rather by what Ruffin described as an "almost unmixed growth of thickly set dwarfish 'scrub' oaks which rarely rose higher than six feet." In other areas further inland, Ruffin found a second growth of shortleaf pine, but no longleaf. He recognized that turpentine production was the principal destroyer of the longleaf and explained that "where vicinity to market, or cheapness of carriage, permits this business to be in full operation, it cannot last long, as the long leaf pines will be destroyed and will not be renewed. The other kinds of pines are not worth working for the purpose." In the more western reaches of the pine belt, John MacLeod of Johnson County observed, "where pines are destroyed by blasts, hurricanes, or turpentining, a growth of oak, hickory, etc. arises in their stead, not a solitary instance of the longleaf." Olmsted questioned whether there ever would be a revived growth of longleaf given its slow growth and its apparent inability to reproduce itself. He reported that "when the original long-leafed pine has been destroyed, and the ground cultivated a few years, and then 'turned out,' a bastard variety springs up, which grows with rapidity, but is of no value for turpentine, and of but little for timber." In 1855 yet another observer reported


30 Ruffin, "Notes of a Steam Journey," 245.

31 Ibid., 250.


33 Olmsted, Journey in the Seaboard Slave States, 346-347.
that “from Rocky Mount to Wilmington (with now and then an exception to the rule) the country presents the appearance of a dreary desolate pine barren waste.”

Longleaf pines failed to come back for two reasons, one of which contemporary observers understood. Hogs, Ruffin believed, were the primary reason for the slow-growing longleaf’s inability to reproduce itself. Hogs eagerly devoured the pine’s large cones, allowing few seeds to sprout into seedlings. For those that did escape and germinate, hogs posed a continued threat. Ruffin reported that “of the few that do sprout, scarcely any of the young trees survive the after attacks of the hogs, which root up the young trees, to eat the roots, even when the trees are several years old. Hogs ranging in the woods are quite fond of the tender roots, and the bark of the roots of older trees, and live on this food principally in the winter and spring, after the pine seeds are consumed.”

G. W. Perry likewise blamed hogs for eating the bark off the roots of saplings. Second, the absence of regular low-burning fires contributed to the longleaf’s failed reemergence. As unwanted and neglected property, old and dying turpentine forests received little if any management such as yearly undergrowth firing, a practice that had originally created and sustained the southern longleaf forest by killing off competing species. Without fire, loblolly and shortleaf pines quickly shaded out any longleaf seedlings fortunate enough to escape the ravenous hogs. When abandoned turpentine forests burned by accident, the fires blazed so intensely they killed off all vegetation, including the young longleafs.

The rise and decline of the Richlands Plantation turpentine business typifies the consequence of the longleaf’s destruction. Although turpentine was probably produced on the tract in Onslow County as early as the eighteenth century, it did not become the plantation’s


36 Perry, Treatise on Turpentine Farming, 27.
focus until John Avirett undertook it on a large scale in the 1840s. As turpentine prices climbed, so did Avirett’s output and profits until his annual income eventually reached $60,000. But Avirett failed to diversify his business, focusing his slaves’ energy on the plantation’s pine land, and did little to develop his agricultural operation. By the early 1850s the business’ exploitative harvesting practices began to take their toll on the Richlands forests. In 1850 Avirett first advertised the sale of the entire operation, even the 125 slaves who labored to make his naval stores, in North Carolina newspapers. Avirett even tried to divest himself of the 125 slaves who labored to make his naval stores. He found no buyers, however, and in 1857 Richlands failed, its pine forest destroyed. Deeply in debt, Avirett at last sold off all his property, including his distillery and even the family graveyard. By 1860 he was living in Goldsboro where he allegedly died in 1863 in either a poor house or an insane asylum. His son James, who was born at Richlands in 1835 and was raised in the big house, received no inheritance with which to continue the family legacy. He became an Episcopal priest and served as chaplain under Stonewall Jackson’s chief cavalry officer. In his memoir of his youth at Richlands he postulated that “It would have been far better for the landed estates of the South if the timber, especially the hardwood, had been more carefully guarded and economized.”

As turpentining’s destruction of the North Carolina longleaf pine stands proceeded and it became more obvious that the industry could continue only for a limited time, many North Carolinians began to condemn turpentine production and emphasized the need to raise cotton instead. Whereas the area’s poor soils had earlier discouraged staple crop production, the

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38 Avirett, Old Plantation, 29.
introduction of lime, manure, super phosphate, and guano fertilizers now made this shift to
cotton cultivation feasible.\textsuperscript{39}

The older turpentine region of Edgecombe and Pitt Counties led the drift back to cotton.
In Edgecombe County in the early 1850s cotton began to replace turpentine, a trend that
continued into the late 1850s. The \textit{North Carolina Planter} encouraged it with its report that
“throughout the entire region hitherto devoted to the production of turpentine, cotton may be
cultivated at great advantage. Even our sandy lands, aided by compost and other manures,
produce it finely, and will give to planters a better remunerating crop than turpentine has ever
done.”\textsuperscript{40} In 1853 one commentator, in a discussion on Edgecombe’s shift to cotton, called
turpentineing “that great curse to our state” which had seduced farmers with the promise of great
profits but proved “to be only a temporary resource.” “When this resource failed,” the writer
continued, “they then, through necessity, turned their attention to the cultivation of their farms
and began to look around to discover the advantages which where in their midst, but hitherto
unobserved.”\textsuperscript{41} There was sound understanding that success would require patient labor and
judicious manuring, but the eastern part of the state had little choice but to shift to cotton and
corn cultivation.\textsuperscript{42} In Pitt County, \textit{The North Carolina Planter} reported in 1860, “cotton is manic
here; larger plantations devoting most of their time and attention to it.” Planters believed that
their crop that year would be larger than ever before.\textsuperscript{43}

\textsuperscript{39} Percival Perry, “The Naval-Stores Industry in the Old South, 1790-1860,” \textit{The Journal
of Southern History} 34 (November 1968): 509; Richard C. Sheridan, “Chemical Fertilizers in
Southern Agriculture,” \textit{Agricultural History} 53 (January 1979): 308-309.

\textsuperscript{40} Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861”
(Ph.D. diss., Duke University, 1947), 287.

\textsuperscript{41} Ibid., 286.

\textsuperscript{42} Ibid., 287.
Southeastern North Carolinians also began to question their heavy reliance on turpentine production. But because the vast longleaf stands were slower to disappear than the more sparsely growing stands in the old turpentine region, residents there were slow to make the shift to cotton planting. As early as 1848 a Duplin County farmer complained that farmers of that area placed too much emphasis on turpentineing and not enough on agriculture. Because the strongest hands were used in turpentine production, he explained, farms had fallen into disrepair and producers had to buy corn and pork because they no longer supplied their own food staples.44 Three years later the Fayetteville North Carolinian asked if “it were not better for our farmers in this neighborhood to turn their attention to raising stock and making corn, and not devote so much time to getting turpentine.” Whereas in earlier years Fayetteville had supplied Wilmington with corn and pork, now these supplies moved in the opposite direction, through Wilmington and into the of the Cape Fear Valley. Since the turpentine industry’s expansion the area’s importation of corn and bacon had quadrupled.45 This decline in food production is reflected in one traveler’s report that “in passing over the railroad leading to your enterprising and flourishing town of Wilmington, the eye of the planter is particularly struck with the absence of all Agricultural improvements in its vicinity.”46 In 1853 a Beaufort County farmer advocated a shift to agriculture where the turpentine industry was in decline. He explained that “our means of transportation have greatly increased, but the resources that have been operated upon chiefly—namely: Naval Stores—are becoming very limited and used up, while those of agriculture and

45 Ibid., 256.
46 Ibid., 10.
horticulture, the ones mostly to be relied on, have not been developed."\textsuperscript{47} The \textit{Wilmington Journal} agreed, arguing that "it is a great mistake that when once the turpentine falls we must fall too. It may be the best thing for us when staple agriculture is substituted for a dependence upon the products of the forest."\textsuperscript{48} In 1854 the \textit{Farmer's Journal} urged that North Carolinians explore available land opportunities in their own state before giving up and moving to South Carolina and Georgia in pursuit of fresh turpentine orchards.\textsuperscript{49}

Little advancement in southeastern North Carolina agriculture resulted from this encouragement and by the late 1850s area agricultural organizations took up the cause. In November 1858, William A. Allen addressed the Duplin Agricultural Society on that county's need to concentrate on agriculture. He spoke on the need for improved agricultural methods: proper drainage and fertilizing. That Duplin lacked the agricultural development that Edgecombe County enjoyed was because its citizens paid too much attention to turpentining and not enough to their farms. He was "fully persuaded that if there never had been a barrel of turpentine made in the county, the people would have been better off, and the county would today have been recognized . . . as perhaps the richest agricultural county in North Carolina. . . ."\textsuperscript{50}

The editor of the \textit{Wilmington Journal}, who was in audience, agreed with Allen that the Cape Fear counties required "the devotion of a larger degree of attention to the cultivation of the soil, and a loss reliance upon mere products of the forest--naval stores and lumber--since agriculture is reliable, progressive, self-sustaining, while the other business which had at one time usurped its

\textsuperscript{47} Quoted from Percival Perry, "The Naval Stores Industry in the Ante-Bellum South, 1789-1861" (Ph.D. diss., Duke University, 1947), 278.

\textsuperscript{48} Ibid., 291.

\textsuperscript{49} Quoted from Ibid., 278-279.

\textsuperscript{50} Ibid., 288.
place is necessarily exhausting and inevitably tends to work itself out."\(^5\) In Onslow County, where agriculture was of only moderate importance, a group of farmers in 1859 organized an agricultural society, hoping "to create a spirit of improvement among the farmers . . . and that better crops may be made thereby." The organizers aspired for Onslow to become more of a farming county. That it was not, they believed was because "we make Naval Stores extensively, thereby neglecting the more important of all the farming interest by omitting to properly fertilize and improve the soil."\(^5\) That same year a Brunswick County farmer believed that the area had reached a crossroads. "This county heretofore has been almost exclusively engaged in getting timber, lumber, and Naval stores for market," he explained, "but now, all the choice timbered and lumber making growth within reach of market, is gone, turpentine trees worked up, and our citizens must either move off to a fresh country or turn their attention to agriculture." He hoped they would choose the latter. The soil was poor, he admitted, but the available abundance of lime from oyster shells and marl could enrich the earth enough to support agriculture.\(^5\) Yet despite such encouragement, cotton cultivation increased only slightly in the southeastern counties. Although it was clear by October 1860 that North Carolina's cotton crop that year would be larger than ever before, most of the production coming from the northeastern counties while excitement over turpentine continued in those to the southeast. In 1859 naval stores exports from Wilmington reached their highest level ever.\(^5\)

\(^{51}\) Ibid.

\(^{52}\) "Organizing an Agricultural Society in Onslow County," The North-Carolina Planter 2 (October 1859): 311.

\(^{53}\) Percival Perry, "The Naval Stores Industry in the Ante-Bellum South, 1789-1861" (Ph.D. diss., Duke University, 1947), 292.

While some producers looked for new pine land, others turned to cotton. Evidence suggests that producers who concentrated almost exclusively on turpentine production and only in a small way on agriculture were more likely to remain in the business by moving South. Both Benjamin Williams and James R. Grist engaged in little if any crop cultivation in North Carolina and largely avoided it once they moved to Georgia and Alabama respectively. Slightly less than half of turpentine operations appear to have included as much as two hundred acres of farmable land. Although most such cultivated plots grew mostly grain crops in the 1840s and 1850s, fertilizer applications could have enabled cotton production on them by the 1850s, providing turpentiners whose exhausted forests yielded small returns with an alternative staple commodity. As in John Avirett’s case, producers who refused to move to the fresh pine tracts further south but remained so dedicated to turpentine that they failed to shift to agriculture, faced almost certain financial ruin. Few North Carolina operators appear to have possessed Avirett’s dedication to both place and the turpentine business. Small producers with less capital invested in specially trained slaves and stills commonly opted to remain in the state and switch their efforts to cotton cultivation. Large producers, whose financial dedication to naval stores prevented such flexibility typically chose to move south, demonstrating the same relative disregard for community and the land as the plantation cotton farmers who between the 1830s and 1850s moved from their exhausted fields in the East to the black belt and Mississippi Delta. One observer of the naval stores industry has argued that “turpentine represented the extensive and exhausting practices that had long characterized use of southern land. Like tobacco in Virginia in the seventeenth century and indigo in South Carolina during the eighteenth century, turpentining stood for the maximum exploitation of land and labor in the short run.”

North Carolina producers who wished to remain in the business began buying virgin pine forests in states to the south and moving their slaves, who were already familiar with turpentining practices, there to begin production.\textsuperscript{56} In fact North Carolinians were responsible for much of the industry's antebellum expansion into other southern states. Immigrant producers possessed the experience in this unique industry that the natives of other pine-rich states lacked. One Wilmington man doubted that anyone without practical experience could make a success of turpentining. He advised that if "you have any idea of going into the business, you had better employ a young man from North Carolina to superintend for you the first year; at least one accustomed to the business, who can put your hands in the way of making, coopering, &c."\textsuperscript{57}

A state-by-state analysis reveals that South Carolina, Georgia, and Alabama attracted the most North Carolina turpentine producers, however Florida, Louisiana, and Mississippi lured a few. As early as 1840 production began to increase in the Palmetto State, largely as a result of North Carolina producers drifting across the border in search of fresh pine land (fig. 4.1). That year South Carolina manufactured only 735 barrels of tar, pitch, turpentine, and rosin combined. The early activity in South Carolina essentially represented an extension of that in its northern neighbor, the product being made by North Carolinians who marketed it mainly through

\textsuperscript{56} Percival Perry, "The Naval Stores Industry in the Ante-Bellum South, 1789-1861" (Ph.D. diss., Duke University, 1947), 276

\textsuperscript{57} Dugall McMillan to Southern Cultivator, 14 April 1846, Southern Cultivator 4 (November 1846): 122, 172.

Figure 4.1: United States Department of State, Compendium of the Enumeration of the Inhabitants and Statistics of the United States as Obtained at the Department of State, From the Returns of the Sixth Census, 1840 (Washington, DC: 1841), 158, 170, 182, 194, 206, 218, 230, 242, 254, 266, 338.
Naval Stores Production, 1840
Southeastern United States
Barrels of Tar, Pitch, Turpentine, and Rosin

Figure 4.1. Naval Stores Production, 1840, Southeastern United States, Barrels of Tar, Pitch, Turpentine, and Rosin
Wilmington, especially after completion of the Manchester Railroad.⁵⁸ Agricultural journals of the day assured them of the South Carolina pines’ productivity. An 1846 *Monthly Journal of Agriculture* article reported that “very recently several enterprising individuals have engaged in this business in South Carolina.” The writer was confident that turpentine “will add considerably to the other resources of the State.”⁵⁹ He assured consumers and potential producers that pines of South Carolina differed in no way from those found in North Carolina and yielded resin in equal abundance. *De Bow’s Review* agreed, reporting that “travelers through the middle and lower districts of the State, agree in pronouncing the pine forests of these sections as well adapted as those of North Carolina for the manufacture of turpentine.”⁶⁰ Such claims apparently convinced some North Carolinians. While traveling through South Carolina in the 1850s, Olmsted reported that North Carolinians had been working turpentined trees there for several years.⁶¹ Shortly after the Civil War, Whitelaw Reid, too, reported that “turpentine growers have for many years been abandoning” North Carolina’s depleted forests “for the more productive forests of upper South Carolina.”⁶²

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From the late 1840s to 1860, South Carolina's naval stores industry grew steadily (figs. 4.2, 4.3, 4.4, and 4.5). By 1848 Charleston had a turpentine distillery with a one-hundred-barrel per day capacity and plans were underway to double the facility. In the late 1840s, Robert I. Hyslop moved from North Carolina to South Carolina and began teaching people in the Barnwell district how to make turpentine. In 1849 one producer whom he had instructed reportedly netted $398.84 with the help of just one hand. Another man in Ridgeville, South Carolina, about thirty-five miles northwest of Charleston, made $3000 from the work of forty hands who together dipped 5000 barrels of turpentine. At the time turpentine prices were relatively low at $2 per barrel. By at least the early 1850s one S. T. Cooper operated a large thirteen-crop operation along Black Mingo Creek in the Georgetown, South Carolina area. In some areas of South Carolina the industry drove up land prices. “In the vicinity of Orangeburg,” The Commercial Review reported in 1850, “the range is from $1.50 to $5. Many of the neighboring planters have embarked in the business, and at present it is difficult to obtain suitable locations.” However, affordable pine land was still available in other areas. Near Summerville, a village twenty-two miles northwest of Charleston, pine land had sold for as low as seventy-five cents to a dollar and in a couple of instances fifty cents per acre. In the lower part of Barnwell, Colleton, and Charleston districts good land sold for from fifty cents to two dollars per acre. The Edisto River

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64 “The Manufacture of Turpentine in the South,” 452.

65 Ibid.
Figure 4.2. Barrels of Tar, Pitch, Turpentine, and Rosin Produced, Southeastern United States, 1840
United States Department of State, Compendium of the Enumeration of the Inhabitants and Statistics of the United States as Obtained at the Department of State, From the Returns of the Sixth Census, 1840 (Washington, DC: 1841), 158, 170, 182, 194, 206, 218, 230, 242, 254, 266, 338

Figure 4.3. Value of Naval Stores Produced, Southeastern United States, 1850 and 1860
Figure 4.4. Number of Naval Stores Establishments by State, Southeastern United States, 1850 and 1860

ran through the region providing water transportation to the coast. Also, the South Carolina Railroad ran through the center of the region, crossing the Edisto at Branchville in Orangeburg County. By 1855, a distillery operated at Reevesville, beside the South Carolina Railroad, fifty-two miles northwest of Charleston. At that time 150,000 to 180,000 boxes were worked in

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Ibid.
Naval Stores Production, 1860
Southeastern United States
Value of Crude and Distilled Turpentine

Figure 4.5. Naval Stores Production, 1860, Southeastern United States, Value of Crude and Distilled Turpentine
the area. A North Carolina producer found that the South Carolina lands, as well as those in Georgia, offered the best opportunities for turpentine production of any "region of the world."

"The trees," he believed, "in many sections, are so numerous as to be almost inexhaustible, and the yield, both in respect to quantity and quality, equal to any he ever found in the best regions of North Carolina. The location of these lands, in the immediate vicinity of railroads, navigable streams and sea-port markets, offers the best facilities of transportation and ready sales." With these advantages South Carolina's naval stores industry grew at a fierce pace during the 1850s. The number of turpentine operations more than doubled, from forty in 1850 to ninety-five in 1860. Even more dramatic, the capital invested in these businesses jumped fourteen times; the number of hands grew six times, from 220 to 1359; and the product value increased 450 percent from $235,836 to $1,076,725.

In the late 1840s and early 1850s turpentining also began along the Savannah and Altamaha Rivers in Georgia. The first producers appear to have been mostly young, single, native Georgians who began operation on a modest scale. In 1850, 14 producers manufactured turpentine in Georgia with the aid of a total of 202 laborers (figs. 4.4 and 4.6). Of the eight producers that historians Jeffrey R. Dobson and Roy Doyon discovered in the 1850 census, five were slaveholders with a combined holding of fifty-six male slaves. Six worked in Camden County, which then included most of present day Charlton County, in the extreme southeastern corner of the state. McIntosh and Wayne Counties, each straddling opposite sides of the Altamaha River, had one producer each. That year Georgia produced an estimated 28,000 barrels of turpentine.

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68 "The Manufacture of Turpentine in the South," 454.

barrels of turpentine and distilling increased as well. Savannah had a large distillery, and throughout the state there were ten distilleries either erected or ordered and seven to eight new producers were thought to have entered the business. In 1850 De Bow’s Review reported that

\[\text{Number of Hands Employed in Naval Stores Production} \]
\[\text{Southeast United States} \]
\[\text{1850 and 1860}\]

Figure 4.6. Number of Hands Employed in Naval Stores Production, Southeastern United States, 1850 and 1860


"if its production goes on increasing, for a few years longer, as rapidly as during the last year or two past, it will not take long to transfer the general head quarters of the turpentine trade from

North Carolina to Georgia. So far as we are informed, most of those who entered upon the business of producing turpentine in Georgia, have had as good success as could reasonably be expected. However, despite these increases and the claims made by boosters, in 1850 Georgia's turpentine industry was of relatively little significance, contributing only $55,000 to the state's $7,000,000 gross manufacturing product.

Yet conditions were right for the industry's expansion, mainly due to the immigration of North Carolinians to Georgia's pine belt during the 1850s. Hundreds of thousands of the finest longleaf pine acreage remained available. As one 1849 advertisement explained in Georgia "companies engaged in the Lumber and Turpentine business will, upon examination, find the above Lands much more favorably located than any in the [other] Southern States, being in such large bodies and accessible to market by navigable streams." The tracts were enormous. 10,000 acres were offered in Camden County, 87,000 acres in Ware County, and a contiguous tract of 72,000 acres in Wayne County. An 18,000-acre pine tract on the Satilla River in Ware County promised to "be sold cheap" in 1850. By the late 1850s demand for Georgia pine and improved access to it made the lands of southeastern Georgia marketable. The Georgia Land Agency of Macon began selling off parcels of 150,000 acres which it owned in the Satilla River basin. The land company had received the titles from the state in 1850, a period when except for transportation up the river, there was no access to the region and very little was even known about it. Promotional literature explained that it was said to be "the ONLY UNCULLED PINE

71 "Turpentine Business in Georgia," 118.
72 Ibid., 119; Dobson and Doyon, "Expansion of the Pine Oleoresin Industry," 47.
73 "To Lumber and Turpentine Companies," Wilmington, North Carolina Journal, 7 September 1849.
FOREST NOW EXISTING IN THE ATLANTIC WATERS, that is situated convenient for river carriage.\textsuperscript{75} During the 1850s railroad lines extended into the region from Brunswick and Savannah improved access. Making the land even more attractive was its low tax, \textdollar\ 7.5\textcent\ an \$100 value.\textsuperscript{76}

During the decade, North Carolina producers continued to move to the region. One Richard Cogdall left North Carolina because the pines there were exhausted and established a new turpentine operation on the Altamaha River, ten miles above the town of Davis. He was one of five or six North Carolinians to have purchased land in the area and begun operations. The combined harvest of these producers was expected to yield 10,000 to 12,000 barrels. As producers steadily expanded into Georgia between 1850 and 1860, the industry grew. The combined capital of naval stores producers rose from \$110,000 to about \$200,000 in 1860 and although the number of operations decreased from fourteen to thirteen, the number of wage earners rose from 202 to 307, indicating the operations were growing larger in size (figs. 4.4 and 4.6). The product value, however, experienced a remarkable rise. It appears that high productivity and a concentration on distilled spirits over raw gum caused the value of manufactured turpentine to jump over four hundred percent from \$55,068 to \$236,111. Yet despite the turpentine industry's advancements, by 1860 Georgia's wiregrass region remained relatively undeveloped. The area lacked a deeply rooted planter class, most of the sparse population consisting of yeoman farmers and livestock herders.\textsuperscript{77}

\textsuperscript{75}Butts, \textit{150,000 Acres}, 13.

\textsuperscript{76} Ibid., 13.

\textsuperscript{77} The move to Georgia was difficult and expensive and thus not feasible for all who wished to make the move. In 1853 W. H. Turlington wrote from Wilmington to his brother explaining that “I expect to try this place a while longer though if I had money I would go to Georgia and make and distill turpentine.” W. H. Turlington to A. J. Turlington, 11 December 1853, A. J. Turlington Papers, Special Collections Library, Duke University; Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861” (Ph.D. diss., Duke University,
Dr. Benjamin Williams, a producer from Greene County, North Carolina, illustrates the process of moving from the older turpentine region and establishing themselves in Georgia where they could take advantage of the abundant pine forests. In January 1855 in preparation for the move, Williams sold off 253.5 acres of farm land and the remainder of his pine land. As the turpentine season for that year concluded in November, he hurried to complete the harvest and begin the move with his wife to Charlton County, Georgia, located in the extreme southeastern corner of the state and covered largely by the Okefenokee Swamp. By November 1858 his new Georgia operation, which he apparently shared with a partner, was going well. With relief his wife reported that "we are now out of debt, + in the Turpentine business[,] they are able to pay for their land, their still, their wagons + mules + the hire of their hands, + have about ($3000) three thousand to divide." Not only that, but Williams had purchased some land in Ware County, the adjacent county, and possibly part of the tract offered by the Georgia Land Agency. This 490-acre parcel, which cost $1,000, slightly more than $2 per acre, reportedly contained beautiful pine timbers and was conveniently located by the Albany and Gulf Railroad, which passed through one corner of it. Moreover, because it appeared healthier and relatively convenient to Savannah, which was about a four or five hour ride away, it promised to make a more appealing home than theirs at Burnt Fort in Charlton County. By September 1859, Williams had purchased property at St. Johns Bluff, Florida. Here there were "about six thousand young fruit trees of different kinds, which have been carefully selected from the best nurseries, and a good dwelling house, which cost $5000.00 when built twenty years since." He desired to live there if it were not so distant from his concerns in Georgia.

Williams was by this time selling timber along with producing turpentine, and he continued to plan a move to Ware County. Not only was transportation better there, but he believed the fresh trees yielded gum capable of make high-grade rosin. He felt that he could make better rosin at the new location at transportation was better. He hoped to divest himself of the Charlton County operation, which he anticipated he could sell for more than it cost him when he began it two years earlier. Within a month and a half later, Williams found a prime tract of 3,000 acres in Ware County on the Satilla River. The Albany and Gulf Railroad ran through it, just as it did the 490-acre parcel he purchased the year before, and the nearest depot and post office were only two and a half miles away. He planned to erect a still beside the railroad and already had a distiller, overseer, and between thirty and thirty-five slaves ready to be sent to the location. By January Williams had forty-five hands, who came from Virginia, North Carolina, and Georgia, at work in Ware County and he and his partner, a Mr. Becker, were working thirty-five hands at the old operation in Charlton County, which he had not yet sold. Around this time, Williams' acquaintances from North Carolina also moved to the area; one purchased a cotton plantation for $10,000 farther up the railroad line and another purchased a turpentine operation thirty miles below Williams on the same line. Later that winter, Williams oversaw the construction of his still in Ware County and set out four or five hundred fruit trees that he ordered from a nursery in Savannah. In late May the new Ware County operation produced turpentine and the still was up and running. Williams also began shipping timber to New York. As the turpentine harvesting season continued in the fall of 1860, Williams rushed to complete the house in Ware County that he had been planning for some years. He had just recently sold his Charlton County place, and his wife busily packed their belongings for the move. By early December the Williams were finally living in Ware County. Ben's patient wife reported that they were "living in the kitchen and the house is going up slowly, but I had rather wait longer & have it more convenient." The acquisitive doctor had recently purchased yet more land, five
hundred acres, at the point where the Savannah, Albany, and Gulf Railroad and the Brunswick and Florida Railroad intersected. His wife explained that “he considers it a good investment.” “You see,” she wrote her parents from Georgia, “the Dr believes in negroes + pine land.” Benjamin Williams’ case shows how some producers, determined to remain in the turpentine business, were willing to sell their entire North Carolina holdings and begin anew hundreds of miles away in another state. As with Williams, it was not uncommon for turpentiners to purchase different parcels of land scattered across several counties, usually near a transportation source, run separate operations on them, or to enter a related business such as timber cutting.78

Turpentining probably began in Alabama in the late 1840s, most likely in the Mobile vicinity. One Col. R. D. Jones of Clarke County, due north of Mobile and serviced by the Alabama River on its east side and the Tombigbee on its west, reportedly began experimenting with turpentine in 1847. The area not only offered high quality pine land, but excellent river access to the port at Mobile. A North Carolina producer interested in starting an operation there received a very favorable report from Mobile that “there is plenty plenty of Pine Land in the whole South as well Adapted to the making of Turp as the finest sections are in the Old North State and as far as I can judge it can be got to market equally as cheap as the charges are at present on the Will Rroad.” The writer believed that “the freights on the River are very low + from here to N York not ‘on an average’ over 20 pr ct higher from Wilmington.”79 In 1849 an article in the Mobile Planter argued that operators could start with twelve hands and produce $4,857 per year, within three years he could increase production and make $18,920 with thirty-

78 Sarah Hicks Williams to Parents, 21 January 1855, 26 November 1855, 16 January 1858, 23 November 1858, 7 November 1859, 18 January 1860, 11 March 1860, 21 October 1860, 6 December 1860, Benjamin F. Williams to Samuel Hicks, 25 September 1859, 31 May 1860, Sarah Hicks Williams Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.

79 S. H. Gaines to Grist, 23 March 1854, James Redding Grist Papers, Special Collections Library, Duke University.
eight hands. For a planter to make the same profit, cotton would have to sell at 25¢; it then brought somewhere between 11¢ and 12¢.  

In December 1854 turpentine producers met in Mobile to discuss ways to encourage the industry. A report offered at the meeting claimed that Alabama yielded 1,060,000 gallons of turpentine and 130,000 barrels of rosin worth $750,000. $2,000,000 of capital was invested in its production. At the same convention a Mr. Price estimated “that with the same rates of increase for the next five years, it will amount to the sum of many millions of dollars, provided the inducements and encouragement can be afforded...” Price assured his fellow conventioneers of the favorable profits “of naval stores over that of cotton.” “The region’s forest resources,” he explained, remained “uncultivated, and utterly worthless in a pecuniary point of view, both to the general government and the State.” His report centered on the increased volume of business the turpentine industry could give to Mobile factorage houses and merchants over cotton. Whereas the average slave could produce four bales of cotton per year from which receivers in Mobile realized $10, the average turpentine laborer would produce 170 barrels of rosin and 30 casks of spirits from which the city would make $87.50 in wharfage, drayage, storage, insurance, cooperage, and commissions, $45 on the spirits and $42.50 on the rosin. Profits for railroads, it was predicted, would be as great; $6 for transporting four bales of cotton, but $73.50 for transporting 170 barrels of rosin at 30¢ each and 30 casks of spirits at 75¢ each. Moreover, Price predicted, “the laborer in turpentine will consume of the merchandise of Mobile, to an amount equivalent to five hands engaged in cotton, from the fact that his occupation precludes the


The convening producers were justifiably excited about their industry's prospects. Between 1850 and 1860 the number of turpentine-making establishments grew from 4 to 37 (fig. 4.4). The rise in the number of laborers and production value indicate that and the average size of operations doubled. In 1850 33 workers labored in turpentine. By 1860 that number had risen to 614, a more than eighteen hundred percent increase (fig. 4.6). The value of turpentine produced jumped thirty-six times, from $17,800 to over $642,000 (fig. 4.3).83

James R. Grist's turpentine operation well represents the industry's spread from North Carolina into the deep South. Grist entered the turpentine business with his father in the older turpentine region of Beaufort County, North Carolina. When the demand for turpentine grew, he purchased 6000 acres of pine land in Brunswick County, south of the Cape Fear River. When he had exploited that tract, he moved up the Cape Fear, but with the completion of the Wilmington to Manchester Railroad in 1853, he once again moved south of the Cape Fear, to a place in Columbus County. However, by the mid 1850s the unexploited pine tracts which had brought Grist his fortune had grown increasingly limited; he was forced to search elsewhere for pine acreage to maintain his business. In 1854 he received a favorable report on the opportunities for turpentine in Alabama, and four years later he sent his cousin Benjamin Grist, who had managed one of his North Carolina plantations, to open a new operation on the Fish River in the Mobile Bay area. With the labor of around one hundred slaves, the Alabama operation in the 1859-60 season yielded 26,337 barrels of crude turpentine from which was distilled 3020 barrels of spirits and 15,118 barrels of rosin, producing gross revenues of more than $70,000.84

82 Ibid., 188-191.

Although the Florida turpentine industry reemerged at about the same time that it picked up in Georgia, the Sunshine State attracted few producers like Williams or Grist. In 1847 seventy barrels of turpentine produced near Pilatka, Florida, reached Jacksonville for export. It was believed to be the first to be collected in Florida since it had become part of the United States in 1819. One year later, thirty pounds of Florida tar were shipped to the Savannah market. By 1851 it was "no longer a matter of doubt that Turpentine can be profitably made in this section of country, as there are already a number of persons largely and successfully engaged in the business." Yet production did not gain the momentum that industry boosters hoped. One complained that Florida "is exporting considerable lumber and turpentine; but where one is engaged in either of these branches of business, there should be at least twenty." Not only did Florida possess an abundance of good pine timber, but easy access to the coast. In order to increase turpentine and rosin production, De Bow's Review argued that "we need only look to an accession of laborers in this productive field, for it to become a most valuable and important resource of the state." More workers, however, were difficult to come by in the sparsely populated and underdeveloped state. A plantation economy based on cotton and tobacco existed in some areas of Florida. However, significant areas of the state, especially the piney woods region, saw little plantation activity. For example, in 1860 St. Johns County, which possessed an abundance of longleaf pines, had only three plantations with more than thirty slaves; small planters and subsistence farmers dominated the area. But despite this obstacle, timber and

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84 Percival Perry, "The Naval Stores Industry in the Ante-Bellum South, 1789-1861" (Ph.D. diss., Duke University, 1947), 95, 523.
85 Ibid., 273.
86 "12,000 Acres of Turpentine Land for Sale," Wilmington, North Carolina Journal, 10 January 1851.
88 Ibid., 412.
turpentine did grow in importance in the region, stimulated by cheap and abundant pine land. In 1851 an attractive 12,000-acre tract reportedly “peculiarly adapted to the Turpentine business, being covered with a thick growth of pine, and having a River front of more than five miles” came up for sale on the St. Johns River. Throughout the 1850s land in this region remained relatively cheap, selling for between $1 and $1.25 per acre. By the mid 1850s, a 50,000-box operation was located on 1,200 acres south of Tallahassee on the St. Marks River. Such a relatively large-size operation was typical of the few Florida turpentine businesses of the time. Although only five concerns operated in both 1850 and 1860, over the decade their size grew from an average capitalization of $5600 to $28,200 (fig. 4.4). The total number of laborers also increased five hundred percent, from 82 to 127, and their production value jumped nearly three and a half times, from $29,671 to $100,676 (figs. 4.6 and 4.3).

In Mississippi and Louisiana the naval stores industry developed even more slowly. Peter Hammond, for whom Hammond, Louisiana was named, began producing these commodities soon after arriving in the state from his native Sweden around 1820. He purchased land from the government in the piney woods region of present day Hammond for a few cents an acre. The tar, pitch, and turpentine that he produced had to be hauled to Springfield, Louisiana, a town about five miles southwest of Hammond with river access to Lake Maurepas, and from there shipped to New Orleans. He reportedly prospered from his naval stores operation. Few producers joined Hammond in naval stores manufacturing. Both the 1850 and 1860 Census list


90 “12,000 Acres of Turpentine Land for Sale.”

91 Felix Livingston to Alex MacRae, 21 January 1850 and 5 September 1859, Hugh MacRae Papers, Special Collections Library, Duke University; “Turpentine Lands in Florida For Sale,” Wilmington, North Carolina Journal, 21 March 1856; Abstract of the Statistics of Manufactures, According to the Returns of the Seventh Census, 116; Manufactures of the United States in 1860, 60.
only one Louisiana turpentiner. In 1842, Fairfax Washington, a North Carolina naval stores
operator, tapped trees in Mississippi. By the late 1840s several distilleries operated along the
gulf coast area, one relatively large facility built a few miles above the mouth of the Pearl River
by Nathaniel Mitchell in 1847. But in 1849 his business failed, in part because Mitchell and his
manager argued and eventually fought a duel. By 1850 naval stores were produced in all three of
Mississippi’s coastal counties. One distillery in Jackson County sat on a bluff high above the
Pascagoula River. A rail track ran from the bluff to a landing on the river, and a hand wench was
used to lower the turpentine and rosin to it. However, between 1850 and 1860 the number of
operations actually dropped from five to just one. Correspondingly, the number of laborers fell
from thirty-three to four and the product value tumbled from $19,680 to $1,700. Several
handicaps help explain the turpentine industry’s slow beginning in southern Mississippi and
Louisiana. Few North Carolina producers and their slaves moved to the area, and the native
slaves, accustomed to agricultural labor, were completely lacking turpentining skills. Would-be
producers also found it difficult to acquire capital since they had to compete for resources with
the lumbering industry, which was growing important in the region during the years before the
Civil War.92

By the Civil War, destructive harvesting practices had pushed a portion of the turpentine
industry out of North Carolina and into states further south. Boxing and chipping seriously
weakened the trees’ bases and left them vulnerable to decay and dryface. Fire badly scorched the
flammable faces and boxes, especially in abandoned stands where hardened gum coated the old
wounds and flammable debris carpeted the forest floor. Pines, weakened in these various ways,

92 Isabel Nelson Lovel, “Hammond, Louisiana, and Its Swedish Founder,” The Swedish
Pioneer Historical Quarterly n.s. 4 (1967): 221-222; Abstract of the Statistics of Manufactures,
According to the Returns of the Seventh Census, 116; Manufactures of the United States in 1860,
203, 294; Nollie Hickman, Mississippi Harvest: Lumbering in the Longleaf Pine Belt, 1840-1915
(University: The University of Mississippi, 1962), 127-129.
were left susceptible to insects which invaded the tree’s bark and sapwood, nibbling at the live wood until too little was left to support the tree. As North Carolina’s longleaf pines yielded to windfall, rotting, fire, insects, and wild hogs, a cessation of regular burning in used up tracts prevented a regeneration of this once expansive forest. As the pines disappeared, many North Carolinians turned against the turpentine industry and switched to agricultural production which new fertilizers made possible in the eastern counties’ sandy and infertile land. Other producers, determined to continue in the business, purchased fresh pine tracts in South Carolina, Georgia, Florida, and Alabama. To these new locations such men as Benjamin Williams and James R. Grist moved their slaves and continued the same destructive harvesting practices that had forced them from North Carolina. After the Civil War this southward migration continued.
The naval stores industry quickly recovered after the Civil War as producers rushed to take advantage of high prices. With the revival, North Carolina operators continued their southward movement in search of unexploited timber stands in Georgia and Florida. Railroad expansion in these states made more and more fresh timber land accessible just as stands previously available to turpentiners deteriorated from the destructive harvesting practices. However, unlike their situation in the antebellum years when forest lands were plentiful, producers now had to complete for timber with large, well-financed lumber companies. The men, who came from the Carolinas to make turpentine in Georgia, Florida and the other Gulf states, contributed to the rise of the New South’s middle class. They migrated southward so rapidly that by 1900 the industry was firmly centered in the deep South states, with North Carolina and South Carolina responsible for only a small fraction of the county’s naval stores production.

The Civil War devastated the turpentine industry and interrupted its southward movement out of North Carolina. Even before the first shots were fired, pre-war political conflict took its toll on the business by upsetting commodity markets. A week and a half after Lincoln’s election, concern over the South’s ability to sell and export its goods sent prices in the region’s coastal markets tumbling. A New Orleans factor reported to James R. Grist that “The past week has been a remarkably bad one for trade of all kinds, the principal cause which is to be found in the late Presidential election and its effects upon the South.” Naval store prices fell to
such low levels that producers were encouraged to hold their barrels off the market as long as possible. Moreover, the fear of bank failures, compounded by the lingering effects of the Panic of 1857, forced lenders to severely reign in their loans. "Money is almost impossible to get out of our Banks and . . . on the street is bringing 2 or 3 per cent a month," Grist's factor reported.² By January 1861 the southern market had grown even worse as supplies accumulated. Grist learned that his New Orleans factor was "afraid we shall find difficulty in selling [your one hundred barrels of turpentine], as our market now goes, but hope for better times soon, if Politics assure."³ Money remained tight; when the Grist operation became indebted for $3000, it was warned not to ask for more. Buyers also feared that they could not transport the product out of the region, and since most naval stores were consumed outside of the South, they were only of value outside of its boarders. To make matters worse, in late February the cost of marketing naval stores rose when the Confederate Congress passed an export tax on such goods as cotton, tobacco, tar, pitch, turpentine, and rosin to secure the principal on a fifteen million dollar loan for the war effort.⁴

As war approached, turpentine producers threw their full support behind the Confederacy. Grist's partner in Alabama wondered "why don't the good old north state take a bold stand? put her shoulders to the (or rather) Our Wheel (Southern Confederated) + let the miserable fanatics see we cannot be run over."⁵ A producer in Georgetown County, South

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2 Ibid.

3 Ibid.


5 Thomas F. Strikney to Allen and James R. Grist, 26 February 1861, Grist Papers.
Carolina, who also believed North Carolina should secede, wondered in March 1861 if the three crops of boxes his slaves were then cutting would ever pay off. "The affaires of the Country," he wrote, "are such, that every kind of business depends so far as sucess is concerned, upon the great + very important dicision waiting to be made by the U.S. + the Confederate States." 6

Although the nation's division upset him, he was "ready as an officer of the Sampit Rangers to die on the battlefield in trying to guard + difend the rights of this Southern Confederacy." 7 Even Sarah Williams, the wife of Georgia turpentine producer Benjamin Williams and a transplanted Yankee, felt "the Spirit of 76" and prepared to aid the Confederate cause. Two weeks after the firing on Fort Sumter, she was busy knitting and sewing clothes. "Before we shall buy of Black Republicans," she proclaimed, "we shale go barefooted and wear homespun." The Williamses and their neighbors began planting more food crops than usual and "if necessary we shall take hands out of turpentine in order to insure a good crop." The Williamses also began building new pens for their two hundred head of cattle. 8

During the war, prices in southern ports sunk to their lowest levels. In New Orleans a factor replied that "The war has almost put a stop to business here the past week, + Naval Stores have suffered along with the rest." No rosin sold and the few barrels of spirits that moved sold at low prices, which brought no profit to the producer. However, on the New York market prices soared for the same reason that they fell in the South. Ever-growing fear that southern commodities could not leave the region set prices for such goods as naval stores at a premium, especially after Lincoln ordered a blockade of southern ports on April 19. Gum rose to between

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6 C. C. Mercer to Brother, 9 March 1861, Mercer Family Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.

7 Ibid.

8 Sarah Hicks Williams to Parents, 28 April 1861, Sarah Hicks Williams Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.
$4.50 and $5.00 per barrel and spirits climbing to 75¢ to 80¢ per gallon. As prices climbed, northern buyers held their naval stores off the market, waiting for them to go even higher. If, under these circumstances, southern producers could locate a ship heading north, it was to their advantage to pay freight prices as high as five times the normal amount to get their naval stores to northern ports.\(^9\) At the beginning of May, a New York factor advised James Grist to ship his Alabama naval stores to New York at once. "You can afford to pay very high freight now as the price of Spts + Rosin is so high—Ship Immediately—this is no doubt the best place in the World to get the high prices now." Barring that, if a foreign vessel was available he should ship to Europe, preferably London or Liverpool.\(^10\) Grist, desperate to take advantage of this market, requested that the trade house of R. M. Blackwell & Co. of New York charter a ship to bring his Alabama naval stores there. They informed him, however, that the Union government forbade any vessel from leaving a northern port for the South. Because naval stores was low in value relative to its bulk, it was not worth the risk of running the Union blockade. The blockade and restrictions on vessels in northern ports sailing south, which was firmly in place by the end of 1861, also prevented turpentiners from receiving such needed supplies as pork and spirit barrels which were commonly shipped through northern posts.\(^11\) "God grant that such a state of things may soon be over," Grist's factor commented.\(^12\)

During the war production ground to a halt. Neglected turpentine boxes lost much of their productive capacity and in some areas whole orchards burned. The railroad system's

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\(^9\) Marxhall J. Smith & Co. to Allen and James R. Grist, 27 April 1861, April 30, 1861, and New York Commodity Price Listing, 4 May 1861, Grist Papers.

\(^10\) R. M. Blackwell & Co. to Allen and James R. Grist, 2 May 1861, Ibid.


\(^12\) R. M. Blackwell & Co. to Allen and James R. Grist, 2 May 1861, Grist Papers.
destruction left producers with no means of transporting their products. These problems were aggravated when, in their search for supplies of desperately needed metal, the Confederate army seized the copper stills. In many cases turpentine that had been harvested before the war simply sat unattended in its barrels. While traveling by train through southeastern North Carolina during the war, an Englishman observed that “at every stopping place, this valuable staple [gum] was piled in thousands on thousands of barrels, apparently belonging to, or cared for by nobody, hoops off, staves loose, and the resin melted by the hot sun into enormous masses, and plainly left to take care of itself until the war is over.” A few producers, however, went to great lengths to preserve their gum. When Simon Temple from the Starke, Florida, area heard that northern troops were approaching, he ran his stored resin through a trough into a cypress pond to hide it. When the threat had passed, he and his laborers chopped the hardened resin off the top of the water and carried it back to be stored. Some stubborn southerners continued efforts to market their naval stores throughout the war. In 1864 M. J. Parker of Washington made efforts to get five gallons of turpentine to Philadelphia, and Joseph V. Smedly searched for a low cost means to ship his rosin. But despite such endeavors, by 1865 the disruption in trade, loss of stills, and especially the emancipation of the slaves, whose labor had made the turpentine possible, had effectively destroyed the southern naval stores industry. By the spring of 1865


the southern forests formerly boxed for turpentine lay in unsalvageable ruin, and the region’s naval stores exports had dwindled to nearly nothing.

During the next five years, however, the naval stores industry began an impressive recovery. Market conditions made a return to naval stores production an attractive opportunity for many southerners. The United States’ rapid industrialization during and after the war expanded the demand for naval stores at the same time that the South was unable to provide the supply. Consequently, the prices of naval stores products reached record highs. In mid-January 1866, spirits of turpentine sold on the New York market for an astonishing $1 to $1.03 per gallon, crude turpentine for $7.50 to $8.50 per 280-pound barrel, high grade rosin for $15 to $16 per barrel, and even common rosin sold for around $6 a barrel. In the 1850s, producers rejoiced when spirit prices temporarily soared to 63 or 65 cents per gallon and gum to $3.90 to $4 per barrel. By 1870 the South’s production had returned to one half the value of the naval stores made in 1860.16

Of course the price actually paid to southern producers, reduced by the cost of transportation and marketing the products, was considerably lower than those in New York. These expenses, plus a reduction in market prices by July when the first naval stores produced since the beginning of sectional hostilities entered the market, brought prices paid to producers considerably lower, but they remained at attractive levels. In Wilmington, where prices were always lower than in New York, fine rosin brought $4.25, virgin turpentine $4.05, dip $3.05,

common rosin $1.90, and spirits 38¢. On the London market, inroads made by European naval stores producers kept prices at more normal levels. Only very pale American rosin brought high prices there. Like Egypt and India, which both took advantage of the South’s interrupted cotton trade, many European countries found an opportunity to boost their naval stores production during the Civil War. Corsica, Algeria, Spain, Portugal, and especially France developed their turpentine and rosin manufacturing during the war years.  

By March 1866 signs of renewed production appeared. That month a New York Tribune correspondent traveling on the Charleston and Manchester Railroad “saw vast numbers of barrels of turpentine and rosin, both in its crude and prepared state.” Yankees, as well as southerners reportedly took advantage of the high prices. While digging on a river bank in New Bern, some northern soldiers struck the hardened rosin which the town distilleries had discarded over decades and had been covered by sand and dirt over the years. The group reportedly made thousands of dollars by quietly mining the rosin and shipping it to the North. Another northerner built and burned a tar kiln on an occupied North Carolina plantation while the owner was locked in the Craven County jail.

Prices leveled off after 1866 as naval stores products began arriving in markets, but they remained strong enough to continue to attract producers. On the New York market prices for soft

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17 Alfred Mustru to Wooten and Taylor, 27 July 1866, Wooten and Taylor Papers.


turpentine that reached as high as $5.49 per barrel in November 1866, by June 1868 had settled at around $4.25 to $4.50 per barrel of crude turpentine, 45¢ to 45.5¢ per gallon of spirits, $3.75 per barrel of high quality rosin, and from $3.50 to $5.00 per barrel of tar. Such prices were remarkably high by antebellum standards. They remained high although prices did not remain as astonishingly high in the 1870s as in the 1860s. In August 1877 spirits sold on the New York market for 32.5¢ per gallon, the finest grade of rosin—window glass—for $4.25 to $4.75 per barrel, and tar for $2.50 per barrel. As always, the cost of marketing naval stores consumed a sizable portion of the product’s gross value. A 10¢-per-gallon tax attached to the cost of marketing spirits in the late 1860s added an extra expense. When John MacRae of Shoe Heel, North Carolina, shipped twenty-four barrels of various grades of rosin out of Wilmington in August 1879, for example, the charges of $16.63 consumed eighteen percent of the product’s gross value, leaving MacRae with $73.66 left of the rosin’s original value of $90.29.21

Despite the high marketing costs, naval stores remained profitable commodities and the large number of producers who rushed into their manufacture competed so greatly for land and labor that they drove production costs upward. During the winter boxing season of 1866, the first season in which turpentiners had to rely on wage labor, “the expense of boxing has been unusually great.” With virgin dip rosin selling at from $20 to $30 per barrel by the end of the war, producers rushed to open new orchards to cash in. The demand for box cutters drove up wage prices until, by January and February, wages, which included rations, ranged from $20 to $40 per month. This amounted to 1¢ to 2¢ per box, and in some areas the cost rose to as much as 3¢ a box. The pay scale for different jobs reflected the difficulty of the labor and supply of

skilled hands to perform the tasks. For the whole 1866 turpentine season, boxers and chippers received wages of around $40 per month, cooperers around $60 per month, distillers got the same as a cooperers, teamsters received $40, and dippers little more than $27 per month. Most hands did not work all year, however, only the boxers and chippers. The dippers worked for seven months and the other workers for eight months, from April to November. Boxers and chippers received around $480 each year. Even working for just over half a year, dippers, who were the lowest paid workers, earned at least $189. In paying such high wages, producers spent in 1866 nearly twice as much for free labor as they did before the war on hired slave labor (fig. 5.1). With the new paid labor force, wages were estimated to consume 52% of an operation's annual operating expenses. Census figures indicate that although postbellum labor costs remained substantially

![Annual Labor Cost Per Naval Stores Worker](image)

Figure 5.1. Annual Labor Cost Per Naval Stores Worker, Southeastern United States, 1850-1900
higher than those before the war, such high wages as seen in 1866 did not persist. The annual wages that naval stores workers received ranged from around $150 to just over $200.22

The price of leasing timber for turpentining appears to have also risen above that of the antebellum period. In 1870 James H. Aycock of Richmond County, North Carolina, leased 200,000 boxes for $1,400, a cost of $7 per thousand. This represented an almost 63% increase over what another North Carolina producer paid per one thousand boxes in 1854. However, the same pre-war arrangements between lessee and lessor continued. In 1871, Aycock’s second year leasing the tract, he paid $1200 for the lease of 171,300 boxes, the same rate of $7 per thousand that he paid before. As in typical antebellum leases, Aycock agreed to cause no unnecessary damage to the trees and only cut as much timber as he needed for the barrels, fuel, and buildings required to carry on his business. He had the right to remove any stills and fixtures he constructed on the property. It also appears that as with antebellum lease agreements, producers only paid for the productive boxes and according to how much gum the boxes yielded. This meant that, for each year the boxes were worked, their leasing rate dropped. When the Richmond Naval Stores Company took over the Aycock lease in 1873, the rent price reflected the previously turpentined trees’ potential productivity. Richmond Naval Stores Company paid $4 per thousand boxes that had been worked for two years and $4.50 per thousand boxes worked for only one. But the company paid $12 per one hundred new boxes, forty-two percent more than when Aycock began leasing three years earlier.23


23 Some turpentine producers reportedly preferred leasing to buying because they leased by the box, meaning they only paid for what could be worked. John Avery Gere Carson to H. C. Harwood, 8 May 1897, John Avery Gere Carson Papers, Manuscripts Collection, Georgia Historical Society; W. W. Nettles to J. W. M. Nettles, 28 August 1869, Probate Record 1511, Darlington County Historical Commission, Darlington, SC; Percival Perry, “The Naval Stores Industry in the Ante-Bellum South, 1789-1861” (Ph.D. diss., Duke University, 1947), 44; Leases
The innovation of working turpentine tracts on shares appeared in the 1870s as a means to confront high production costs. Like undercapitalized southern farmers, small turpentine producers could finance their business by offering a portion of their product to the property owner as rent. In 1873, for example, William Knight of North Carolina rented boxes owned by Heck and Company. George S. Cole, a general merchandiser, oversaw the lease. As part of the agreement, Knight delivered all the gum to a still, probably run by Cole. Here Cole collected one-fourth of the barrels for rent payable to Heck and Company and paid Knight the current market price for the other three-fourths barrels. However, problems could arise from these share arrangements. Some producers were slow to hand over the landowners share. In 1870 one North Carolina timber owner received barrels of turpentine on a weekly basis from several different turpentiners who worked his trees. Between May 1 and September 24, he received 222 barrels as payment from the different producers. But in early fall two producers began to falter in their payments, going for at least three weeks without paying any turpentine. Other share turpentiners failed to surrender any portion of the product. In the early 1880s, a South Carolina producer rented turpentine boxes and made an agreement with another man to work the boxes for him on shares. But after hauling gum that represented the work of four to five dippings to Darlington, the share worker sold the product and failed to pay the renter his portion.24

The post-war migration in fact picked up considerable momentum as producers continued their use of harvesting methods that killed the longleaf pine in their home state and

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24 Lease between William Knight and George S. Cole, 22 January 1873, Aaron Ashley Flowers Seawell Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill; W. J. Wikeson to F. G. Smith, 24 September 1870, McDowell Papers; Testimony regarding working boxes on shares, 30 May 1883, Sessions 805, Darlington County Historical Commission.
then sought out the fresh pines available to their south (figs. 4.5 and 5.2). These migratory North Carolina producers either purchased or leased timber lands in the still heavily timbered states to their south, typically forming partnerships with friends or relatives to start their businesses.\textsuperscript{25} As early as February of 1871, their movement out of southeastern North Carolina made one man fear that "the Cape Fear [area] is doomed unless something be done to resurrect it. An apathy and despondency seems to pervade the whole region from Fayetteville to Wilmington."\textsuperscript{26} That year, for example, a Mr. K. Hayeer of Whiteville, North Carolina, in Columbus County, bought 1700 acres of round timber on the Waccamaw River just across the South Carolina state line. His partner owned an adjoining 1600 acres of round timber. Although they had adequate land, these men lacked the capital to begin production and, as the time to begin boxing approached, they considered taking in a third partner who could supply the money. With his capital problems apparently solved, Hayeer spent two weeks in late December 1871 and early January 1872 in South Carolina recruiting labor and beginning work on the trees. As the gum harvesting season


\textsuperscript{26} H. W. G. to Thomas David Smith McDowell, 24 February 1871, McDowell Papers.

Naval Stores Production, 1870
Southeastern United States
Tar and Turpentine

Figure 5.2. Naval Stores Production, 1870, Southeastern United States, Tar and Turpentine
began, he was away in South Carolina most of the time for he was doing his own distilling. He proudly reported that he was making the best rosin in the area.\textsuperscript{27}

The railroad's expansion through the southeastern pine belt after the Civil War and the accessibility of large and inexpensive tracts of mature longleaf pine permitted the naval stores industry to resume the southward trek it began before the war. Following the war, state governments under the control of both Democrats and Republicans facilitated railroad construction as a means to economic growth. In fact, from the end of Reconstruction to the end of the nineteenth century, southern railroad construction consistently outpaced that in the rest of the nation.\textsuperscript{28} Railroad construction through the pine region began in the 1870s and made impressive gains during the 1880s. Construction was especially impressive in Georgia. Mark Wetherington observes that "the railroad's arrival marked the 'take-off' stage for the piney woods, a period of increasing rates of investment, industrialization, and commercialization."\textsuperscript{29} By the 1870s that state's Wiregrass region, with dense stands of longleaf pines, could be crossed by rail in less than a day. The journey previously required a week. The new rail lines opened the Georgia pine forest to market access. Encouraged by the accessibility the new railroad provided, naval stores operators moved into areas previously too landlocked to be profitably worked. By 1880 virtually every county along the principal lines was producing naval stores (fig. 5.3).\textsuperscript{30}

\textsuperscript{27} K. Hayrus to Thomas David Smith McDowell, 20 November 1871, January 8, 1872, and 6 May 1872, Ibid.


\textsuperscript{29} Mark V. Wetherington, \textit{The New South Comes to Wiregrass Georgia, 1860-1910} (Knoxville: The University of Tennessee Press, 1994), 73.

\textsuperscript{30} Ibid., 73; Jeffrey Dobson and Roy Doyon, "Expansion of the Pine Oleoresin Industry in Georgia: 1842 to CA. 1900," \textit{West Georgia College Studies in the Social Sciences} 18 (June 1979): 49.
During the 1880s the naval stores industry continued to expand across the Georgia pine belt, aided by the ever-growing rail system, which by 1880, gave Georgia 2,616 miles of line. One line, the Savannah, Florida, & Western Railroad, began in Savannah and ran for 237 miles across South Georgia to Bainbridge in the extreme southwestern corner of the state. One branch ran from Thomasville in Thomas County for 58 miles north to Albany, another ran from DuPont, Georgia in Clinch County southward for 48 miles to Live Oak, and a third branch stretched for 74 miles from Waycross to Jacksonville, Florida. A second major line, the Macon and Brunswick Railroad, ran from Brunswick, on Georgia’s southern coast, for 189 miles to Macon, with a 10 mile branch from Cochran in Bleckley County across the Ocmulgee River to Hawkinsville in Pulaski County. (A booklet published in 1881 to promote settlement in Georgia claimed that between then and 1876 the lumber and naval stores businesses had more than doubled along this line.) Another spur to Rome was completed in the early 1880s. A third major line also began in Brunswick and ran 171 miles virtually parallel to the Savannah, Florida, & Western Railroad and terminated in Albany. During the decade the line was extended westward to Selma, Alabama. In 1889 a fourth line covering the 153 miles from Macon to Valdosta opened.  

By 1890 Georgia’s railroad network reached every county in the piney woods. That same year the state had 228 naval stores operators which employed nearly 10,000 workers whose labor produced tar and turpentine valued at $4,000,000 (figs. 5.4, 5.5, and 5.6). Ten years later, the number of producers had more than doubled to 524, the work force had nearly doubled to


Naval Stores Production, 1880
Southeastern United States
Value of Tar and Turpentine

Figure 5.3. Naval Stores Production, 1880, Southeastern United States, Value of Tar and Turpentine
over 19,000, and capital investment had risen by more than five hundred percent to $3,800,000, reflecting the growing cost of production, and the products value had doubled to more than $8,000,000. Of the 39 counties engaged in this business by 1900, all had railroad service.32

Florida developed its rail network more slowly than did Georgia. By the early 1870s Florida’s rail ways, the state’s Commissioner of Land and Immigration explained, was “grand in

![Value of Naval Stores Production 1870-1900](image)

Figure 5.4. Value of Naval Stores Production, 1870-1900

Figure 5.5. Number of Hands Employed in Naval Stores Production, 1870-1900

design, but yet very partially complete..."33 Florida’s extensive coastline made railroads less important for transportation. Roughly half of the state’s counties possessed a shoreline and rivers that ran through a considerable portion of its pine forest. In many areas served by rivers and large streams, water ways offered a cheaper if slower and less reliable means of moving naval stores to port cities. In 1873 only two rail lines served the state, one from Fernandina, located just north of Jacksonville, to Cedar Keys in the Gulf of Mexico, about fifty miles southwest of Gainesville. Another railroad ran from Jacksonville, through the panhandle’s northern-

Figure 5.6. Naval Stores Establishments by State, 1870-1900

tier counties to the Choctawhatchee River. At Live Oak in Suwannee County the line connected with the Georgia Railroad. Both Florida lines provided better access to the pine forests and by 1873 only lumber exceeded turpentine as Florida’s most valuable product. Cotton ranked third.34 Promotional literature for attracting settlers to the state referred to its pine stands as “mines of Wealth” and the town of Live Oak’s newspaper felt “satisfied that there is no industry which can be started in our country, right here in Live Oak, which will pay as well as the production of turpentine.”35

34 Ibid., 11, 14, 22-28; Wetherington, New South Comes to Wiregrass Georgia, 63-64.
35 Ibid., 27.
The major growth in Florida’s railroad network came in the 1880s and gave a boost to both the naval stores and timber industries. The state possessed only 518 miles of railways at the beginning of the decade; five years later it had 1,654 miles and, by 1890, 2,489 miles. The introduction of a rail line could have a profound effect on an area’s industrial development. For example, before the first railroad was completed through Washington County, Florida in 1883, nearly all of the panhandle county was forested with virgin pine. With the improved access to port facilities and markets provided by the railways, the turpentine industry quickly established itself in the region. By 1890, turpentining was the county’s second most important industry, behind timber. Railroad expansion even permitted profitable turpentine manufacturing in Florida as far south as Lake County near present day Orlando. Produced on a commercial basis there in the early 1880s, its manufacture increased after the “Big Freeze” of 1894/1895 that destroyed the area’s orange groves. Until they could reestablish their groves, citrus producers supported themselves through turpentining. This far-flung rail system facilitated the naval stores industry’s explosive growth in the state during the 1890s. In that decade the number of establishments jumped more than twenty-four fold from 15 to 366, the number of workers leaped by thirty-one times from 484 to 15,073, and the value of tar and turpentine increased more than 3400 percent from $191,859 to $6,469,605 (figs. 5.4, 5.5, and 5.6).36

Although post-war war naval stores production in Alabama revived more quickly than in Mississippi, railroad expansion through the latter’s pine forest encouraged production there. When first reported in 1850, Alabama produced turpentine valued at $17,800. By 1870 production was up to $280,203. Only three years later the Mobile market received about 20,000


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casks of spirits, between 75,000 and 100,000 barrels of rosin, and 100 barrels of tar and pitch, together valued at around $750,000. Two years later, the state’s value rose to $1,200,000, but by 1883 production showed a slight decline to $1,109,760 because of dwindling timber supplies accessible by the transportation routes. In Mississippi, where the naval stores industry was in its infancy in the 1850s, production recovered very slowly following the war. In fact the state produced less naval stores in 1870 than it had in 1850 when production was very small. During the 1870s, however, railroad construction and increased demand for naval stores led to the industry’s growth. By the late 1870s operations had begun along the major transportation routes in Mississippi’s southern counties near the Mobile & Ohio and the Louisville & Nashville Railroads and on the Pearl, Pascagoula, and Biloxi Rivers. In 1880 the state possessed 11 naval stores producing establishments which together employed 53 laborers who manufactured goods valued at $97,000 (figs. 5.4, 5.5, 5.6). Some of these operations were established by turpentiners in Alabama who were attracted by the fresh timber as their own became exhausted. In the late 1890s producers from the older naval stores regions to the East were settling into Mississippi, which possessed, on average, one small distillery for every five miles of rail line. Over that decade the number of producers rose six hundred percent from 24 to 145 and the number laborers increased three and one half times, from 645 to 2288. The value of the naval stores production rose nearly twice as fast, from $282,066 to $1,772,435, probably the result of an increase in distilled spirits over raw gum.37

Railroads actively encouraged naval stores producers to locate near their lines in order to add to their shipping volume. Railroad companies gladly built platforms by any still that located along its tracks, knowing that the facility's success would bring thousands of barrels of spirits and rosin for shipping. In 1881 the Savannah, Florida & Western Railroad, the Brunswick & Albany Railroad, and the Macon & Brunswick Railroad published a pamphlet aimed at boosting the region by attracting travelers, farmers and especially naval stores and lumber producers. For example, the pamphlet reported that Pelham, a town in southwest Georgia, would “offer superior inducements to manufacturers of naval stores. Timber plentiful and convenient to line of railroad. Only one man engaged in the business here. Plenty of room for more. Hands are easily had that understand working the trees, such such [sic] as cutting boxes and hacking, etc.” That Pelham was a distant 224 miles from Savannah meant the railroad would be paid substantially to haul the product to market.

The expanding southern rail system which provided turpentine operators access to even such inland timber tracts as those around Pelham, Georgia also opened the forests to a competing interest, the northern-owned national lumber industry, which moved into the region in the late nineteenth century and hastened naval stores manufacturing’s southward movement. The lumbermen’s migration southward represented an continuation of their persistent movement around the country in search of fresh timber supplies. By 1860 the nation’s lumber production center had clearly passed from New England to New York and production was already growing in the Great Lakes region. After the Civil War the nation’s lumber production center shifted even more toward the Great Lakes region. Here, white pine forests were accessible by rail and a strong demand existed for its lumber, which carpenters found softer and easier to work.

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38 “Turpentine Orchards,” The Northern Lumberman, 2 August 1896, in Turpentine Newsclipping File, Forest History Society, Durham, NC.

39 Tillman and Goodyear, Southern Georgia, 27.
Historical Geographer Michael Williams explains that, like other industries, after 1850 the northern pine forest product industries, began a period of industrial capital development that led to expansion. The growing railroad network made transportation faster, cheaper, more reliable, and more flexible. Business concentration permitted the construction of large lumber mills with steam power and steel tools. Fundamental changes in lumbering developed, including the concentration of ownership of huge timber tracts and the systematic clear-cutting of these areas instead of harvesting individual trees. During the late antebellum period, the northern lumber industry’s technology, output, and business activity expanded while the vast southern pine forests lay relatively unexploited, except for those tapped for gum in southeastern North Carolina and small mills processing the limited number of trees felled for local consumption. Lackluster markets for southern pine, limited transportation routes through the longleaf pine belt, and a shortage of capital among southerners with which to buy large timber tracts and construct modern, high volume lumber mills prevented the widespread pre-war exploitation of southern woodland.40

Interest in relatively untouche southern forests began immediately after the Civil War’s end. Writing from Gainesville, Florida in June 1865, one man, who believed that the South could adjust to its new labor situation, reported that “the resources of Florida will soon be opened up anew. Dozens of men of my acquaintance are now turning their attention to Saw Mills, Turpentine farms, Tar making, Timber getting + c . . . .”41 He believed that the war’s disruption of the region’s business establishment offered an opportunity for him to secure a place in the marketing of South’s staple production. It was his hope that with his friend in Wilmington


41 S. Swamm to Donald MacRae, 23 June 1865, MacRae Papers.
as his partner, he could create an unusually versatile and powerful factorage house which would handle lumber, naval stores, and cotton marketing in both North Carolina and Florida. All that Swamm’s grand scheme lacked was operating capital. He suspected that he “might be able to raise $6000 or $8000 to secure us until we can open up a respectable business.” In late winter 1866 there was already a revived interest in timber tracts growing in Florida’s St. John River area. Some lumber and naval stores men wished to purchase the tracts, others were only interested in purchasing the timber, while a few simply stole from the property what they wanted. Speculators believed “that lands will go up in Florida as soon as quiet is restored in our Country.”

After the Civil War, the Southern Homestead Act of 1866 slowed the expansion of large-scale lumber production in five states—Florida, Alabama, Mississippi, Louisiana, and Arkansas—for ten years. In an effort to make the act’s benefits as widely available as possible, Congress limited public homestead grants to eighty acres. Although a large number of the 67,427 homestead claims made from 1866 to 1876 were filed fraudulently by agents acting for large lumber companies, the legislation did successfully curb the large-scale taking of public land. By the mid-1870s, southern congressmen argued that the homestead restrictions unfairly limited their states’ abilities to use their timber resources for economic development and in 1876 succeeded in getting Congress to revise the restrictive provision thus allowing open land purchases of the 47.7 million acres of public land in the five affected southern states.

42 Ibid.
43 F. Livingston to MacRae, 6 March 1866, Ibid.
Northern investors quickly rushed in. These “timber carpetbaggers,” as forest historian Thomas D. Clark calls them, came primarily from New York, Michigan, Indiana, Illinois, and Kansas. Their buying spree began slowly, totaling only 2,095 acres in 1877, 14,262 in 1878, and 16,836 in 1879. By 1880, sales reached 86,873 acres and two years later increased to nearly ten times that. In 1883 sales topped one million, with much of the acreage selling for between $1 and $1.25 per acre. As large northern concerns gobbled up the best timber land, southern congressmen hurried to reverse the 1876 change to the Homestead Act. But before the March 1889 renewal of federal land purchase restrictions, lumber men pressed to take advantage of the liberal sales policies, purchasing a record 1,223,772 acres in 1888. Although some southern investors purchased some of these tracts, northern financiers and groups purchased the majority of the 5,692,259 acres sold between 1877 and 1888.45

Large tracts of state or privately held land could also be purchased cheaply. In 1872 a member of a family which controlled about 200,000 acres in the vicinity of the Brunswick and Albany Railroad reported that the pine lands in his state could “be bought very cheaply at an average of $1.00 to $2.00 p acre.”46 Florida sold an enormous tract of timber land to a New York

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45 Between 1877 and 1888 the following number of acres were sold in the five southern public land sale states: 1877 2095 acres, 1878 14,262 acres, 1879 16,036 acres, 1880 86,873 acres, 1881 212,488 acres, 1882 835,710 acres, 1883 1,103,407 acres, 1884 891,836 acres, 1885 212,863 acres, 1886 882,817 acres, and 1888 1,223,772 acres. Over these ten years the number of federal acres sold in Alabama was 878,413, in Arkansas 628,744, in Florida 1,021,112, in Mississippi 1,296,775, and in Louisiana 1,867,215. T. Clark, Greening of the South, 16; Drobney, Lumbermen and Log Sawyers, 38-42; R. J. Duhse, “Timber Pirates to Tree Farms,” North Florida Living (March 1985): 44; C. L. Peek to Donald MacRae, 13 April 1886, MacRae Papers; Drobney, “Transformation of Work,” 97-98; Frank Bedingfield Vinson, “Conservation and the South, 1890-1920,” (Ph.D. diss., University of Georgia, 1971), 101-102; Ayers, Promise of the New South, 124; C. Vann Woodward, Origins of the New South, 1877-1913, (Baton Rouge: Louisiana State University Press, 1951), 116-117; Cowdrey, This Land, This South, 111-112.

46 Henry C. Day to Judge Pierreporch, 29 February 1872, letter attached to James R. Butts, 150,000 Acres Yellow Pine Timber, Turpentine and Cotton Lands, (Macon: Georgia Telegraph Steam Printing House, 1858) in Special Collections Division, The University of Georgia Libraries, University of Georgia.
lumber company for the bargain price of ten cents per acre. By 1886, the price of privately held land in Florida sold for about the same as federal land. Even land located near a railroad line could be purchased for less than $2 per acre. As with the federally-owned timber lands, large lumber companies purchased most of these tracts. A few turpentiners, however, also took advantage of the low land prices. By the early 1880s, one producer controlled 52,000 acres on which he worked 700,000 boxes with ninety hands.47 In the late 1890s, a factor advised a prospective buyer of Florida turpentine land that real estate prices there varied from fifty cents to two dollars per acre. The factor had purchased 20,000 acres within twenty miles of Jacksonville for seventy-five cents an acre. He advised that of course “the value of lands in Florida, for turpentine purposes depends on a good many contingencies, . . . distance from transportation and primary market: class of timber on lands, whether sappy or heart: thickness of timber per acre ect., and competition for same.”48 When considering working a stand of trees, producers wanted to know “how near the river—how much, if any is cleared, How many crops of turpentine trees on it. How many old + how many new.”49 Georgia land prices also remained low. In 1889, 9,015 acres in Coffee County sold for $3,000.50

The same developing rail network that aided naval stores producers also helped the lumber industry make its swift move to the region. Before railroads, large commercial lumber mills were located in port cities where they could collect timber sent down river from different sections of the interior. As railroad expansion coincided with frenzied land purchases during the

47 Tillman and Goodyear, Southern Georgia, 51-52.

48 J. A. G. Carson to H. C. Harwood, 8 May 1897, Carson Papers.

49 Kerrhners and Calder Brothers to Thomas David Smith McDowell, 6 February 1877, McDowell Papers.

50 Deed of Conveyance, 8 July 1889, William C. Powell Papers, Special Collections Library, Duke University.
1880s, the large lumber companies ran spur lines from the mine line into the timberland. Now mills could be more conveniently located beside the main line. Michael Williams explains that not only did railroads serve as a route to market, but also as a means of exploiting the forests.\(^5\)

The combination of southern railroad expansion, cheap timber, and well-financed northern investors created a burgeoning lumber industry. Southern lumber production grew steadily during the 1870s and 1880s and absolutely exploded by the 1890s. On the eve of the Civil War, southerners cut only about half a billion board feet of longleaf pine a year. By 1870 southern lumber production had surpassed output on the eve of the Civil War. In 1875 southern lumber production in the eight longleaf pine states reached one and a half billion board feet and in 1880 that figure reached two billion. Even with this rapid rise, the South in 1880 still contained twice as much pine timber as the rest of the nation. The number of southern saw mills grew correspondingly from 3,969 in 1860 to 5,304 in 1880. But these mills possessed a small cutting capacity and only modest timber cutting was required to supply them. During the 1880s, as the large northern companies pushed headstrong into the region, not only did the size of the property holdings swell, but the mills grew larger and, unlike the earlier southern mills, which were dismantled and moved to the timber, remained in place while the logs were transported to them. Companies like the Georgia Land and Lumber Company, which controlled between 300,000 and 400,000 acres of choice pine land in the early 1880s, came to dominate production.

\(^{51}\) By the late nineteenth century, most mills were located as near as possible to the timber supply. The expansion of rail lines and the rise of large scale lumber operations worked together. Historian Jeff Drobney explains that because only well-financed, large companies could afford spur lines, and large timber tracts were required to ensure enough timber to make the lines profitable, timber land became concentrated in fewer hands. Plus, the freedom to move away from the river courses enabled the heavily capitalized companies to grow and operate as year-round businesses, unhampered by freezing waterways. Williams, *Americans and Their Forests*, 253, 280. Ida Belle Williams, *History of Tift County* (Macon, GA: The J. W. Burke Company, 1948), 44. Carswell, *Holmesteading*, 98-99; Drobney, *Lumbermen and Log Sawyers*, 74. C. Clark, *Florida Trade Tokens*, 2-3; R. D. Forbes, “The Passing of the Piney Woods,” *American Forestry*, 29 (March 1923): 135.
Such businesses prized the region’s unspoiled longleaf belt. Its large pines were of common age and size and perfect for harvesting. In addition, the level ground made transportation out of the forest relatively easy. With these larger companies in place, the South’s lumber output grew exponentially. In 1870 the South produced eleven percent of the nation’s timber. By 1910 that amount had grown to forty-five percent.\(^5\)

The lumber industry’s southward migration in the late nineteenth century pushed the turpentine industry ahead of it. The same desire for cheap accessible pine land that attracted northern lumber men also interested turpentiners. The two businesses were not, however, at first viewed as compatible. As historian Thomas D. Clark observes, lumber men and turpentiners had the same relationship in the southern pine forest that cattlemen and sheep herders had on the western prairie. Lumber companies and consumers incorrectly believed that turpentinied timber made an inferior grade of lumber, so lumber men and turpentiners did not use the same timber and competed with each other for tracts. Because the lumber producers usually had better access to capital than the turpentiners, they could squeeze the naval stores operators out of areas where timber stands became scarce.\(^5\)

Declining available pine acreage, especially near transportation lines, caused timber costs to rise. In April 1893 Savannah naval stores factor James Carson complained that, despite the decrease in the price of provisions, turpentine cost more to make than it had in the 1880s. He

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explained that. By the late 1890s the cost of leasing turpentine tracts was also on the rise, from $100 to $200 per crop (10,000 boxes) in 1896 to around $500 in 1899. Producers had moved stills a greater distance from transportation sources to ease the expense of hauling the gum out of the woods, but as the forests disappeared, production continued to move further away from the still. Consequently the cost of hauling increased. In 1896 The Northern Lumberman estimated that producers required $5,000 for a still, barrels, advances on labor, rent, houses, sheds, tools, wagons, and mules. To operate a single crop for four years required $2,808.50, much of which went to labor costs. A twenty-crop operation, a large turpentine business by any standard, would therefore require $50,000 and would produce 120,000 gallons of turpentine and 12,000 barrels of rosin, which would bring $60,000 for a profit of just $10,000 over four years. The article reported that “profits are not large enough to attract any except men who have been brought up in the business and know no other.”

It does in fact appear that North Carolina turpentiners and their descendants dominated the industry throughout the South in the late nineteenth century. Their relocation to other southern states predated the Civil War. In 1860 only three of the eighteen producers in Georgia had been born in that state and, of these three, two were sons of North Carolinians. Of the remaining fifteen, however, more than half came from Virginia and probably had little knowledge of the naval stores industry. By 1880, immigrants from the old turpentine region

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54 The practice of setting lease prices according to the number of years a stand had been worked continued. A Lexington County, South Carolina timber owner leased his trees for turpentining by the year. Beginning in 1895 he leased virgin boxes for $200 per crop for the year. The second year the crop rented for $100 and the year after that for $50. Michael David Tegeder, “Prisoners of the Pines: Debt Peonage in the Southern Turpentine Industry, 1900-1930,” (Ph.D. diss., The University of Florida, 1996), 61; Lease for boxes, 14 January 1895, Belton Decator Clark Papers, The South Caroliniana Library, University of South Carolina; John Avery Gere Carson to Editor Morning News, 17 April 1893, Carson Papers; “Turpentine Orchards.”

55 “Turpentine Orchards.”
continued to dominate turpentine production in Wiregrass, Georgia. Seventy-three percent came from North Carolina and fifteen percent from Virginia. Moreover, the newly transplanted Georgia turpentiners shared many similarities with those still in North Carolina. Most were family men in their thirties and forties and many had other occupations such as merchants, factors, and lumber cutters.56

An analysis of individual turpentine producers reveals that not only did the majority originate from the turpentine area of North Carolina, but that many pioneered the development of a middle class business community in the previously sparsely settled southern pine region. The Peacock brothers were such men. They helped introduce the naval stores industry in south-central Georgia and their children became early members of the piney wood South’s town-based middle class by opening factorage houses, banks, and helping to found towns. Albert Peacock, one of the first North Carolinians to come to Georgia as a turpentiner, was born in 1826 in Wayne County, North Carolina. Peacock married Virginia O’Berry of Winfield, Virginia, in 1859 and soon afterward the couple moved to south Georgia. They first settled in Burnt Fort, near the present town of Folkston and the same area where Dr. Benjamin Williams, a turpentiner from Greene County, North Carolina, settled a few years earlier. Here Peacock began operating one of the first turpentine distilleries in the state. Although he found adequate timber in the region, the river was often unreliable and prevented him from shipping his product to Brunswick. At the beginning of the Civil War, Peacock joined the Georgia forces and sent his wife and their young son to Suffolk, Virginia, where she soon died. In 1866 Albert married Ely Jane Wooten of Whiteville, North Carolina, who was twenty years his junior. Between 1867 and 1889 they had

56 Of the remaining fifteen, more than half came from Virginia. They probably represented naval stores producers who began the business in the Old Dominion around 1840 but moved southward into Georgia as the pines in their home state disappeared. Dobson and Doyon, “Expansion of the Pine Oleoresin Industry in Georgia,” 48; Wetherington, New South Comes to Wiregrass Georgia, 116-117; Campbell, et al., Naval Stores Industry, 10; P. L. Buttrick, “Commercial Uses of Longleaf Pine,” American Forestry, 21 (September 1915): 905.
eight children, seven of whom lived to adulthood. With the expansion of rail lines through south
Georgia, Peacock moved back there in 1875 with his rapidly growing new family. He began a
turpentine operation near the town of Eastman. When his oldest child was eleven he again
moved the family to Cochran, Georgia, about twenty miles northeast of Eastman, where his
children would have better access to education. Here Peacock died in 1890.\textsuperscript{57}

Albert’s brother Peter Lewis Peacock arrived in Georgia in 1873. Born in North
Carolina in 1834, he attended Wake Forest College from 1856 to 1858 and later fought in the
Confederate Army. In 1873 he and another man purchased a large tract of forest land near
Cochran, Georgia, where they began a turpentine operation. They also built a horse track which
wound through the pine woods and held races. Peter excelled in the turpentine business,
progressing from producer to factor with the establishment of the Peacock-Hunt Naval Stores
Company in Savannah. Another Peacock brother joined Albert and Peter in Georgia in 1881 and
although the brother does not appear to have entered the turpentine business, his son went to
work for Peacock-Hunt.\textsuperscript{58}

The other Peacock children joined the New South’s growing middle class. Albert’s son
Zebulan Vance Peacock, born in 1873, attended college in Georgia before organizing the first
bank in Baxley, Georgia, the First National Bank in Cockran, and becoming president of the First
National Bank of Hawkinsville after the turn of the century. He served as state representative
and senator and sat on the Hawkinsville board of education. Peter’s daughter, Virginia Peacock,
born in 1871 and Zebulan Vance Peacock’s cousin, married John Harris, who became a partner
in the family factorage business. Harris moved to Jacksonville, Florida, where he organized
Flynn, Harris, Bullard Company, Naval Stores Factor and served a director of the Atlantic

\textsuperscript{57} Harris, \textit{History of Pulaski and Bleckley Counties}, 574-576.

\textsuperscript{58} Ibid., 582-585.
National Bank of Jacksonville. Peter’s son John attended the University of Virginia and graduated with honors from The Johns Hopkins University Medical School. Dr. Peacock returned to Cockran and served as the president of the First National Bank of Cockran, president of the chamber of Commerce, mayor of the town and, school board member.\textsuperscript{59}

Other turpentine producers also helped the region develop economically. North Carolinian Arthur T. Wiggs, born in Goldsboro in 1839, came to Pulaski County, Georgia, with Peter Peacock and J. E. Obery. He settled first in the town of Chauncy before finally moving to the community of Dubois. There he began acquiring farm and turpentine lands and, with his partner J. W. Hunt, established the firm Hunt and Wiggs, which ran a turpentine still, cotton gin, and store. The Bush Brothers of Bladen County, North Carolina, also sought the opportunities offered in south Georgia’s growing economy. Owen Bush, born in 1841, and his brother Madison, born in 1842, both served in the Confederate Army and entered into business for themselves afterwards. In 1876 Madison moved to Towns, Georgia, in Wheeler County, where he worked as a naval stores manufacturer and merchant. In 1878 his brother Owen moved to Chauncy, Georgia, about twenty miles from Towns, where he manufactured turpentine and entered general merchandising. In September 1883 he was elected the first mayor of Chauncy.\textsuperscript{60}

Yet another North Carolinian, Robert T. Gupton, moved with his wife Dolly and their daughter to south Georgia in 1899. At first he leased timber but later bought his own tracts. However his turpentine represented only a portion of his business, R. T. Gupton, Manufacturer of Naval Stores, Dealer in Dry Goods, Fine Shoes, General Merchandise. Gupton’s brother-in-

\textsuperscript{59} Ibid., 576-577, 586, 589-591.

\textsuperscript{60} Ibid., 687; Biographical Souvenir, 127-128.
law operated the turpentine operation's commissary and another brother-in-law served as the distiller.61

Not all Georgia turpentiners came from North Carolina. Edward P. Rentz, an Alabamian born in 1862, was a partner in an expansive naval stores operation by the time he was thirty. His business holdings spread across parts of Georgia's Emanuel and Montgomery Counties, and annually produced three thousand barrels of spirits and eleven thousand barrels of rosin. Seizing the opportunity to acquire one of the last substantial virgin pine stands in the region, he purchased a large tract in neighboring Laurence County and established a timber and turpentine camp named Rentz. To reduce the cost of transporting lumber and naval stores to the nearby town of Dillon, he constructed a rail line that, in the early twentieth century, he extended to Eastman, about thirty miles to the southeast.62

By the late 1890s, producers in areas of South Carolina and Georgia, where the pine forests were entering decline just as they had earlier in North Carolina, relocated to regions where turpentine was less extensive and the pine forest more plentiful. Georgia was not the final destination of all North Carolina transplants. Elliott E. Edge, raised south of Fayetteville, tired of working for others in the North Carolina turpentine industry and moved with his wife to Georgia to begin a business for himself. After only a short stay in Georgia he sought out the less exploited pine forests in Lake County, Florida, midway down the peninsula. There, in 1893, he formed Edge Mercantile Company, which included a turpentine business, a sawmill, and a citrus orchard. Edge raised enough capital to finance partnerships with men who knew the turpentine

61 A little is known about how the Guptons lived. The family made their home in a Civil War-era house to which they added a separate room, connected to the rest of the house by the front porch, which served as a school room for their daughters. Two servants, a couple named Abe and Susan Mason who lived in separate quarters behind the house, tended to the Guptons. Susan kept the house and Abe cared for the yard and tended to the horses and mules used in the turpentine operation. Shelton, Pines and Pioneers, 198-199.

62 Wetherington, New South Comes to Wiregrass Georgia, 60.
business but lacked the means to begin their own operation. His partners ran the operations while Edge took care of marketing the product. Edge’s operation lasted well into the twentieth century. In 1925, he entered a partnership with his son-in-law who carried the business into the 1940s in St. John County, Florida. In 1899, a Mr. Both and Mr. Decker of Columbia, South Carolina, began a five or six thousand acre operation near South Lake in Lake County. They hauled their turpentine for three miles to the lake and brought it by boat to the railroad station at Clermont. Duncan Wilks, a South Carolina native who came to Holmes County, Florida seeking its pines, was so taken with the area’s opportunity for turpentining that in 1898 he named the little community that developed on the county’s west edge Prosperity. Others, like the Carr brothers who settled in Bond, Mississippi came from Georgia after the timber there grew scarce. In the fall 1896 one brother came ahead and leased timber for three years. The following spring the other brothers arrived in Mississippi with their equipment and twenty-six black workers. The Carrs worked ten or eleven crops as long as the timber in the region lasted and when leases were no longer available near Bond, they moved to a new area.\(^6\)

The experience of Hervey Evans who, at the age of thirty-seven, moved from North Carolina to Florida, reveals much about the experiences of men who came south to enter the naval stores business. When Evans married businessman John McNair’s daughter Martha, McNair brought Evans into his business. In July 1899, after the wedding, Evans left North Carolina for Florida to oversee McNair’s turpentine business in Fairfield, about fifteen miles south of Gainesville, and prepare for his new wife to join him. Before making the trip Evans worried about health risks of Florida’s climate but was assured by a doctor that living there would not be hazardous. When Evans arrived he thought the region to be the prettiest he had

\(^6\) Harvey, “Maguire Born into Turpentine Family,” 8-9; Maguire interview, St. Augustine Historical Society, St. Augustine, FL; Maguire interview, author; Kennedy, History of Lake County Florida, 101; Carswell, Holmesteading, 99; Hickman, Mississippi Harvest, 131-132.
ever seen; the undulating land covered with beautiful forests which, possessing no undergrowth, allowed clear visibility for long distances. But he found the weather hotter and more debilitating than he was accustomed to in North Carolina. After more than a week, he complained that Florida had more gnats, frogs, fleas, and mosquitoes as well. He was also surprised at how frequently it rained and how little business activity other than turpentining, lumbering, and phosphate mining took place in the state. He expressed amazement at the large number of abandoned and dilapidated houses that dotted the countryside, no doubt the result of the transient nature of Florida's principal industries. The region's population likewise failed to impress Evans. "All the people I have met are ignorant, indolent, and clever...," he reported.64

His house did little to lift his spirits or arouse his wife's anticipation about joining her husband in Florida. It sat on a large treeless tract which provided a full view of the turpentine operation's still, commissary, and workers' quarters. Nine windows provided ventilation for the house's five small rooms and kitchen. Its three-foot wide hallway probably did not give adequate cross breeze to cool a house that sat fully exposed to the sun. Not only was the house likely hot, but also filled with vermin. Its sparse furnishings included two beds, a dining table, five chairs, a rocker, and mosquito nets. Hogs, chickens, and a cow provided meat, eggs, and milk. The well water was "awful" but Evans had a barrel of drinking water brought from Gainesville once a week and he planned to begin having ice brought in as well. Barreled water and ice represented the few minor luxuries available in only portions of the deep South's pine forests. As Evans' experience demonstrates, the turpentiners who moved into Georgia, Florida, Alabama, and Mississippi found themselves more isolated, their living conditions more primitive, and the

64 "Inventory," 16, Hervey Evans to Mattie McNair, 5 June 1899, Hervey Evans to Mattie McNair Evans, 13 July 1899, 30 July 1899, and 16 August 1899, Hervey Evans to Susan Murphy Evans, 22 July 1899, Patterson Papers.

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climate less comfortable than what they were accustomed to in North Carolina. The relocation, for many, represented nothing short of a move to the frontier.65

Some men moved to the piney woods not to begin turpentine operations but to establish support businesses for these enterprises. Men such as William A. Rough, who was born in Ohio in 1856, found a great need for barrels in the South. When he arrived in Charleston at age sixteen to sell peach trees, he noticed a demand for rice barrels in the port city. Familiar with the coopering business in which his family in Ohio engaged, he soon found local investors to help him start the Palmer Manufacturing Company. As the naval stores industry pushed southward out of North Carolina, in 1883 he began a turpentine barrel factory at Hartford, Georgia in Pulaski County. In 1889 he moved to Macon, where he and his brother-in-law established the Macon Cooperage Company, which became one of the largest cooperage plants in the Southeast. Other businesses such as the Council Tool Company in North Carolina and Blount Turpentine Tool Company in Quitman, Georgia manufactured the instruments turpentiners required for their work. Another man who became a naval stores factor immediately following the war had also experimented with other emerging industries in the South before the Civil War. In the late antebellum period John Judge and his partner tried and failed to establish a paper mill in Wilmington. However, his sock and yarn factory in Columbia, South Carolina succeeded in making socks for the Confederate soldiers.66

Southern businessmen involved in the late-nineteenth-century turpentine industry differed from those employed by the lumber companies in that they were only indirectly

65 Hervey Evans to Mattie McNair Evans, 21 July 1899 and 30 July 1899, Hervey Evans to Augusta Evans Currie, 31 July 1899, Patterson Papers.

66 Harris, History of Pulaski and Bleckley Counties, 580-581; Martha Green Hayes, “General History of the Turpentine Industry,” Georgia Agrirama, Tifton, GA, 13; Collection Description, John Judge Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.
dependent on the larger and more developed northern economy. The lumber industry's growth in the South after 1880 supports C. Vann Woodward's description of the South as a colonial economy. Northern investors typically owned the companies whose regional operations employed local men as no more than middle managers. These managers, representative of Woodward's new class of southern businessmen, served as agents, retainers, and executives, but it was the northern owners who benefited from better capitalization and technical sources who were the principal figures in the operations. Turpentiners, on the other hand, were typically native southerners who operated independently of a larger company, financed their operations through southern-owned factorage houses, and purchased barrels and turpentining tools made in the South. Yet, naval stores men were connected to the northern economy in important ways. In many cases the operating capital they obtained through the factors came from northern financiers and northern firms bought the majority of naval stores which they used to manufacture finished products.67

Men involved in all areas of the turpentine business, as well as with the lumber companies with whom they competed for timber, revolutionized the piney woods economies in Georgia, Florida, Alabama, and Mississippi. Attracted by the plentiful and inexpensive land which the railroad made accessible, these entrepreneurs moved land-use practices in isolated areas of the southern states closer toward a market orientation. Michael Williams explains that the railroads, which enabled the naval stores business's expansion into the area, "introduced industry and industrial ways to remote and backward rural areas in what was a conservative society and culture that had not altered radically for nearly two centuries."68 New South developers represented a shift in the region's power from the independent subsistence farmer

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68 Williams, Americans and Their Forests, 253.
antebellum planter to the postbellum businessman. The railroad and timber industries were not integrated into the area's traditional economy and therefore represented an invasion of both the forest and economic life. Not only did they help subvert the independent Wiregrass farmers dominant position, but they spurred the region's shift toward a more market-oriented agricultural economy. In her socioeconomic study of six counties in Wiregrass Georgia, for example, Ann Patton Malone finds that in the 1880s and 1890s the railroads', lumber companies', and turpentine operators' infusion of capital, technology, and a wage-labor system challenged the area's largely self-contained economy. Bypassed during the three decades preceding the Civil War by settlers seeking rich new cotton land, the typical Wiregrass farmer in the 1880s raised subsistence levels of corn, oats, sweet potatoes, and rice as well as grazed cattle, hogs, and sheep on the open range. Only nine percent of farmers raised cotton. By 1880, however, eighty-nine percent of farmers planted cotton and raised only half the amount of livestock as in 1850.

Mark Wetherington describes the introduction of these new businesses, as well as the growth of cotton cultivation, as a “process that destroyed a local, self-sufficient culture of small farmers and livestock herders and established in its place a society more commercial and market-oriented in outlook.” The naval stores industry, for instance, depended on the immigration of outsiders, particularly North Carolinians. Using the example of the Sugar Hill community in Georgia, he explains how the region changed. In 1860 this area was nothing more than a farming community of families who depended on open-range herding. One fifth of the farmers owned slaves, and blacks made up twenty-three percent of the 151 residents. But, in 1880, he explains, “the homogeneous, antebellum farming community had been fragmented, first by the construction of the Macon & Brunswick Railroad through the settlement in 1869 and subsequently by the arrival of newcomers.” The yeoman community was replaced by railroad agents, clerks, carpenters, coppers, and laborers. Black turpentine laborers made up seventy percent of the population. He argues that such post-war invaders as “railroad construction, immigration, industrialization, town growth, and community farming—shattered the sense of community and ‘republican simplicity’ that had existed during the antebellum years.” Wetherington, New South Comes to Wiregrass Georgia, xviii, xxii, 46, 116-117, 264-265; David L. Carlton, “The Revolution from Above: The National Market and the Beginnings of Industrialization in North Carolina,” The Journal of American History 77 (September 1990): 446-447; Mart A. Stewart, “What Nature Suffers to Grow?” Life, Labor, and Landscape on the Georgia Coast, 1680-1920 (Athens: The University of Georgia Press, 1996), 207, 211.

The six counties in the study are Irwin, Berrier, Coffee, Colquitt, Wilcox, and Worth. Malone concludes that only a few of the native Wiregrass residents became involved in the new industrial development and that most did not benefit substantially from the area’s economic transformation. Ann Patton Malone, “Piney Woods Farmers of South Georgia, 1850-1900:
An analysis of state naval store production statistics reveals how rapidly the industry moved into these relatively economically undeveloped areas. When naval stores production resumed following the Civil War, North Carolinians held their dominant position in the industry, operating more turpentining establishments with a higher product value than all other naval stores-producing states—South Carolina, Georgia, Florida, Alabama, and Mississippi—combined (fig. 5.4). By 1880, however, both the disappearance of the longleaf pine in the older turpentine areas of North Carolina and the spread of railroad lines, especially in Georgia, had pushed production southward. South Carolina, at this time, replaced North Carolina as the industry leader, producing naval stores valued at nearly $1,900,000. North Carolina manufactured turpentine valued at just over $1,750,000, a 25-percent drop from its 1870 production, and Georgia made $1,455,739, an impressive 1500-percent rise in production over the previous decade. The other producing states' combined product was valued at nearly $765,000.

Throughout the 1880s the naval stores industry continued its movement South so that by 1890 Georgia lead the business, its manufactured value of $4,242,255 representing over half of the total United States production. North Carolina ranked second with $1,705,833 worth and South Carolina, which only ten years earlier had ranked first, dropped to third place with $1,524,100. The other three producing states combined made just over $600,000 worth. Georgia maintained its leading position during the 1890s, nearly doubling its production value by the turn of the century. Florida, however, with an astonishing industry growth of nearly 3400-percent from $191,859 in 1890 to $6,469,605 in 1900, ran a close second and within the next ten years overtook Georgia. Alabama, which experienced a similarly impressive growth in 1890s, ranked third with a value of $2,033,705. Mississippi was fourth with $1,772,435; North Carolina fifth with $1,055,695; and South Carolina, which just twenty years earlier had lead the industry,

Jeffersonian Yeomen in an Age of Expanding Commercialism," Agricultural History. 60 (Fall 1986): 56, 59-60, 81, 83.
ranked second to last after Louisiana, which for the first time since the war reported production. This phenomenally rapid shift southward at the end of the nineteenth century resulted from the culmination of three influences—forest degradation, railroad expansion, (both of which had begun in the late antebellum period), and competition with the lumber industry for pine acreage, which accelerated the turpentiners' movement. As forests disappeared, a trend started by the turpentiners and intensified by the lumber companies' widespread southern logging activities, naval stores producers used the newly constructed railroads to relocate to areas where competition was not yet so intense.\textsuperscript{71}

The naval stores industry's southward movement influenced activity at southern ports. Wilmington, North Carolina had been North America's principal naval stores port from the colonial period to the late nineteenth century. As the industry pushed into South Carolina, Charleston rose in importance, but it never surpassed Wilmington's naval stores volume. The naval stores industry quickly exhausted South Carolina's pines and turpentining there began to decline shortly after 1880. The volume of naval stores exported through the port at Charleston illustrates South Carolina's rapid rise and fall as a naval stores producer. In 1865/1866 3,000 packages of naval stores (one package being either a cask of spirits or a barrel of rosin or gum) passed through Charleston. Five years later the volume reached 90,000 and rose to 366,000 by 1882/1883. But as naval stores production declined in South Carolina, just as it had in North Carolina, Charleston's importance in the trade faded. From its high in the early 1880s, Charleston naval stores exports declined to 200,000 in 1885/1886, 81,000 in 1895/1896 and 20,000 in 1900/1901. In fact, industry observer Thomas Gamble explained in the 1920s, South

Carolina represented merely a way station for North Carolina turpentiners who eventually ended up in Georgia.\textsuperscript{72}

As production continued to move southward, Savannah saw an increase in trade and in 1882 its naval stores volume surpassed Wilmington’s.\textsuperscript{73} In fact Wilmington’s decline was so rapid (Fig 5.7) that in 1891 \textit{Garden and Forest} magazine reported that “Wilmington, which was once the most important shipping-point in the world for naval stores and the principal shipping-point for southern hard pine, has now lost entirely its commercial importance as a point of distribution for forest-products, the North Carolina Pine-forests being no longer a considerable or even an important factor in the country’s supply.”\textsuperscript{74} The 1882/1883 season Savannah handled naval stores worth $4 million, representing a six hundred percent rise over the previous eight years. In 1891 Savannah’s naval stores volume reached one million barrels. By 1896/1897 the

\textsuperscript{72} After the war, Fayetteville resumed its role as North Carolina’s inland naval stores marketing center. A traveler found that post-war Fayetteville seemed to serve more as a business center for the surrounding countryside than as a place of residence. John R. Dennett, who traveled through the South one year after the war observed that “the chief business of Fayetteville is the shipment of tar, rosin, and spirits of turpentine down the river to Wilmington, and the sale of manufactured goods to the farmers around about.” To Dennett it appeared “to be a busy and thriving town.” John Richard Dennett, \textit{The South As It Is, 1865-1866.} (reprint; Baton Rouge: Louisiana State University Press, 1995), 174-175; Shelton, \textit{Pines and Pioneers,} 184; Dwight Wilson interview, Oral History Collection, Research Library, St. Augustine Historical Society, St. Augustine, FL; Campbell, et al., \textit{Naval Stores Industry,} 9, 13-14; Richard C. Davis, ed. \textit{Encyclopedia of American Forest and Conservation History} (New York: Macmillan Publishing Company, 1983), s.v. “naval stores;” Thomas Gamble, “Charleston’s Story as a Naval Stores Emporium,” in \textit{Naval Stores: History, Production, Distribution and Consumption,} ed. Thomas Gamble (Savannah: Review Publishing & Printing Company, 1921), 35-36.

\textsuperscript{73} Campbell, et al., \textit{Naval Stores Industry,} 13-14.

\textsuperscript{74} C. G. Pringle, “Waste in the Turpentine Industry,” \textit{Garden and Forest,} 4 (4 February 1891): 50; For figures related to late nineteenth-century naval stores exports from Wilmington and United States exports of turpentine and rosin see Appendix A.
Figure 5.7. Exports of Rosin and Turpentine from Wilmington, NC, 1873-1893


The Florida naval stores industry's growth, like Georgia's, was reflected in the increased traffic of the state's ports. Jacksonville saw a significant rise in activity, but the port at Fernandina, just north of Jacksonville, handled the majority of Florida's early naval stores

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exports. Whereas Jacksonville exported $83,366 of lumber and $2,249 of naval stores in 1880; the same year Fernandina handled $129,944 of lumber and $17,522 of naval stores. By the end of the nineteenth century, however, trade was shifting toward Jacksonville, which became the major one. Jacksonville’s growth began during the 1850s when its population grew four fold—from five hundred to two thousand people. During the same decade, Jacksonville began to gain importance in the lumber industry. In 1850 seven sawmills, mostly northern-owned, operated on the St. Johns River about a mile from the waterfront. By the eve of the Civil War, after completion of a railroad from Jacksonville to Lake City, which lay to the south-east in Columbia County, the city became a link between Florida’s interior counties and the coastal market. Also, weekly steamboat service between Jacksonville and Savannah began. But it was Jacksonville’s growing importance as a railroad center after 1880 that increasingly attracted trade. During the 1880s, three important new lines ran through Jacksonville: the Savannah, Florida, Western Railroad; the Jacksonville, Tampa, & Key West Railroad; and the Florida East Coast Railroad. In the 1890s a fourth arrived when a lumber operator who ran a large mill at Fargo, Georgia, about eight miles from the Florida line in Georgia’s southeastern corner, tired of using a primitive logging railroad to move his lumber, formed a partnership, and constructed a line from Valdosta to Jacksonville. With a brief interruption caused by an 1888 yellow fever epidemic, Jacksonville’s population grew steadily. By 1900, the population of Duval County reached 39,733, a forty-eight percent increase in ten years. Of this population, 28,429 lived in Jacksonville, which felt so confident about its growth and prosperity that, in 1900, it made an unsuccessful move to become the state capital.  

Pensacola handled the export trade for Florida's western panhandle counties. Lumber export values climbed from $934,993 in 1870 to $1,913,731 in 1880. The rise in naval stores exports was even more impressive, from $300 to $15,751. The naval stores industry in Florida's western panhandle received a boost when the L&N Railroad completed its Pensacola and Atlantic line across the panhandle in 1883, providing easy access to the port city. The town of Chiply in Washington County, located between Pensacola and Tallahassee, served as that area's collection point for naval stores and achieved notoriety as the world's largest inland shipping center for these products. Pensacola served as the principal marketing and export center for the Gulf coast area producers. From 1870 to 1900, Florida's export values consistently rose in relation to U.S. exports, largely because of an increase in lumber and naval stores exports, much of which left through Jacksonville. In 1870, Florida exports were valued at approximately $1,346,000 or three-tenths percent of total U.S. exports. By 1880, the value had risen to $3,347,000 or four-tenths percent of the U.S. total. By the late 1890s the amounts jumped substantially higher. In 1897 export values reached $11,400,000 and by 1900 $20,556,000 or 1.5 percent of U.S. exports.\textsuperscript{78}

The naval stores industry recovered rapidly after the Civil War and resumed its antebellum development patterns. The New South's railroad building boom provided access to more and more previously isolated tracts of longleaf pine just as had the antebellum transportation improvements in the Carolinas. The old harvesting process, which dated back to colonial times, persisted and, consequently, the destruction of the turpentined timber stands continued as well. These practices and their effect on the forest perpetuated the industry's

transient nature, forcing turpentiners to move, not only out of the Carolinas and into Georgia and Florida, but throughout the pine forests of Alabama, Mississippi, and Louisiana in search of new trees. Competition with the northern-owned and well-financed southern lumber industry, which grew rapidly after the 1870s, forced turpentine operators to seek out the region’s increasingly scarce timber supplies in more remote areas. Their efforts to keep ahead of the timber cutters drove them southwards at a quicker pace than before the war. Throughout the industry’s migration, North Carolinians and their descendants continued to dominate production. These Carolina turpentiners pioneered a middle-class business community in the thinly settled pine forests into which they introduced a more market-oriented economy. By the beginning of the twentieth century, the transient naval stores men were well-established in south Georgia and north Florida where the industry would remain centered. The turpentiners’ southward movement was, however, but one of the industry’s several features that continued after the Civil War.
Chapter Six

Trapped in the Past:
The Naval Stores Industry’s Failure to Innovate

In the late nineteenth century, naval stores men, who represented the initial wave of southern businessmen moving into the economically undeveloped piney woods South, were unsuccessful in their efforts to modernize the turpentine industry. Between the Civil War and 1900, not just the southward migration of naval stores production, but two other of the industry’s most distinctive characteristics—reliance on factors and destructive practices—continued despite both unintended changes in the marketing of other southern commodities, especially cotton, and deliberate efforts to reform production methods. The role of factorage houses in turpentine marketing and production rose as they led moderately successful efforts to improve naval stores pricing methods, regularize product standards, and increase marketing efficiency. Though most southerners accepted forest loss as the inevitable consequence of industry, by the 1890s, the enormous timber depletion made it very clear that the naval stores business could not continue for much longer without significant changes in manner gum was collected. Efforts by the naval stores producers to alter these practices, however, failed completely and by the end of the nineteenth century the industry conditions remained remarkably similar those of its antebellum past.

As the naval stores industry moved southward, factorage houses in the old turpentine region of the Carolinas lost business and new establishments appeared in the more southerly port cities: Savannah, Brunswick, Jacksonville, Pensacola, Mobile, and New Orleans. Factors in such ports as Wilmington and Charleston had to change their product focus or face certain financial ruin. Sprunt and Son of Wilmington, for example, in the 1870s began a transition from naval
stores to cotton marketing that it completed by the late 1880s. At the end of the century, the firm controlled Wilmington's cotton exports. In some cases the factors, just like many of the turpentiners, came from North Carolina. The Peacock family who moved to Georgia from North Carolina in the 1870s established factorage houses in Savannah and Jacksonville. In 1876 Sprunt opened one of the most important houses in Brunswick, Georgia. After only three years in business he sold out to A. V. Wood, also of Wilmington. In 1883, the business was once again bought out, this time by Downing, Buck, & Company and, in 1890, it became just the Downing Company. By the early 1920s Downing Company remained the only factorage house in Brunswick.¹

Naval stores factors such as Downing grew increasingly powerful between the Civil War and the turn of the century, the reverse of the development Harold Woodman describes in the cotton trade during the same years. The decline of the cotton factor after the Civil War represented a continuation of a trend already underway in the 1850s. Transportation improvements across the South during this decade made it possible for itinerant merchants to gather together the product from individual growers in the inland crop-growing regions and to send it to market. The merchants' efforts made it easier for smaller growers to market their crops and gave large producers an opportunity to sell theirs more quickly than if they had waited for the bales to reach their factor in a port town and for the factor to find a buyer. However, the

itinerant merchants worked in conjunction with the factors who continued ultimately to market the crop. Nevertheless, the factors lost strength as the merchants gained it.2

Woodman identifies four determinants that encouraged the cotton factors’ continued decline after the war: expansion of the railroad network, emancipation, development of the tenancy system, and the spread of the telegraph and later the telephone system into the South. As rail lines spread across the South, factors began securing cotton shipments by financing local merchants who bought as much of their area’s crop as possible and shipped it to the factor at their port location. As the merchants’ business rose, they were able to separate themselves from financial dependence on the factor and market the cotton directly to consumers or exporters. Consequently, cotton marketing moved inland. As the South’s transportation improvements enabled growers to get their supplies locally, they began to acquire their credit from local sources. Sharecroppers needed to obtain their own supplies and the merchants provided the only means to do so. These growers were required to market their cotton quickly to cover their debts. Not only did they lack the financial ability to delay sale while a factor searched for the best buyer, but it was cheaper to sell to a merchant and avoid the factor’s 2.5 percent commission. The merchant also had the advantage over the factor of displaying ready-to-take-home merchandise and, living in close enough proximity to production, of seeing that the cotton came to them to be marketed. Technological improvements other than the railroad made this inland marketing more feasible. Beginning in the early 1870s, powerful gin presses were constructed in the interior which were capable of compressing cotton bales so tightly that they effectively doubled the cotton-carrying capacity of railroad cars. Also, the telegraph, transatlantic cable, and later the telephone permitted inland merchants to keep abreast of moves in the cotton markets.

2 Harold D. Woodman, King Cotton and His Retainers: Financing and Marketing the Cotton Crop of the South, 1800-1925 (Columbia: University of South Carolina Press, 1990), 84-85, 95.
As general merchandisers, creditors, and often land holders, the South's merchants replaced the cotton factors to become the economic powers of the inland agricultural producing areas.³

But while the role of the factor declined in cotton marketing, special features of naval stores production required factors to continue serving as the financial and marketing agents for turpentine producers into the 1930s. Economist Donald F. Martin lists five reasons why the naval stores industry required factors. First, he argues, producers were relatively small and found it too expensive to establish their own marketing organization. Second, by the late nineteenth century, turpentiners were spread from North Carolina to Texas and thus located such a considerable distance from the principal areas of consumption outside the south that they required factors to sell to customers. Third, their products ranged widely in quality and required grading by uniform standards which the factor performed. Fourth, producers lacked storage facilities for their seasonal production and required the factorage houses' port-side naval stores yards. Finally, producers needed agents who were better informed than they were about marketing conditions and procedures.⁴

Martin's explanation appears inadequate because cotton growers faced strikingly similar situations, and yet the factor became obsolete in the making of their product. The principle differences, which Martin fails to recognize, were the naval stores industry's transient nature and different labor system. Where cotton production could be relatively guaranteed to remain in the local area, thus providing a stable business environment for merchants, the destructive turpentine harvesting practices, which rendered the pines useless after several years, required that producers continually search out fresh stands. An operation might move only a few miles or a few hundred


⁴ Donald Fraser Martin, "An Historical and Analytical Approach to the Current Problems of the American Gum Naval Stores Industry" (Ph.D. Diss., University of North Carolina, 1942), 249-250.
miles. Consequently, there was very little reason for a merchant to believe that local turpentiners would remain his steady customers for longer than several years. However, factors located in port cities could be relatively assured that turpentine producers, although located many miles inland and not necessarily working in the same area each year, would use the rail lines to ship their product to the factor’s location. Second, the industry’s unique post-war labor arrangement, which will be discussed in the next chapter, left the largely black work force dependent on the producers, not the local merchant, for supplies. Whereas tenant cotton farmers required the services of the merchant, the turpentine worker did not. Third, the turpentine had little to offer as collateral except his livestock and equipment. Merchants were not interested in securing loans with pine land which after a few years of turpentine work would be rendered virtually worthless. Moreover, turpentiners commonly worked leased tracts, which could not be used for collateral. For the same reason that merchants refused to finance producers, banks avoided them as well. Emancipation and the improvements in transportation, which led to a shift in cotton marketing away from factors, served to intensify the role of the factorage house in the production and marketing of naval stores.  

Because factorage houses had to take relatively unsecured risks with their clients, they kept a careful watch over each producer’s activities and, through the last decades of the nineteenth century, increased their control over the industry. They sold producers all equipment and supplies, often on credit, and in many cases even leased them the timber tracts they worked. Factors also provided the advances that producers required to support themselves during the winter season, when work continued but no gum was harvested, to cover operating costs.  


January 1900, for example, Hervey Evans complained that he was spending about $1000 a month with no money coming in and his workers were busy cutting boxes, not harvesting gum. “It will be two months before anything will be coming in—it is all spend spend now.” As during the antebellum years, factors tended to focus on one commodity. In 1888 one Savannah factor explained that “we have too large a naval stores business to occupy our minds with cotton.” Factors stayed informed on labor, weather, and market conditions, anything that could affect business, and remained in continuous contact with their clients regarding these matters. They advised producers on leasing and purchasing timber as well as on matters relating to their business operation policies. Because their enterprises depended on their clients’ success, factors encouraged a good business environment, and sound decisions. In 1891 one Savannah factor resigned as a member of the Georgia Railroad commission’s Savannah branch when the commission voted to allow a rate increase for naval stores and lumber that he believed would “injure the causes of the mill and naval stores men.” “As a naval stores factor,” he explained, “I represent the producer to a certain extent and I do not care to remain in an association whose president’s interests are inimical to my own.”

Although factors usually made a profit from each of their clients, losses occasionally occurred. It was a common practice to roll accounts over year after year, but when the factor

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7 Hervey Evans to Susan Murphy Evans, 6 January 1900, Martha Virginia McNair Evans Patterson Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.

8 John Avery Gere Carson to J. P. Williams, 10 September 1888, John Avery Gere Carson Papers, Manuscripts Collection, Georgia Historical Society.


10 John Avery Gere Carson to Savannah Branch, Southern Travelers’ Association, 30 May 1891, Carson Papers.
sensed serious problems at an operation, he protected himself by taking possession of the leases or mortgage on the land, animals, and equipment. He then sought another producer to take over the operation. Factors ordinarily did not market naval stores directly to consumers. Rather, the majority of their sales were to dealers who resold the products mostly to the industrial manufacturers who ultimately used the goods.\(^{11}\)

During the last three decades of the nineteenth century, producers and factors, dependent on each other for successful business, began efforts, not always jointly agreed upon, to improve the naval stores market. In 1874, a group of turpentiners met in Florence, South Carolina, to organize the Turpentine Manufacturing Association in an effort to coordinate business policies they hoped would improve the trade, which at the time was suffering from a recent economic depression. Like the Grange, which addressed farmers’ needs, this association hoped to improve the life of turpentine operators. Action was required, the producers argued, to protect themselves and their factors from a “common calamity,” they then set out to identify the principal causes for declining business. They complained that the world’s markets were “copiously supplied” with turpentine. The high cost of marketing and transporting their produce also cut into profits. Not only were the fees of factors, railroads, and shipping lines excessively high, they complained, but “the irregular manipulations of inspectors and weighers together with the impervious regulations of the Chamber of Commerce, do not comport with the constant decreasing price of produce.” Finally, “the high rents, high labor and low prices for Turpentine are simply preposterous.”\(^{12}\)

At the same meeting, organizers unanimously elected officers and adopted several resolutions, including a promise to discharge all workers laboring on old and unprofitable boxes


\(^{12}\) “Turpentine Manufacture,” Marion, *South Carolina Star*, 15 July 1874, Darlington County Historical Commission, Darlington, SC.
and any other unneeded workers. This measure probably represented an effort to raise market prices by reducing production. Members were to request rate reductions from transportation lines and commission merchants as well as relaxed regulation by chambers of commerce. Any producers in the southern states not represented at the meeting were to organize themselves into councils, elect officers, and report to the Florence association, which would furnish them with information and instruction about the organization. Copies of the meeting proceedings were to be sent for publication to the Charleston and Wilmington papers and local papers in South Carolina.\textsuperscript{13}

Most important, the Association recommended that producers and factors work together since their interests were intertwined. Because of declining prices, producers were becoming increasingly indebted which not only jeopardized their own business but threatened to bring the factors down with them. They recommended that producers put themselves in the factors’ hands and appealed to “the factors, transportation lines, and the good sense of any party anywise [sic] connected with the turpentine business to do their utmost in restoring life to its wasting prosperity, in order to avert a pecuniary and commercial calamity to the whole country. . . .” Their success with this organization, the producers believed, was assured by their past perseverance. “We belong not to any despondent or croaking class of men,” they declared, “having heretofore bravely withstood the most ingenious machinations of speculators, irregularities of weighers and inspectors, the reverses of Yankeedom, the uncertainties of negrodom, disease, disaster and almost death, yet in the face of defeat many by perseverance and energy have achieved splendid victories and established industry and economy in many wild and desolate places.”\textsuperscript{14} The success of this organization is uncertain because nothing is heard about it

\textsuperscript{13} Ibid.
\textsuperscript{14} Ibid.
again. Given the record of cooperative schemes, however, the organization probably dissolved quickly. Not only did the factors of this period lack the size and coordination to effectively direct the market, but operators rarely adhered to their directives regarding production. Prices fluctuated widely over time and, when they declined, producers often decided to reduce the number of boxes they would cut for the coming year. But an operator might plan to increase his production instead, planning to profit from the other’s inactivity. Many of his fellow producers, however, had the same idea and overproduction usually continued. Also, because the association was organized in northeastern South Carolina, an area which quickly passed from prominence in turpentine production after the 1870s, its organizers would have either left the business or scattered to other areas with fresh pines, making the group’s cohesion nearly impossible to maintain. It is known that Henry L. Morris of Timmonsville, South Carolina, one of the leaders of the turpentine producers meeting, later joined other Darlington County men who moved to the Florida panhandle in the 1870s and 1880s to continue in the turpentine business.  

When, in the late 1880s, factors initiated efforts to influence prices by controlling production, they met with little more success than had the turpentine producers in the previous decade. For much of the 1880s turpentine prices remained relatively steady, between 30.75¢ and 34.5¢ per gallon, although they did dip as low as 28.75¢ cents in the 1884/1885 season. Moreover, rosin prices dropped so low that speculators, almost certain values could not go any lower, were ordering thousands of barrels with the intention of unloading them when prices rose. However increasing production costs rendered the industry less and less profitable. In 1888 Savannah factors put out a circular asking producers to stop barreling their rosin. The factor’s plan would help those who would lose profits from reduced handling and commission fees, but benefit as the value of their rosin stock rose. In the long run producers would also benefit from

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the rise in prices, but in the immediate future take a loss by discarding, rather than selling their rosin, which would have brought in low returns but returns nonetheless. It is uncertain what role the factors' program played in influencing market prices, but rosin values did indeed rise. Between 1889 and 1892 prices rose to an average of 38.5¢, but dropped in 1893 with the depression of that year to around 27¢.16

In February 1894, Savannah factors tried a more direct approach to reduce production; they restricted capital advances to manufacturers. The factors feared that at the rate producers were cutting boxes that year, by mid-March there would be ten percent more new boxes than the year before, resulting in a glutted market of virgin turpentine and high grade rosin by late spring at a time when prices were already depressed from the Panic of 1893. From the factors' perspective, production limits were necessary for two reasons: to prevent naval stores prices from sinking more, further reducing the value of their stock, and to help already-overdrawn producers avoid further credit problems. Producers, however, saw the factors' move as strangulation and hoped to compensate for the lower prices by increasing their production of high grade turpentine and rosin by chopping new boxes. But despite the factors' efforts, turpentine production continued to increase. By the last half of the 1890s, the value of naval stores production reached nearly $10 million with 2.5 million acres under harvest and nearly one million acres of virgin boxes begun each year.17

In their effort to compensate for the low prices, turpentiners continued to overproduce, but since prices remained low, the business remained unprofitable. Conditions became so

16 John Avery Gere Carson to J. P. Williams, 11 September 1888 and John Avery Gere Carson to Editor Morning News, 17 April 1893, Carson Papers.

desperate that producers agreed to work with factors to reduce the number of boxes. As one factor explained, “the factors and operators realizing that they were fast using up their best asset (Virgin Pine Timber), without profit and without hope of replacing same, determined to bring about some united action that would put their business on a profitable basis once more.” Their dramatic plan called for cutting only one-third the number of boxes that producers cut for the previous season, thus reducing the production of fine turpentine and rosin by sixty-six percent. By reducing the number of new boxes so dramatically, the plan was expected to cut overall turpentine production in 1897 by twenty percent. Producers still had much of the current year’s high grades at their camps, but, with the support of the factors, agreed no to ship it out at the low prices. Even the few producers who worked using their own capital and “who are not controlled,” were reportedly agreed to this plan. “For the first time factors and manufacturers are united and in accord on this subject,” a factor explained.18

Their cooperative plan failed and prices dropped even lower than those of 1893. By May 1897 they reached between 25.5¢ and 26¢.19 Persistent low prices and the continued reliance on factors for operating capital drove out many small producers. The Northeastern Lumberman reported that:

it looks as if this industry ought to give consistent independent work to every unemployed man in the South, as if a man need only to buy a few acres of pine land at $2 to $3 an acre, or better yet, rent a tract for the purpose of ‘Turpentining’ it, as it is called, and be sure of making a good living for the next four years by tapping the trees all on his own account; in other words, to be as independent as the small farmer who raises his own crops. This was so once, but it is not the case now. Capital has been as busy with turpentining as it has been with the other industries, and it is practically impossible for a small owner to get even the price of his labor by turpentining his own little tract. The big producers set the pace, and there is no longer any chance for small operators.20

18 John Avery Gere Carson to J. P. Williamson, 21 September 1896, Carson Papers.

19 John Avery Gere Carson to Thomas Gamble, 8 May 1897, Carson Papers.

Whether initiated by producers or factors or through a cooperative effort by both, the failure of their schemes to raise prices by reducing production was not an uncommon result. Similar plans in other industries often yielded the same outcome. In general, the formation of specialized business associations occurred most frequently among industries, such as turpentining, in which the individual producers were evenly matched in manufacturing capabilities. Turpentiners also displayed typical behavior in that their voluntary agreements to reduce output tended to collapse during periods of depression when producers commonly tried to manufacture at full capacity to compensate for low prices. During such periods of economic decline, it was usual for evenly matched firms to continue production. According to this fixed-cost theory, Naomi Lamoreaux explains, "prices might hover indefinitely at a level too low to enable firms to break even, but too high to compel them to shut down." Thus, during the 1870s and especially the 1890s, when low naval stores prices drove small producers out of the business, medium- and small-sized operators either held steady or increased their production.

Since attempts to reduce production failed, factors looked for more efficient ways to handle and store turpentine to save both them and the producers money. As early as the late 1870s, railroads began using 3,500-gallon tanks, originally intended to store kerosene, to transport turpentine, saving producers the cost of barrels and shipping them. In the 1890s the factors in Savannah, whose port in the early 1880s had replaced Wilmington as the largest naval stores exporter, began constructing a storage tank for their turpentine marketing. Their plan involved a 12,700-barrel-capacity tank, which would cost $10,300 and reduced the need for and

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22 Although turpentine production declined by 6.3 percent between 1893 and 1894, from 1895 to 1898 output rose nearly 37 percent over that of the depression year. Joseph B. Hosmer, *Economic Aspects of the Naval Stores Industry* (Atlanta: Georgia School of Technology, 1948), 35.
expense associated with barrels. Orders for turpentine could be either sold in barrels, which the factor resold for 5¢ each and filled by an automatic system, or piped into a tanker waiting at the wharf. When a producer brought in his turpentine, the factor would issue him a tank receipt for the number of barrels negotiable with the dealer upon payment of all charges. The factor stored the barrels in which the producers shipped their turpentine and opened a barrel account. Because an increasing number of barrels were machine made, and thus nearly identical, it was unnecessary to keep track of each barrel’s original owner.23

Both factors and producers benefited from the tank. Not only did the tank lower costs, but it made handling costs for producers more predictable. The cost of storing turpentine in the tank was fixed. Costs associated with turpentine leakage and the required cooperage to repair the barrel, however, depended on what condition the barrel arrived to the factor. The average cost to the producer for the factor to store a barrel of turpentine was to 36.5¢. Because of leakage, the cost rose in proportion to the length of time the barrel sat on the yard. However, the monthly charge for storage in a tank was only 26.5¢—13¢ for storage, 12.5¢ for labor, 1¢ for storing the empty barrel. The monthly revenue generated for the factor by the 12,700-barrel tank was estimated at $1714.5—$1587.50 for storage of 635,000 at .25¢ per gallon and $127 for storing 127,000 empty barrels at 1¢ each.24

Not only did Savannah’s naval stores interests demonstrate innovation and the growing efforts to limit production and improve marketing efficiency, but they also improved the pricing structure and standards for naval stores products. Savannah’s control of the naval stores trade


tightened as increasing amounts of turpentine moved through the port. In 1874 the city's only daily paper began quoting rosin and turpentine prices. Only one factor specialized in naval stores, although other commission merchants would handle any naval stores products sent to them. The next year naval stores traders formed an informal association to maintain statistics on the trade and post prices. In the next five years, naval stores traffic through Savannah exploded and, by 1883, it was the busiest naval stores port in the world. To manage this increased trade, the port's naval stores factors founded the Savannah Naval Stores Exchange in July 1882, but the next year amended the charter to create the Savannah Board of Trade which oversaw all the port's activity. Three factors and three brokers or exporters sat on the Board's division that handled naval stores. Board members served revolving terms so that every two months one factor and one broker were replaced. Their duties included enforcing inspection regulations, setting standards of quality and grade, settling disputes among its members, promoting its members' interests, and expanding Savannah's trade facilities. However, their most important job was setting the daily price quotes. At the beginning of each morning, factors made offers and the brokers placed bids. From these figures the quotation committee made up of factors, brokers, and exporters, arrived at a quoted price for the day and posted the market's "tone:" strong, firm, steady, quiet, weak, dull, etc. Savannah's Board of Trade daily set the standard naval stores prices for United States until 1950.²⁵

In the absence of national naval stores standards, the Savannah Board of Trade made efforts in the 1890s to institute more uniform industry product regulations than the chaotic, state-by-state system that then existed. In the late 1870s North Carolina and Florida had the most extensive naval stores regulations. North Carolina's standards differed little from its antebellum requirements. Turpentine barrels had to weigh 280 pounds gross and all naval stores products were to be free of fraudulent mixtures. Barrels were to be well-made and of specified dimensions and well-hooped. North Carolina also required that barrels be branded with either an "S" for soft or "H" for hard. South Carolina only asked that a barrel of turpentine weigh 280 pounds gross and Georgia had few requirements of its own, it only asked that naval stores were to be barreled "as in North Carolina." Florida's requirements were considerably more complex than even North Carolina's. In the Sunshine State, barrels were marked with either a "V" for virgin gum, "D" for yellow dip, or "S" for scrape, and if the virgin or yellow dip was impure it was to be marketed with either a "V" or "D" and the letter circled. Barrels were to be the same size as those in North Carolina. Florida gave inspectors a number of reasons to penalize producers for inferior naval stores. If the dip and scrape contained burnt cinders, sand, chips, straw, bark, or any other impurities, if virgin or yellow dip were mixed together or with scrape, if it contained water or had been injured by long standing or leakage or if it was packaged in unmarketable barrels, inspectors would order deductions. To remedy this confusing system which resulted in product inconsistency, in 1894 the Savannah Board of Trade established the Office of Supervisor to ensure naval stores standards. The requirements set up by this office applied only to naval stores leaving the port of Savannah. But as the most important exported of these products, Savannah's standards increasingly set the rule for the whole industry. When the federal government established standards in the 1920s it would use Savannah's. 26

26 Hough, Report Upon Forestry, 139-140; Purse, "How the Savannah Board of Trade Fixes Prices," 56; "Savannah as a Naval Stores Port," 59-61; Davis, Encyclopedia of American Forest, 478-479; Pikl, History of Georgia Forestry, 8.
Although the marketing of naval stores improved in some respects during the late
nineteenth century, production methods, except for slight advancements in distilling, remained
essentially unchanged. There was one significant improvement to distilling after the Civil War,
the addition of water during the distilling process. Without water, gum begins to distill at 363°
F. Rosin, however, starts to decompose at 392° F, meaning that distillers, without the benefit of
temperature gauges, were required to regulate the still temperature within a 29° range by
listening to the sound of the boiling gum and observing the rate of spirits of turpentine running
from the worm. But by adding water, distillers did not need to bring the still temperature so
dangerously high. Liquids boil when their vapor pressure equals or slightly exceeds the
atmospheric pressure. Water boils at 212° F., spirits of turpentine at 313° F., and gum, which is
a combination of spirits and rosin, at 363° F. However, when mixed together, water and gum
will boil when the sum of their pressure equals the atmosphere vapor pressure. Thus the mixture
of water and gum allowed turpentine distillation at a temperature of only 302° F. which not only
increased the yield and quality of the turpentine, but also provided a fine, light-colored rosin.27

After one-and-a-half hours of distilling, the original water ran out and more needed to be added.
It was said that at this point the still had “gone to water.” After charging the still and heating the
gum enough to melt it, the distiller began the flow of a small stream of water from the
condensing tank. Lower grade gum required more water to be added. The water continued to
flow into the still until the spirits stopped flowing from the worm.28

States Department of Agriculture, 1915), 12-14.

28 Charles Mohr, Timber Pines of the Southern United States (Washington, DC: United
States Department of Agriculture, 1897), 70; Robson Dunwody, “Proper Methods of Distillation
and Handling in the Production of Turpentine and Rosin,” in Naval Stores: History, Production,
Distribution and Consumption, ed. Thomas Gamble (Savannah: Review Publishing & Printing
Company, 1921), 128; James Berthold Berry, Farm Woodlands (Yonkers-on Hudson, NY: World
But whereas the addition of water allowed for the production of a somewhat higher grade of spirits and rosin, distillers continued to face the challenges of regulating the devices by the most primitive of methods, necessitating a clear understanding of their limitations. Forester Charles Mohr discovered that the average still in use in the 1890s had a capacity of about eight hundred gallons, which could hold a charge of twenty to twenty-five barrels of crude turpentine. Mohr estimated that each still required about four thousand acres of pine forest or twenty crops to receive two charges a day during the gum-yielding months. At this rate such a still would produce 120,000 gallons of spirits and 2,800,000 pounds of rosin in four years.29 The size of a charge a distiller loaded in was determined by the character of the gum. Generally, newer gum allowed for larger charges. When distilling virgin dip, the still operator could fill the still to three-fourths of its capacity, but for dip and scrape from boxes over four to five years old, one-third capacity was allowable. This limitation was a result of the older dip and scrap’s tendency to rise and foam into the still head where it could force its way out through the collar which connected the worm head to the top of the still body. Such a leak could result in a fire on the platform which could easily consume the entire facility.30 Mohr observed that distilling “requires care and experience to obtain largest quantities of rosin of highest grade and to guard against overheating.”31

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31 Mohr, *Timber Pines of the Southern United States*, 70.
Harvesting and distilling practices used after the war and into the early twentieth century remained identical to those used during the antebellum period. Producers continued to instruct their laborers to cut multiple boxes in the pine's bases and to chip the faces wide and deep. Conservation was never a consideration, only working one tract until it was exhausted and then moving on to the next. The tools and equipment also remained the same. Boxing axes, hacks, puller, dipper, scrapers, and stills were neither improved or replaced. This lack of advancement was not an unusual characteristic of southern industry. In the cases of lumber and textile manufacture, both of which employed the most up-to-date equipment, the technology was developed outside the South. Gavin Wright characterizes southern industry as low-wage, low-skill, and employing not only imported technology, but usually imported machines. The South did not develop an indigenous base of mechanics and engineers who could develop the technology required by the region.32 “It was a ‘country’ that was not large enough or strong enough or cohesively organized enough to have its own technology, its own industrial standards, specifications, techniques,” Wright maintains.33 Because the naval stores industry was almost completely southern-owned and operated and had not existed outside the region since the colonial era, the techniques remained stagnant.

Not surprisingly, the continued use of traditional turpentining practices produced the same destructive results that they had in North Carolina before the war. To understand fully the potential environmental devastation caused by the turpentine industry, a late nineteenth-century observer argued, “it is only necessary to examine the condition of the Pine-forests in eastern North Carolina, where the turpentine industry was first established and has thus been longest


33 Wright, Old South, New South, 157.
practiced, to realize the effect it has on our forests." In the second half of 1893, two particularly powerful storms significantly damaged North Carolina turpentine orchards. One in August harmed only abandoned orchards, but an October storm caused considerable damage to all trees, especially boxed pines. Severe damage was scattered across southeastern North Carolina, but its force was not uniform, with the heaviest damage occurring in Columbus, Bladen, Sampson, and Johnston Counties. Round timber survived surprisingly well, but boxed pines tended to break at the box. Several thousand acres of abandoned turpentine pines blew down and most of the timber was a total loss.

Like the traditional harvesting methods, the folk practice of burning the forest also continued. Each spring piney woods people fired the woods to kill pests and vermin, drive out game, and encourage grass growth. One witness reported that when fires were set around the turn of the century "huge clouds of smoke would rise skyward and, depending on the wind direction, would come over our neighborhood for days." As during the antebellum period, southerners raked the pine straw and debris from the trees' base so that fire would not damage them. However, when these fires got out of control, they not only destroyed seeds and seedlings but injured the older trees as well. In the long run, they interfered with reproduction and, if hot enough to consume all vegetation, caused significant erosion. The South's lower classes were

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36 Clark, *Greening of the South*, 7.


viewed in the late nineteenth century as the leading culprits in forest burning. W. W. Ashe in 1893 maintained that "the danger and loss occasioned by fires in the forests is not sufficiently understood by the class of persons who are generally the cause of them." The poorer piney woods classes were not, however, the only ones burning the forest. Turpentine producers continued the practice as well and exhibited a similarly stubborn persistence in burning. Because their economic needs called for the practice and their cultural patterns encouraged its continuation, it was a difficult task for the increasing number of professionally trained foresters to end the burning.

The combination of destructive gum harvesting practices and negligent burning had the same harmful effect on the southern pine forest that it did in the antebellum years. By 1860, the pines around Washington, North Carolina were nearly exhausted. New Bern, however, saw a flow of naval stores from the region served by the Neuse for a few more years. But just after production recovered following the war it soon began a decline and virtually ended by the 1880s. Within ten years, eighty percent of the small amount of naval stores still produced in North Carolina came from back-boxed trees. Whereas, in 1860 North Carolina produced 96.7 percent of the naval stores in the U.S., in 1870 that percentage had dropped to 65.2; by 1880 it had fallen to 29.9 and, in 1890, to 21.1.

When forester W. W. Ashe surveyed eastern North Carolina's forests in the early 1890s, he found that "the distribution of the pines and the respective area occupied by each in this State

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has changed a great deal since the first exploration of the country." Much of the living longleaf stands in the state consisted of abandoned turpentine trees left to the mercy of the wind and fire and a small number of round trees rapidly consumed by saw mills. As late as 1893, there were 718,000 acres of abandoned turpentine orchards in North Carolina. The greatest majority of these tracts were to be found in the Cape Fear Valley counties. Only 55,876 acres of round longleaf pine remained, less than ten percent of the area covered by abandoned turpentine trees. down from the four to five million acres that grew in the state when turpentining first began to boom in the 1840s, and about the same number of trees put into turpentine production on a yearly basis during the industry's heyday. And just as late antebellum observers had reported, Ashe found that the destroyed longleaf forests were more often replaced by thickets and other pine species than by second-growth longleaf. The nature of the vegetation that replaced the pines depended on the area's soil composition. Eastern North Carolina possessed two different soil types: level sandy loam soils and deep sandy soils, the latter located primarily in the sandhill region. Loblolly and oak replaced the longleaf on the level soils, but only scrub oak and an occasional loblolly grew in the sandhill. Whereas much of the former longleaf area came back in loblolly, over 400,000 acres had grown up into what Ashe termed "wasteland." He explained that "owing to the grossest neglect, large portions of these forests have either been destroyed entirely or reduced to such a condition that there is neither mill not turpentine timber on them... ." He predicted that the declining North Carolina turpentine production in the 1890s would soon end forever because the remaining longleaf grew in such small and widely spaced bodies that they were not worth the cost of boxing and because the longleaf was not reproducing itself. These forests were disappearing at the rate that lumber companies cut them. Ashe estimated that

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42 Ashe, Forests, Forest Lands, and Forest Products, 18.
In 1880 there were over five billion board feet of marketable longleaf pine in North Carolina but between then and the early 1890s, that amount had dropped by two billion board feet.43

By the 1890s, North Carolina's southern neighbors could foresee a similar devastation. In fact South Carolina entered an advanced stage of depletion as early as the 1880s. The rapid destruction of that state's longleafs was reflected in a pessimistic South Carolinian's comment in 1884 that "business this year is uncommonly dull + the outlook anything but cheerful. Many planters are forced into liquidation the area of new planting very small, + the turpentine business almost at an end as the trees are skinned to death so our future is not rose-colored."44 Even in Georgia producers by the 1880s moved after exploiting the original acres they had come to turpentine. In 1881 Joseph A. Backer & Company, which had begun turpentining land served by the Brunswick and Albany Railroad, had already exhausted fourteen thousand acres and was then working ten crops on about two thousand acres with twenty laborers.45

In states where turpentining remained vigorous, increases in production came at the expense of younger and younger pines as the virgin stands disappeared. In an 1897 report prepared for the Department of Agriculture's new Division of Forestry, forester Charles Mohr explained that turpentine orchards were commonly abandoned after four years because the gum quality was not thought to be profitable enough to justify working the older boxes. As a result, larger trees were disappearing and producers were forced to use smaller pines. Before the late 1890s, producers rarely boxed trees with a diameter smaller than fourteen inches. But by 1897 they worked trees smaller than ten inches across. The disease, decay, and fire that commonly

43 Ibid., 42-44, 51-52, 86, 89.

44 T. P. Baily to Doctor, 16 February 1884, Thomas J. Makie Papers, Special Collections Library, Duke University.

killed abandoned turpentine trees prevented these smaller trees from maturing and reproducing. “In consequence,” Mohr explained, “the forests invaded by turpentine orcharding present, in five or six years after they have been abandoned, a picture of ruin and desolation painful to behold, and in view of the destruction of the seedlings and the younger growth all hope of the restoration of these magnificent forests is excluded.”

Lumber companies, which had an economic incentive to cut the forests cleanly and rapidly, contributed even more to the South’s forest loss. Lumber companies added to the damage by not only cutting quickly, but clear-cutting as well. They paid high taxes on standing timber which, if felled, drastically reduced the property’s value. Selectively cut forests often failed to relieve the company’s tax burden because tax assessors were reluctant to reevaluate timber stands which companies only partially harvested. Also, clear-cutting provided the most efficient means to convert the timber stand to cash when companies became overextended. Finally, companies saw no benefit from allowing the fully mature trees, as most were, to continue standing. The longer they were left, the more opportunity rot and insects had to damage their value.

46 Mohr, Timber Pines of the Southern United States, 69, 70, 72.

47 Stockholder investors, who financed the large lumber companies and expected dividends, made immediate profits more important than efforts toward sustainability. Also, many of the large lumber companies were heavily indebted for the tens and hundreds of thousands of acres they purchased and were thus forced to cut as fast as they could to gain the quickest short-term profits needed to make payments on interest and principle. Moreover, states taxed farm and timber land at the same rate even though forests brought no annual return. To avoid another year of taxes, timber companies cut their stands as soon as possible and then abandoned the property. Martin, “Historical and Analytical Approach,” 92-93, 101-103; Williams, Americans and Their Forests, 279, 283-284.

48 Lumber companies attempted to market cutover land as farm property. The plan was welcomed by states seeking to increase their tax base and by railroads hoping to haul the new farmer’s freight. Promoters of cutover land in Georgia claimed that “our pine lands have an intrinsic value for agricultural purposes not dreamed of by their owners.” One even claimed that “the pine lands were worth more per acre with the timber off than with it on.” But much of the former timber land was too infertile to sustain agriculture and more farmers left such plots than stayed. Turpentiners faced a similar problem in their attempts to divest themselves of property
Although the destruction associated with turpentining, lumbering, and burning the forest was widely recognized by nineteenth-century southerners, most viewed the forest clearance as a sign of spreading civilization and as the inevitable price of progress. Thomas Clark explains that a large percentage of the population held the folk belief that untamed forests represented a barrier to civilized society, just as Europeans had thought centuries before.\textsuperscript{49} Agriculture, not timber product production, they believed, was the way to regional development. In fact they viewed the timber almost as a nuisance. One southern booster explained that "to utilize the land for agriculture the timber must be cut off. That is the timber and lumberman's mission. It is fortunate that our timber has great commercial value, because the process of clearing the land brings a handsome return to the land owner; but if the timber was commercially valueless, we should then be forced to cut it down and burn it. . . ."\textsuperscript{50}

Many southerners saw the rapid and complete exploitation of timber as their only means of raising their standard of living. Even if they viewed the large companies as resource exploiters, lumber products were so central to the late-nineteenth-century way of life that both the public and the federal government saw no choice but to tolerate their practices.\textsuperscript{51} James C. Cobb explains that "in cases where residents of the New South were expected to choose between

\textsuperscript{49} Clark, \textit{Greening of the South}, 14.

\textsuperscript{50} Tillman and Goodyear, \textit{Southern Georgia}, 59.

\textsuperscript{51} Williams, \textit{Americans and Their Forests}, 20.
conservation and economic gain, the latter almost always won out." While ignoring the problems of forest depletion, southerners, like the forest product producers, accepted the fatalistic view that exploitation was inevitable. A pamphlet promoting Georgia commented that turpentine orchards "already cover large areas, and the industry is not likely to slacken till the pine is exhausted." The pamphlet admitted that "timber once cut from these lands cannot be replaced. It is the growth of centuries." As late as 1921 Thomas Gamble, the editor of the Weekly Naval Stores Review, argued that although lumbermen and turpentiners might have exploited the deep South's timber resources, their activity was necessary to build up the region.

The pine trees of Georgia and Florida and Alabama brought fortunes to many among the factors and operators. There is a feeling, more sentimental than practical, that this section gave away its heritage in the sacrifice of its forests and the sale of its timber and lumber and naval stores at low values. It is true that in some reasons the financial returns were unsatisfactory. But the states in question could not remain a wilderness of pines. The advancing wave of humanity demanded homes and the fact that while the lands were being cleared thousands and tens of thousands derived a livelihood from turpentining and saw milling, while many acquired a comfortable competence and some large fortunes, and that the wealth thus derived was used for the upbuilding of this section in railroad construction and in agriculture and industrial development, compensated for this passing of the pine.

Some producers simply ignored the reality of the pine's consumption, incorrectly believing that ample resources remained and complete depletion lay only in the distant future. For instance, prospective settlers to south Georgia were assured that although "the lands about

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52 Cobb, *Industrialization and Southern Society*, 125.


54 Gamble, "Savannah as a Naval Stores Port," 61.

Hoboken and Schlatterville have been turpented and partially denuded by cutting for the mill, 
. . . there is still a superabundance of timber for all practical and desirable purposes. 56

By the late nineteenth century, however, the American public, including many
southerners, began casting off their fear of the forest as a wild, threatening, and uncivilized place
and adopted ideas that intellectuals and artists had begun advocating decades earlier. 57 They
started to view forests as national treasures which benefited man as well as nature. Not only had
Americans witnessed the deforestation of New England, New York, and the Great Lakes region,
but increasing numbers lived in cities where they could afford to cast off their fear of the
unknown in wild areas and see them instead as quiet, peaceful places of escape. 58 Consequently,
readers of turn-of-the-century muckraking periodicals were horrified to learn from exposés of
the southern pine forest’s rapid disappearance. Writing in 1891 for the magazine Garden and
Forest, published in New York City, C. G. Pringle revealed to a popular audience that “of the
extravagant methods which prevail in the United States none certainly exceeds in extravagance
than that under which the turpentine industry of the south is conducted; and there is no business
connected with the products of the soil which yields so little return in proportion to the
destruction of material involved.” Pringle explained how the harvesting of gum to supply one
still for three years used up fifteen thousand acres. At the time, 266 turpentine stills operated in
Georgia, therefore every three years nearly four million acres in Georgia alone was consumed for

56 Tillman and Goodyear, Southern Georgia, 52.

57 In 1864 George Perkins Marsh’s Man and Nature: The Earth as Modified by Human
Action introduced the understanding that the use of one natural resource had profound effects on
other resources. The next year Frederick Starr published the first warning of a timber famine if
American clearcutting practices continued at their mid-nineteenth-century pace. In 1877, Carl
Schurz, Secretary of the Interior, predicted that at the existing rate of consumption, U.S. timber
supplies would fall Short of needs in twenty years. Donald J. Pisani, “Forests and Conservation,
1865-1890,” in American Forests: Nature, Culture, and Politics, ed. Char Miller (Lawrence:
University Press of Kansas, 1997), 16, 18, 23.

58 Williams, Americans and Their Forests, 18-19.
In a 1903 issue of *The World’s Work* Overton W. Price, Assistant Forester for the Bureau of Forestry, explained to reform-mined readers that “there is no more deplorable sight to the man who has a sense of the value of trees than the abandoned turpentine orchard—a grim array of mutilated trunks, scorched and charred where the box is made, broken by the wind, infested by insects, and worthless except to illustrate the futility of killing the goose which lays the golden eggs. The South is full of such pictures.” Revelations like this led Americans gradually shifted from understanding timber depletion as unfortunate but inevitable to viewing it as a national threat.

Alarmed by the rapidly approaching disappearance of the longleaf pine forest, both the federal and state governments, as well as individual producers, made attempts in the late nineteenth century to improve the turpentine industry’s efficient use of the South’s declining timber supply. One of their few successful efforts was the use of turpentined timber for lumber. Until the mid-1890s both lumbermen and consumers believed that turpentined pines were unfit for lumber because the drain of resin from the wood reduced its strength. The lumber and naval stores industries consequently used different timber tracts. The loss of wasted boxed timber in each of the states of North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi amounted to between three and ten billion board feet, worth several million dollars, each year. In the 1890s the Department of Agriculture conducted investigations on the mechanical, physical, and chemical attributes of turpentined and unturpentined wood. Tests showed that turpentined trees were just as strong as round timber, and that turpentining did not affect the wood’s weight or shrinkage. Also, bled trees contained the same amount of resin as unworked pines because resin only flowed from the sapwood on the very outside of the truck, just underneath the bark.

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The experiments also revealed that the quantity of resin in pines varied greatly naturally, even in trees growing side-by-side. Thus the Agriculture Department concluded that turpentined timber was appropriate for the same uses as was round timber. The discovery made more timber available for sawmills, but did nothing to reduce the destructiveness of gum harvesting.\textsuperscript{61}

In a small area of the naval stores manufacturing region producers adopted sustainable harvesting practices based on the traditional methods. The change, however, was by forced necessity more than by choice. North Carolinians had almost completely eliminated the longleaf stands in the southeastern corner of their state, but, by the 1890s, the few remaining turpentiners had turned to more conservative practices. In the Cape Fear area small producers were said to work their trees for ten or more successive years, all the while protecting them from fire. After allowing the trees to rest for a few years, producers then cut new boxes in the space left between the old, or back boxing. These orchards had been harvested for twenty to thirty-five years. Some stands in Sampson and Bladen Counties were said to have been worked intermittently since 1845 and by the early 1890s continued to yield considerable quantities of gum.\textsuperscript{62}

In areas where longleaf depletion was not yet as widespread as in North Carolina, a search continued for a way to harvest gum intensely without destroying the tree. Some efforts were more practical than others. An invention by a Savannah man in the early 1880s proved far


\textsuperscript{62} Mohr, Timber Pines of the Southern United States, 70; Ashe, Forests, Forest Lands, and Forest Products, 85-86.
too technical and cumbersome to receive producers' consideration. It consisted of a steam boiler mounted on a set of wheels, that could be drawn through the woods by two mules. Ten forty-yard long flexible steam hoses were attached to the boiler and wound on reels. The inventor expected workers to move this apparatus through the forests, intermittently stopping to hook the hoses up to ten trees which, because of the machine's long hoses, could be spaced out over several acres. At the end of each hose was a light frame that fit completely over boxes up to twenty-one inches wide and secured by four hooks driven into the tree. Once all the frames were in place, workers would run steam through the hoses to the boxes and melting the gum for effective harvesting. The inventor expected only four hands to be able to perform these tasks every three minutes. Not only would the steam system save on labor costs, he believed, but would improve gum quality because new gum would not have to flow over old gum. Since all the gum would be removed from the face by the steam jet, the trees would be rendered less flammable. The industry, however, never adopted the system. This remarkably complicated and cumbersome contraption reflected the inventor's complete unfamiliarity with the pine forests' unpredictable terrain, the turpentine producers' undercapitalization, which prevented investment in such expensive technology, the industry's unskilled work force, which would have to be retrained to incorporate this system into the existing work pattern, and the fact that blasting a box with steam would do nothing to melt gum dried at the top of a high face.63

A more promising improvement appeared at the 1895 Atlanta Cotton States and International Exposition where several exhibits focused on southern trees and the naval stores industry. The Division of Forestry exhibited the branches, flowers, foliage, fruit, and wood from 280 species of southern trees. In another exhibit hall the Savannah Board of Trade set up an instructional exhibit which, by the display of tools, a model of a turpentine still, and samples of

63 "A New Idea in Turpentine Orcharding," Manufacturers Record, 6 October 1883, Turpentine Newsclipping File, Forest History Society, Durham, NC.
different naval stores products, explained the industry's method of manufacturing. At yet another exhibit, J. C. Schuler, a German-born turpentiner who had been producing in the South since the Civil War, displayed a method of using clay cups to collect turpentine. The method was said by a reporter to have "the advantage of reducing considerably the danger which 'boxed' trees are subjected to by fire, while the quality of the product is improved and the individual tree is less injured than it is by the method now generally adopted in the United States." The fair's exhibit judges awarded Schuler's invention the silver medal.⁶⁴

Despite its acclaim, Schuler's system was not new; French turpentiners had made regular use of a similar method for over thirty years. Until 1860, French producers collected resin in small holes that they dug in the sand at the base of the tapped trees. Not surprisingly, this method resulted in an inability to collect all the resin and the contamination of what was gathered with sand and debris. The replacement of sand holes with clay cups began in 1840, but failed to gain much attention until the early 1860s when world turpentine prices soared because of the interruption in the United States' trade. As French production leapt into high gear the drive for greater productivity made the cup system popular. The system followed roughly the same production schedule as the box system. In February workers chipped off thin layers of bark at the tree's base, where the cup would be placed, so bark would not contaminate the gum when it began to run. In March they made an incision at the tree's base into which they hammered a gutter used to guide the gum into a one-quart clay pot, or sometimes a zinc cup hung at the end of the gutter. The French chipped the faces above the cup from forty to fifty times each season, around fifteen more times than U. S. producers. But in both countries the face rose to a height of twenty inches because the French made smaller scares with each chipping. The French also differed from the Americans in their more restrained harvesting practice. In France trees were

worked for five years with only one or two faces per tree. Then they permitted the tree to rest for several years before the process began again. Their system had two distinct advantages over the American. It prolonged the tree's use for turpentine by reducing injury to the trunk and it gave a higher grade product because the cups could be raised each year preventing the gum from having to run down the ever-increasing length of the face.65

Americans learned about the French innovation soon after the Civil War ended. In 1868 a Mr. A. Pudigon of Moncks Corner, South Carolina, a community about twenty miles north of Charleston, patented a gum-catching receptacle based on the French method but abandoned his project for unknown reasons. Information of the French system became more widely available in 1878 when it was described in the Department of Agriculture's Report Upon Forestry, authored by Franklin B. Hough. In 1892 forester Charles Mohr performed a study, sponsored by the Division of Forestry, of the French practice. Two years later, William Witland Ashe, a forester with the North Carolina Geological Survey, began experiments with the French method near Bladenboro, North Carolina, about fifteen miles east of Lumberton. Conducted at three different stations, Ashe's experiments showed that cups produced one-seventh more turpentine by weight than boxes. This amounted to 35.8 barrels of dip per cup more than the 250 barrels usually yielded. However, other commitments prevented Ashe from completing his work with cups. In all, between 1868 and 1895 inventors, including Pudigon and Schuler, registered eleven patents for turpentine-collecting devices.66

By 1895, Schuler's Atlanta exhibit represented the only sustained effort to develop the cup system in the U.S. Beginning his experiments around 1870, he first tried collecting gum in a tin cup, but the rosin produced from this gum came out dark and therefore less valuable. The first earthen cup he tried could not withstand the gum's acidity and came apart. Compressed paper cups held the gum well but burned when the forests were fired. After the failure of paper cups Schuler quit his experiments for a time, but resumed them in 1893 when after requests at forty-three different pottery plants he found one manufacturer who could produce a clay cup to his specifications. Working on a tract of land owned by a railroad company and located about twenty-five miles north of Lake Charles, Louisiana, Schuler experimented with the cup system in three crops. Within a year this cup proved a success and Schuler patented it. Using turpentine laborers from Georgia, who had to accustom themselves to covering the cup to prevent chips and bark from falling into the gum when they used their hacks, he was able to collect twenty-five percent more gum of a higher quality from his cup than from a box. This method of turpentining was, however, more expensive than using the traditional box method. The cost of working a crop for two seasons rose from $190 to $460. But this increased cost was expected to be offset by the cups increased yield and the higher turpentine and rosin grades that the gum produced.67 Moreover, Schuler claimed that his less-damaging method made turpentining a sustainable practice. "There is no logic in the argument that a tree has only a certain amount of sap, and when that is exhausted it dies," he argued. "A tree will yield for an indefinite number of years if proper precautions are taken."68


68 "Turpentine Orchards in South-West Louisiana—A New Process."
Although Schuler received some coverage in timber industry periodicals, his limited means left him unable to continue his experiments or promote his system. He claimed to have made money in turpentining but lost these profits in “other investments.” In 1894 he wrote to B. E. Femow, the Division of Forestry director in Washington, describing his new process.\textsuperscript{69} Schuler apparently received no support from Femow. By 1895 he was making his best effort to promote his system himself. His Atlanta exhibit was one method. It must have made somewhat of an impression for one visitor wrote that his system “either in its present form or with some further modifications seems destined to add millions of dollars to the productive value of the Pine forests of the southern states.”\textsuperscript{70} Schuler also printed his own pamphlets advertising the benefits of his “Great Timber Process of the South.” The fliers explained that his new method would not only prevent the extinction of turpentine timber, but would provide a better yield and a higher quality gum. One leaflet pictured the bottom portion of a pine trunk with his round clay cup attached. Another depicted a dumbfounded and exhausted turpentine man gazing at his dead and fallen boxed timber juxtaposed with a contented and relaxed turpentine surrounded by the bags of money he had made by using Schuler’s cups, which were seen attached to still-healthy pines in the background.\textsuperscript{71}

But despite Schuler’s attempts, his cup system failed to attract wide attention and his efforts soon ended. Although his Louisiana experiment of 1895 was considered a success, it was also expensive and his backers ended their support of the project.\textsuperscript{72} By the end of the nineteenth century, the old destructive box method remained alive and well. In 1897 the \textit{Jacksonville},

\textsuperscript{69} J. C. Schuler to B. E. Femow, October 5, 1894, Turpentine Newsclipping File.

\textsuperscript{70} “Exhibitions,” 449.

\textsuperscript{71} J. C. Schuler, “The Great Turpentine Saving Process of the South,” Turpentine Newsclipping File, Forest History Society, Durham, NC.

\textsuperscript{72} Dunwody, “Proper Methods of Distillation and Handling,” 127.
Florida Citizen reported that "many inventors have tried to devise an artificial box to be tacked or glued to the tree, in order to obviate the necessity of weakening the tree by the savage wound which is required to constitute a box. But all these inventions have proven a failure, and have been discarded by practical men."³³

The difficulty that the turpentine industry experienced in improving technologically was typical of other southern industries. Inadequate investment capital, absence of industry researchers and engineers, and producers who preferred traditional and proven methods made innovation unlikely. Most turpentine producers lacked the capital to invest in equipment like cups. By the 1890s especially, narrow profit margins prevented the accumulation of money necessary to purchase new technology. Furthermore, turpentine producers lacked the resources required to hire scientists and engineers to develop, demonstrate, and endorse improvements. The newly created U.S. Bureau of Forestry and the state of North Carolina expressed interest in developing a new system but failed to follow through with experiments. It is true that J. C. Schuler developed a system, but he lacked the means to convince an understandably skeptical group of producers to pay a large sum and go through the difficulty of converting to the system. Schuler had no special training in forestry or biology. He was merely a producer who claimed to have developed a new system through years of dabbling with different methods in his own operation. The fact that he eventually went broke did nothing to enhance the cup system's financial feasibility. In 1921, naval stores researcher Robson Dunwoody recounted that "the advancement or reward of individuals because of better methods introduced or results obtained, was seldom encouraged. As a consequence, few men of technical or other training particularly fitting them for this work, were attracted to the industry, and this has no doubt accounted for the

³³ "Big Florida Industry," Jacksonville, Florida Citizen, 7 September 1897, Turpentine Newsclipping File, Forest History Society, Durham, NC.
slow progress along these lines, that has always characterized the manufacture of naval stores.”

Neither Dunwody’s observation, Schuler’s failure, nor the overall lack of innovation in the industry undermines Donald F. Martin’s explanation that turpentining was a backwoods industry whose producers held the attitudes of “frontiersmen” and were therefore unreceptive to new ideas or advice which could improve their business.

Asides from relatively minor changes in marketing procedures in Savannah, the naval stores industry of the latter third of the nineteenth century differed little from the antebellum period. Producers continued their reliance on factorage houses for financial support and marketing expertise. And despite efforts by both factors and producers to improve market conditions, prices and profit margins remained low. The old harvesting process, which dated back to colonial times, also persisted and, consequently, the destruction of the turpentined timber stands continued as well. These practices and their effect on the forest perpetuated the industry’s transient nature, forcing turpentiners to move, not only out of the Carolinas, but throughout the lower southeastern pine belt, in search of new trees. As a result, the timber supply which had seemed endless in the late 1860s was so seriously diminished by the 1890s that several inventive foresters and producers experimented with less destructive methods of harvesting gum. Their unsystematic and amateurish attempts, combined with the undercapitalized producers’ inability to afford equipment, however, doomed their efforts to failure. The use of traditional harvesting practices represented just one of several connections the naval stores industry maintained with its antebellum past. Along with the domination by Carolinians, the role of transportation improvements in allowing the industry to spread, the continued reliance on factors, and persistence of primitive harvesting practices, the industry’s labor system and working conditions represent one more strand of continuity with its antebellum past.

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Dunwody, “Proper Methods of Distillation and Handling,” 129.

Martin, “Historical and Analytical Approach,” 95, 97-98.
Despite the temporary interruption in production caused by the Civil War and emancipation, the lives of naval stores laborers in the post-war years remained much unchanged from the antebellum period. In the absence of slavery, producers, who required cheap and reliable labor in the southern pine forests where few blacks lived, devised new methods to force newly-freed African American man and women to work for them. With the passage of labor laws and the leasing of state and county convicts, blacks found their decisions regarding work narrowed. Moreover, the tasks they performed and the living conditions in the camps were little changed from those of antebellum days.

The turpentine producers who moved into the pine forests of Georgia, Florida, Alabama, and Mississippi during the years from the end of the Civil War to 1900 faced many challenges in securing adequate labor. Few native whites would agreed to the hard work, so blacks remained the bulk of the industry's work force. But few blacks lived in the piney woods because the area had contained little antebellum plantation agriculture. In Georgia's Wiregrass region, for example, the antebellum black population had been, in some cases, less than five percent of the total population and no more than twenty-five percent in others. By comparison, blacks represented over half the total population in many of Georgia's Black Belt counties. Until the 1880s the great majority of the South's pine belt residents were small white farmers who worked in turpentining infrequently and gladly left it when the opportunity for different work arose.1

They viewed turpentine work as black work and most refused to have anything to do with the
difficult and low-paying occupation. The manager of several Florida turpentine camps in the late
1870s and 1880s explained that turpentine “work is severe to a degree almost impossible to
exaggerate, and it is very difficult to control a sufficient quantity of free labor to properly
cultivate any great number of trees.”

Changes in black work habits following emancipation also challenged producers’ search
for labor. Freedmen reduced their pace and the number of hours they would work to levels
closer to those of other free laborers. In addition, the amount of labor performed by black
women and children, who had performed such relatively light tasks as dipping, declined
significantly as freedmen attempted to create the same domestic work pattern enjoyed by whites
and lifted the burden of physically exhausting work from family members with less strength. As
a result, by 1890 ninety-eight percent of laborers were men and only 1.9 percent were women.
Women and children might perform odd jobs to supplement the family income, but families
typically did not work turpentine forests together. Their actions created a severe labor shortage

Agricultural History 60 (Fall 1986): 51, 54, 75; Sam Bowers Hilliard, Atlas of Antebellum
Southern Agriculture (Baton Rouge: Louisiana State University Press, 1984), 32-34; J.C. Powell,
The American Siberia or Fourteen Years’ Experience in a Southern Convict Camp (Montclair,

Powell, American Siberia, 27.

Dobson and Doyon argue that Georgia’s turpentine labor force was not derived from
the declining industry in North Carolina. Although they assert that most of the workers were
immigrants to the region, they find that only forty percent came from the Tar Heel State. In 1880
the number of naval stores workers from North Carolina was either equal to or exceeded by those
from Virginia. These figures, however, are not entirely reliable because many naval stores
laborers apparently escaped the eye of census takers. Dobson and Doyon find that for 1870 only
48 of 138 workers were listed in the population schedule. Jeffrey R. Dobson and Roy Doyon,
“Expansion of the Pine Oleoresin Industry in Georgia: 1842 to CA. 1900,” The Southeastern
United States: Essays on the Cultural and Historical Landscape 18 (June 1979): 49, 51; William
Cohen, At Freedom’s Edge: Black Mobility and the Southern White Quest for Racial Control,
1861-1915 (Baton Rouge: Louisiana State University Press, 1991), 14; Thomas F. Armstrong,
“The Transformation of Work: Turpentine Workers in Coastal Georgia, 1865-1901,” Labor
History 25 (Fall 1984): 529.
for turpentine operators who, like other white southerners, expected blacks to work as long and as hard as they had as slaves and for almost as little compensation. A post-war De Bow’s Review article bemoaned that “before the war negro women and boys used to be employed to dip. It is very difficult now to find any hands willing to execute this branch of the business. Their hands and clothing become smeared with the gum, and even two dollars per diem will not now induce a piny [sic] woodsman or freed man to dip much turpentine.”

Making the situation even more difficult for producers, laborers were not only hard to find, but difficult to keep. The postbellum turpentine industry suffered from challenges typical of southern manufacturing of the period. It was a highly competitive industry which required successful producers to control strictly costs since profit margins remained low. Because labor was such a significant portion of the operators’ cost, the workers felt the brunt of the sharp competition through lower wages. Low wages undermined worker loyalty as naval stores producers competed with the area’s growing number of commercial farmers and lumber producers for the scarce labor. The migratory nature of the turpentine industry and the seasonal cycle of work also made it difficult for producers to maintain a steady and dependable labor force. During slack periods in the winter months and when an operator moved to fresh pine stands, some laborers took the occasion to seek other employment. In August 1867 Georgia

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turpentine Benjamin Williams’ wife Sara complained about the high turnover among their operation’s new hired help. She explained that “three have run away during the last few months that we had clothed up to be decent, they came to us naked, (all but) [...] They are an ungrateful race, they drive me to be tight and stingy with them.”

The turpentine operators who left the Carolinas and formed the backbone of the industry in Georgia, Florida, Mississippi, and Alabama attempted to remedy one of these problems, the of the scarcity of blacks in the piney woods South, by bringing their laborers with them. Producers such as George T. Holland, who moved from Virginia to Telfair County, Georgia in the late 1880s, brought with him his foreman and twelve workers who labored on his farm and in his turpentine business. Not just the dearth of available piney woods workers led producers to bring their own laborers with them. Turpentining was very specialized work, requiring skills learned in no other occupation. To increase their odds of success, producers preferred to bring along laborers already familiar with the tasks, rather than train new ones. Turpentine workers, for their part, perhaps moved willingly as the industry in North Carolina declined. Trained in turpentine, not in agricultural production, they commonly agreed to cast their lot with their employer rather than venture into a new occupation. It remains unclear as to whether their employers’ compulsion played any role in their decision to head southward.


6 Sarah F. Williams to Mother, 27 August 1867, Sarah Hicks Williams Papers, Southern Historical Collection, The University of North Carolina at Chapel Hill.

7 Dobson and Doyan offer the questionable argument that young black men chose to enter the turpentine industry because no special skills were required and the pay and fringe benefits were good. However, turpentine work did indeed require unique skills. Furthermore, the pay remained low, even compared to sharecropping. Dobson and Doyan also claim that black men liked the freedom for independent work offered by the pine forest. Yet workers actually possessed little freedom. The woodsriders constantly managed laborers and in many cases managers forced them to remain in their employment after they expressed a desire to leave.
The influx of the turpentiners and their workers into the pine region helped alter the area’s demographics. Between 1870 and 1890, the Georgia Wiregrass region’s population doubled, and from 1890 to 1910, doubled again. In Georgia counties most active in naval stores-production, the black population grew at a rate that surpassed both the increase in the state’s white population and the overall rise in the state’s black population. From 1860 to 1880 the black population in the state’s southeastern counties that manufactured naval stores grew about 225 percent while the state’s overall black population rose 155 percent. A 175 percent growth in the white population in the important turpentine counties also exceeded the state’s average of 138 percent. The increase from 1880 to 1900 was considerably more dramatic. During these years Georgia’s naval stores-producing region saw an increase in black population of over 500 percent when the state’s black population rose just 142 percent. Certain counties recorded increases in black population growth that far exceeded these averages. In Berrien County the black population increased 710 percent, in Coffee county 634 percent, and in Irwin County 874 percent. Most amazingly, Colquitt County, which actually experienced a decline in black population from 1860 to 1880, saw a rise in its numbers from 1880 to 1900 of 3,430 percent, from 105 to 3,602. At the end of the period in 1900, most counties that produced naval stores had ten times the black population that they had in 1860. Since the expansion of the area’s white population, although higher than in the state as a whole, was at a lower rate than that of the African American population, by 1900 forty percent of Wiregrass residents were black.

Dobson and Doyan also maintain that blacks preferred forest work for it shared few characteristics with plantation agriculture which they associated with servitude. But it was gang labor, not crop production, that blacks opposed. Moreover, sharecroppers were most likely to enjoy more self-management than turpentine workers who made no decisions regarding their work routines. Dobson and Doyon, “Expansion of the Pine Oleoresin Industry,” 51; Wetherington, New South Comes to Wiregrass Georgia, 86.

8 Wetherington, New South Comes to Wiregrass Georgia, 76, 119; Malone, “Piney Woods Farmers of South Georgia,” 75. Statistics of the Population of the United States at the Tenth Census (Washington, DC: Department of the Interior, 1883); Population, Twelfth Census...
A profile of late nineteenth-century Georgia turpentine workers demonstrates their origin from other states and thus their influence on the region's population change. The typical turpentine laborer in Wiregrass Georgia in the 1870s was a young, single, illiterate, black man from North Carolina. Of 178 turpentine laborers working at camps along the Macon and Brunswick railroad in 1879, eighty percent were black, seventy percent were illiterate, sixty-six percent were single, eighty percent were in their teens and twenties, and seventy percent were born in North Carolina. By 1900, this profile had changed only slightly. The typical worker remained black and from the Carolinas, but more came from South Carolina than North Carolina and more were married, their wives typically being native Georgians. Not only were most workers in the Georgia turpentine industry black, but the rate of labor participation in the business was higher among African-Americans than was their proportion of the general population. As before the war, the vast majority of forest laborers were black and the naval stores operators, distillers, and woodsriders were usually white. However, black producers were not unheard of. One African-American producer in Pierce County, Georgia, worked ten crops covering 2,500 acres, a relatively large operation which would have required the assistance of hired workers.

A similar population shift occurred in other naval stores-producing states. Growth occurred in the black population of Florida's turpentine region but, because production took hold more slowly there than in Georgia, the rise in the number of blacks in the population also began later. From 1860 to 1880 the black population of Florida's piney wood counties actually grew at

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a slower pace than the state's overall black population; some counties even saw a decline. After 1880 a few counties experienced a surge in their number of black residents. In Clay county, for example, the black population grew 265 percent, but in others, like Lafayette County, it grew only 138 percent. After 1890, however, many piney woods counties experienced a rise in black population of around 250 percent, well above the state average of 138 percent. The white population growth of the counties between 1890 and 1900, 131 percent, was around the state average.\footnote{Statistics of the Population of the United States at the Tenth Census: Population, Twelfth Census of the United States Taken in the Year 1900.}

In southern Mississippi, where the number of blacks was small as well, forester and historian Nollie Hickman explains that, because of the growing naval stores industry in the late-nineteenth century, "trainload after trainload of black families arrived in the virgin pine country of South Mississippi."\footnote{Hickman, Mississippi Harvest, 131; Nollie Hickman, "Black Labor in Forest Industries of the Piney Woods, 1840-1933," in Mississippi's Piney Woods: A Human Perspective, ed. Noel Polk (Jackson: University Press of Mississippi, 1986), 29.}

Although turpentiners reduced the level of labor competition by bringing in their own workers, local farm owners did complain about their workers entering the employment of both turpentine and lumber producers.\footnote{Armstrong, "Transformation of Work," 524.} As early as 1875, the Hinesville, Georgia Gazette, complaining that "the loss of laborers" to the turpentine industry "works a greater injury" to the farmers "than many are willing to admit."\footnote{Quoted in Armstrong, "Georgia Lumber Laborers," 447.} In 1899, the Waycross, Georgia Weekly Herald expressed its regret "that the introduction of such industries as mills and stills has had the unhappy tendency of drawing away from the farms the younger element of the colored people."\footnote{Quoted in Ibid., 447.}

One year later the Brunswick, Georgia Call complained that "many [of the farm laborers] are
going into the towns and villages and many more into districts where public works such as saw mills and turpentine stills, are in operation.”

Although turpentine producers may have met with some success in attracting agricultural workers, competition for labor remained intense and they, along with other southern whites affected by the relative unavailability of reliable, cheap labor, sought to protect their businesses by assuming firm control over their employees. Although turpentine producers’ involvement in the passage of enticement, emigrant agent, vagrancy, and false-pretenses legislation is unclear, such laws served them well. These acts were first passed by state legislatures during Reconstruction, strengthened during the late nineteenth century, and by around 1900 reached mature development. Enticement acts outlawed one employer hiring a laborer away from another. This legislation intensified the employer’s control over a worker by establishing an owner-type relationship that resembled that between slave and master. It also outlawed whites from competing with each other in the labor market and thus driving up the cost. Adopted by ten southern states from 1865 to 1867, laws to restrict labor recruitment were the most commonly used measure to control black labor following emancipation. As companion legislation to the enticement acts, emigrant-agent laws imposed prohibitively high fees on labor agents who attempted to move workers from one state to another. Such laws first appeared in states that believed themselves most threatened by black out-migration. Like enticement legislation, emigrant-agent laws regulated black labor by controlling the activity of whites. However, resourceful whites attempted to skirt the law by using black agents and informal recruiters who not only could enter and leave black areas with less notice than white agents, but knew the best places to find black workers willing to leave for a new employer. Another type of legislation, vagrancy laws, represented one of the earliest and most widely adopted black codes. These

\(^{15}\) Quoted in Ibid., 447.
statutes enabled law enforcement officials to force unemployed blacks to work during periods of labor scarcity and to sign and keep contracts. To ensure that blacks signed labor contracts, vagrancy laws criminalized the failure to make such agreements and those individuals convicted of the offense were hired out.16

Many turpentine operators encouraged debt among their laborers and used it to coerce them to remain in their employment. When a laborer began work for a new employer, he received an advance of tokens with which to purchase supplies and his payroll account was debited. Thus workers began their employment in debt. At month's end the worker's earnings were applied to his account; if the credit for wages exceeded the debit for commissary purchases, he received the difference in commissary script. Many workers, however, borrowed on their account as fast as they earned wages. If a laborer broke even he had to borrow again to cover the next month's expenses. Turpentine workers commonly owed their employers between $200 and $300, the balance of which they had to pay to end their employment. As long as the indebted laborer continued to work, his debt was of little concern to him or his employer. It only became an issue when the worker attempted to leave. In such an instance an employer could have one of

16 William Cohen identifies four stages of legislation leading to limitations on black mobility and the establishment of rigid legal peonage. White southerners made the first attempt with the black codes immediately following emancipation. However Congressional Reconstruction undid much of this legislation. From Reconstruction's end to the mid 1890s, emigrant agent and contract enforcement laws arose. At the turn of the century legislatures enacted a flurry of enticement laws, legislation against breaking contracts, laws against vagrancy, and measures that made the activity of labor agents all but impossible. Cohen, At Freedom's Edge, 31, 202, 228, 245-246; William Cohen "Negro Involuntary Servitude in the South, 1865-1940: A Preliminary Analysis," The Journal of Southern History 42 (February 1976): 33-36; Shofner, "Forced Labor in the Florida Forests," 16, 18; Georgia, which experienced exceptionally heavy black movement to the West, in 1876 passed the first of the laws imposing a $100 annual tax for each county in which a labor recruiter worked. Soon afterwards it raised the tax to $500 a year. Other states followed Georgia's example: Alabama in 1879, North Carolina and South Carolina in 1891, Florida in 1903, and Mississippi in 1912. In 1900, the United States Supreme Court confirmed the rights of states to license emigrant agents at their discretion. Cohen, "Negro Involuntary Servitude," 33, 39-42, 47-51; Sylvia H. Krebs, "Will the Freedmen Work: White Alabamians Adjust to Free Black Labor," The Alabama Historical Quarterly 36 (Summer 1974): 158-159; Cohen, At Freedom's Edge, 31.
three general responses. He could allow the labor to leave peacefully as long as the new employer paid off his account. The producer could threaten the employee with violence and forced return, but then not carry out the action. Or the employer might physically prevent the worker from leaving or return him against his will if he did escape. One Mississippi turpentine laborer recalled that workers who had left their jobs owing as little as fifty cents were tracked with bloodhounds and returned to work off their debt. The turpentine workers plight under forced labor is captured in the late-nineteenth-century work song “I’se Gwine to Georgy.”

When I left old South Ca’lina,
I left in the winter-time.
“Where you gwine, nigger?”
“T’se gwine to Georgy, T’se gwine to Georgy,
To work in the turpentine.”

When I gits in Georgy,
They gimme a hack and stock
And put me in a crop; they say,
“If you wants to see that double line,
You shorely got to chop.”

You see that Woodsman comin, ridin through the pine;
He turns round and ‘gins to peep;
You hear him say to the black man,
“Old nigger, sink emin deep!”

The nigger pull off his hat,
And throwed it on the ground;
You hear him say to the Woodsman,
“Do you want me to cut em down?”

They worked this nigger all year long;
It’s time for him to go home.
You hear the Bossman say to the Bookkeeper,
“How do this nigger stand?”

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The Bookkeeper goes in the office,  
He sit down and 'gin to figger;  
Then he say to the Bossman,  
"That nigger's just even now!"

When I libbed in Georgy I heard a lion sing,  
And I didn't have long to stay;  
I got in debt, and I had to run away.

The Woodsman went to the Bossman,  
And begin to fret; he said,  
"I'll bet that nigger has left in debt!"  
The Woodsrider caught me and brought me back;  
He said, "If you don't work, I'll beat your back!"  

It is often difficult to distinguish between the common situation of the indebted laborer and the peon, for only a thin line separate the two. Indebtedness to employers was the key component for holding laborers in peonage but, as historian J. William Harris points out, debt did not necessarily lead to peonage. "It is important to remember," he explains, "that debt pervaded every level of postbellum southern agriculture, not just the bottom level of sharecroppers." Laws supporting peonage in no way indicate its widespread practice. Many sharecroppers were poor and indebted but were never tied to the plantation by their condition. Merely becoming indebted to an employer did not constitute peonage. Pete Daniel explains that "peonage occurred only where the planter forbade the cropper to leave the plantation because of debt." He


21 Ibid., 104, 106, 111, 116-117.

22 Daniel, Shadow of Slavery, 24.
explains that three general labor divisions emerged in the post-war South. Most southern workers were free and moved about selling their labor on a free market. Another group languished in debt peonage and was coerced to work to repay what they owed. Daniel identifies a third group which lived in a perplexing state somewhere between freedom and force labor. In this middle ground a laborer who ended the year indebted to his employer and who voluntarily agreed to stay on and work off his debt was technically free. But if the employer used coercion to force the worker to remain, the worker then entered a state of peonage. Daniel explains that "the line was that thin. No doubt many workers drifted from freedom to peonage often in their lifetimes, never realizing that they had crossed the line." He further argues that because of this uncertain status, it is difficult to determine how many of the South's laborers were caught between slavery and freedom, consequently, "the number of blacks, or whites for that matter, who were working involuntarily remains a part of the equation that has not been measured." It is within this gray area between freedom and compulsion in which probably most naval stores workers labored.

Turpentine producers strongly resented others hiring their hands and swore out warrants against them if they discovered who was involved. Operators supported enticement legislation that prohibited others from hiring any of their workers and there was a general, informal agreement among producers not to recruit each others' labor. It was not only illegal but dangerous to be caught at the practice. Despite the consequences, however, operators did attempt to lure workers to their camps, usually relying on their most trusted black employees to perform the risky task. Itinerant preachers were often in the best position to move

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24 Ibid., 89.

25 Ibid., 74.
unsuspectingly in and out of neighboring camps on recruiting missions. They promised better pay and living conditions and commonly offered advances to encourage dissatisfied workers to leave their employers. Some recruiters received a commission for each man they attracted to their employer's camp. By the 1890s it cost roughly $15 to $20 per worker to recruit labor for twelve months. Both the worker and the recruiter faced considerable danger. If the recruiter allowed his cunning to slip as was discovered, he might face a severe whipping or even death. His employer would usually deny any association and take no responsibility for his actions. On the occasions when a producer permitted his indebted employee to move to another operator, the new employer was required to pay the worker's account.26

Once in an operator's employment, turpentine laborers were not paid by the hour but for piece work, the actual amount of labor they performed each day. It was a practice not unknown in agriculture, especially on sea-island cotton plantations. Such a wage system provided producers with more control over their workers than a pay system based on shares. The pay scale varied for different tasks and the pay for each task depended on how much work was actually completed. In the 1870s, unskilled turpentine workers in Georgia earned between $.60 and $1.50 a day and skilled laborers from $1.50 to $2.00 a day. Box cutters earned $.0175 for each box cut and rakers earned $.0035 per tree. Dippers, who were paid by the amount of gum collected, received 20¢ to 30¢ per barrel. Like farm wages, turpentine pay declined in the late nineteenth century. In the 1880s the amount paid for boxing declined nearly thirty percent from $.0175 per box to $.0125 per box. Pay rates apparently differed by place, as well. In most cases operators in Mississippi, Louisiana, and Texas paid more than those in the East, probably because of a scarce labor supply. Whereas producers in the eastern areas paid between 45¢ and

55¢ per thousand faces chipped in 1896, operators in Mississippi paid from 55¢ to 60¢. Because of the practice of paying according to piece work, there could be considerable difference between individual laborers in the amount of work performed and the pay they received. This pay variation is illustrated by two boxers who labored for Kittrell and Smith, turpentine producers in Georgia. Edward Gillam cut 313 boxes one week in November 1881 and 200 boxes the next week. For this work he received $5.48 and $3.50 respectively. However Joe Stevens, a obviously a faster worker, cut 500 boxes one week in January 1882 and 505 one week later. He was paid $8.75 and $8.84, forty-nine percent more than Gillam for working the same amount of time. Wages could also vary depending on the worker’s sex. Women, who typically did little work in the forest after the war, received about eighty percent of men’s wages.  

The unique labor characteristics and challenges of the southern naval stores industry explain why a wage system based on piece work, not sharecropping, emerged following emancipation. Far fewer blacks were familiar with the techniques involved in turpentine production than were knowledgeable about farming. Thus turpentiners had a far smaller pool of experienced labor from which to draw compared to farmland owners. Also, in the piney woods of the deep South—into which the industry moved after the Civil War—the extremely small native black population offered virtually no hope of supplying adequate labor. Moreover, work in the naval stores industry was well known for a difficult and demanding schedule that did nothing to attract new workers. For turpentine producers the resulting labor scarcity necessitated the tight

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control of workers that a wage system facilitated. Farmland owners, on the other hand, who did not need to worry so about securing labor to plant their fields, could afford to compromise with a sharecropping system that gave the workers more autonomy than a wage system, but not as much as cash renting. That a share cropping arrangement was possible in turpentine production is demonstrated by the practice in French gum harvesting in the late nineteenth century.\textsuperscript{28}

Under the wage system some producers took measures to reduce pay either out of sheer greed or as punishment. Two partners in a Georgia turpentine operation docked workers' pay as a penalty for not completing their task, for performing sloppy work, or for losing work time. The most unscrupulous producers practiced a deception called “loading the boxes.” They reduced their workers’ pay by adding boxes to the standard crop size of ten thousand boxes, thus making their employees perform extra work without added compensation.\textsuperscript{29}

The seasonal variation in the work schedule, combined with piece work pay scale and the occasional unscrupulous increase in crop size, presented special challenges. As before the war, producers tried to keep their workers busy throughout the year in an effort to prevent workers from leaving to find employment to carry them through the winter.\textsuperscript{30} A Florida producer advised to “keep all hands at work doing something. It never will do to let them start to scattering.”\textsuperscript{31} However, operators found it virtually impossible to provide constant employment. Boom and bust economic cycles subjected workers to layoffs, pay reductions, and periods of only partial employment. The seasonal nature of production also worked against laborers who found employment opportunities scarce during the winter months when only boxing and raking were

\textsuperscript{28} Armstrong, “Georgia Lumber Laborers,” 443; Hickman, \textit{Mississippi Harvest}, 125.

\textsuperscript{29} Rupert B. Vance, \textit{Human Geography of the South: A Study in Regional Resources and Human Adequacy} (Chapel Hill: The University of North Carolina Press, 1935), 122.

\textsuperscript{30} Hervey Evans to Susan Murphy Evans, 6 January 1900, Patterson Papers.
performed. In fact, raking was done for only a brief period and paid little. It was not uncommon for producers to contract with workers for only the ten busiest months of labor. \(^\text{32}\) And bad weather could halt work even during the busiest period. In September 1889, for example, a series of storms and subsequent floods seriously hurt the industry in parts of Georgia. “Whatever dip was in the boxes was washed out,” one operator complained. “Nothing has been done for two weeks and the bad condition of the woods will prevent work of any consequence being done for a week or ten days.” \(^\text{33}\) During such times, workers received no wages, but had to continue buying supplies from the commissary.

Some turpentine workers attempted to stay busy by exercising considerable versatility and mobility within the turpentine labor force. One Georgia laborer, for example, worked in December 1889 as a teamster, but in January 1890 as a boxer. Another worker at the same operation labored at the still in early November but by the end of the month was hauling barrels. In early December he was back at the still but then moved to cutting boxes for the remainder of the month. Yet another turpentine hand’s activity varied among dipping, driving a wagon, performing general labor, dipping again, and, finally, cutting boxes—all within two months. For each task he was paid a different rate. One laborer went to work as a boxer for a South Carolina producer in February 1872. By June he was cornering and chipping. Other turpentine workers stayed busy by alternating between turpentine and agricultural labor. In the early 1880s a Georgia farmer who raised horses and grew corn, cotton, cane, and potatoes, began turpentining. His hands alternated between work in the forest and work in the field as the needs demanded. \(^\text{34}\)


\(^{33}\) John Avery Gere Carson to J.P. Williams, 15 September 1888, John Avery Gere Carson Papers, Manuscripts Collection, Georgia Historical Society.

\(^{34}\) Armstrong, “Georgia Lumber Laborers,” 411, 444; Account book, 1872, Osteen Papers.
However, workers were somewhat limited in their ability to perform both agriculture and turpentine work. Because farming and turpentining shared the same seasonal production cycle and were both similarly affected by adverse weather conditions, it was rare that one job offered work opportunities when the other was at a slack time.

Along with job variation, turpentine workers with families sometimes enjoyed the addition of wages, earned by wives and children, to their household incomes. In December 1890 two boys contributed to their family’s commissary account by working in the potato fields associated with the turpentine operation. Again in April 1891 they contributed $3.39 to the family account by raking leaves. In another case during the 1890s all members of the Alton family at a Georgia operation contributed to the household income. Mr. Alton dipped and he, his wife, son, and daughter also raked around the pines.35

Unlike agricultural workers, who commonly received a portion of their compensation in kind, turpentine workers most often received only wages, with which they were expected to purchase everything they needed from the commissary. Most turpentine operators paid their employees in script—tokens, coupon books, and punch cards—redeemable only at the camp store. Coin-size tokens, with the producer’s name usually stamped on the face, were issued in values of five, ten, twenty-five, fifty cents, and one dollar. Operators occasionally issued one-cent pieces, but only rarely did they use tokens valued at two, five, or ten dollars. Coupon books and punch cards were more often used for issuing these larger denominations. Workers either signed the coupon book authorizing the amount to be deducted from their pay after spending it at the commissary or had the purchase amount punched out on the card. Because the commissary

played such a pivotal role in the turpentine wage system, producers required that only the most trusted managers run it. This often meant family members.36

The camps' isolation and lack of transportation to the nearest town ensured that most workers traded at the commissary. However, in some instances, workers had more choice. At camps located closer to a town, workers had the option of shopping at some private stores which accepted tokens at seventy percent of their face value. In other cases merchants would exchange the script for United States currency at the same discount. Some operators opposed the use of their tokens at other stores and indicated on the tokens that they were for commissary trade only. Conflicts often erupted between town merchants and operators when the turpentiner refused to redeem the tokens at face value or in some cases would not buy them back at all.37

Although the introduction of a wage system and commissary represented a significant break from the laborers' pre-war years as slaves, other areas of their experience changed little. Very little about the actual work in the naval stores industry changed after the war. The work remained hard and the standard of living low. Typically turpentine workers awoke at around 4:30, began work at sunlight, and continued until sundown with breaks for breakfast and lunch. The various jobs, the tools, and the ten thousand box-size task all remained virtually unchanged until the turn of the century.38 Boxing, cornering, chipping, dipping, scraping, and distilling all remained primitive processes, exposing workers to the same hazards as in the antebellum era.

36 Ibid., 529-530; Shelton, Pines and Pioneers, 199.

37 C.R. Clark, Florida Trade Tokens (St. Petersburg, FL: Great Outdoors Publishing Co., 1980), 3-4, 6-8.

Like work patterns, the characteristics of camp life survived the Civil War intact. As during the antebellum period, post war turpentine camps tended to be isolated and temporary. As railroad trunk lines spread across the southeastern pine belt and branch lines opened up the most uninhabited areas to turpentine production, workers found themselves living and working many miles from any community. These camp sites served primarily to locate workers near the forests in which they worked. However they also served to keep the workers well away from other potential employers and free from the distractions offered by a more populated area. With the camp located far back in the unsettled forest, workers seldom traveled and visitors were rare.39

When a producer relocated from one remote area to another, he closed his existing camp in the fall and began construction of the new one. The turpentine labor force, which commonly followed the operator, did most of the work building the new camp. They first erected fifteen to forty cabins, depending on the number of workers. They next constructed a building to serve as a store, office, and warehouse. In the area near the office, the owner built for himself a comfortable house and a somewhat smaller dwelling for the woods rider. Not far from this central area, the workers constructed a barn for the horses and mules. Once these essential buildings were complete, the workers moved from the old camp to the new and the new commissary was stocked with groceries and supplies. Once the move was completed the men began cutting boxes to begin production for the coming year. When all other buildings were completed and work in the woods begun, the still went up. Workers first built the furnace, a steel structure with a bricked exterior. Once they had completed the furnace, laborers placed the copper still on top and constructed a wooden platform around the still base. They then built yet another platform at the top of the still with a ramp connecting it to the lower platform.40


40 Thigpen, Boy in Rural Mississippi, 176-179.
With a still, cooperage shed, glue shed, pump house, spirit shed, stable, blacksmith shop, commissary, and workers' quarters, many camps represented self-contained piney woods enterprises. Operators tried to locate their camps near clear running streams that could furnish water for the still's cooling tank, for the mules and horses, and for washing clothes. A well in the middle of the quarters provided drinking water. The cabins sat about fifty feet apart and were arranged in rough rows, forming a grid pattern about one-fourth mile from the still. The owner's house, and often the overseer's as well, sat a moderate distance from the quarters. The workers' cabins, intended to serve only as temporary structures, were crudely and cheaply constructed, often costing no more than $200 a piece to build. Of all workers in the postbellum South, turpentine laborers endured perhaps the poorest housing. The typical turpentine laborer lived in a two-room cabin with batten siding, wide pine boards nailed together either horizontally or perpendicularly across the side with laths covering the cracks. Few cabins had screened windows, but shutters were common. None had indoor plumbing. Many had dirt floors but it appears that, over time, more and more were built with wood floors. A stick and clay fireplace sat at one end of the cabin. For heating and cooking workers burned wood gathered from the neighboring forest and, sometimes, dross, the residue that collected in rosin strainers. Nollie Hickman finds that Mississippi turpentine workers lived in poorer quarters than the workers in other states. Many of the Mississippi cabins represented nothing more than one-room huts constructed of pine poles and lacking floors, doors, and windows. When a family grew large, a second room, really nothing more than a lean-to, was added. More skilled workers tended to live in somewhat better housing. Dwellings for distillers, foremen, and woodsriders often had more room and were better constructed than those of the regular workers. In some cases they cost twice as much to build.41

41 Sandra Jo Forney, “Naval Stores Industry in North Florida Pine Flatwoods” (paper presented at the sixteenth annual meeting of the Society for Historical Archaeology, Denver,
Turpentine workers usually ate three meals a day, all usually prepared by their wives over the primitive cabin fireplaces. They ate breakfast in the woods between 8:00 and 9:00 after they had been at work a few hours. In the early afternoon, when the day's heat was at its greatest, they took a break for lunch. Supper, the heaviest meal of the day, was eaten after work. Molasses, bacon, and cornbread or maybe biscuits provided the bulk of the turpentine laborer's and his family's diet. Workers supplemented these staples with coffee, mackerel, peas, beans, rice, sugar, and occasionally beef, mutton, and cheese. All these foods they obtained from the commissary. On occasion fresh fish or salted mullet arrived in the commissary or from peddlers who traveled as far as fifty to sixty miles inland from the coast.42

The commissary account ledgers of turpentine laborer, Tom Lud, who was employed by South Carolina producer Thomas H. Osteen in 1872, provides insight into the purchasing patterns of naval stores workers. Lud contracted to work for ten months from February 1 to December 1. He was to work five days each week in both Osteen's agricultural fields and turpentine forest. Soon after Lud began work, he made some grocery purchases: one peck of meal, one pound of bacon, and a dozen eggs. He also brought a pair of shoes for $2.25. On six occasions he drew cash against his account, all withdrawals totaling $2.05. From the end of March to mid June Lud's pattern of purchases remained relatively constant. He continued to buy corn, bacon, and other groceries, but his most frequent purchase was tobacco, which cost $.30 a

42 Thigpen, Boy in Rural Mississippi, 177; Hickman, Mississippi Harvest, 150. Account book, 1872, Osteen Papers.
plug. One of his most important buys was a stove for which he paid $1.60. He also continued to debit his account periodically for cash. From mid-June to the end of December his grocery purchases became more frequent and varied. To his staple of flour and bacon he added molasses, sugar, coffee, mackerel, beef, and mutton. The latter three items, however, appeared only occasionally on Lud’s account. During September he appears to have quit chewing. On several occasions Lud’s account was deducted for missing work, at least once because he was sick. In the last half of the year he lost $12.24 for missed work. In October Lud’s account reached a credit of $16.21, but by the end of the year it had declined to only $1.89. Although Tom Lud appears not to have made seasonal purchases, workers in other camps bought special items for Christmas. In December 1882 Tom Sweath who worked for a Georgia turpentine operation earned an extra $4.80 for cutting boxes beyond his task and, with the earnings, purchased oranges, suspenders, four pounds of meat, candy, and cologne.43

Turpentine workers did not purchase all their food from the commissary, however. They supplemented their diets with squirrels, possums, raccoons, rabbits, turtles, and other wild game. They fished in local rivers and streams as well. Women and children not only tended gardens, which grew turnips and collards, but raised pigs and foraged in the woods for edible herbs and berries. Palmetto buds were reported to taste like cabbage and banban twigs resembled snap beans in flavor.44

Women did not usually work at turpentining, except maybe dipping gum, but they often supplemented their family’s income by cooking, cleaning, and washing for the producers’ and


44 Forney, “Importance of Sites,” 2; Account book, 1872, Osteen Papers; Carswell, “Holmesteading”, 143; Shelton, Pines and Pioneers, 202; Hickman, Mississippi Harvest, 150; Bond, Jr., “Development of the Naval Stores Industry,” 198.
overseers' wives. Chloe Lud, Tom's wife, labored for such wages and contributed to her household's income. By working between four to twelve days each month at such jobs as spreading manure, planting potatoes, dipping gum, chopping cotton, and, most commonly, washing clothes, she was able to earn over $13.00. With these earnings she purchased bacon, flour, mackerel, sugar, potatoes, cheese, and tobacco. She also contributed cash to the family. At year's end her account contained a credit of $1.11.45

Despite the presence of families in camps, many turpentine workers were not legally married. Instead, a couple might ask the camp manager for living quarters to share, upon which he would ask them if they took each other as man and wife. Despite the informality of the arrangement, these unions were respected, considered binding, and could last for decades. To gain a divorce the couple also consulted with the boss who then assigned each to different quarters.46

Few camps offered much by way of diversions for the men and women living there. A reporter noted that "while traveling through those pine woods, and seeing nothing but the few huts and the turpentine still amid such a wilderness, I often wondered how man could thus content himself."47 Some workers found fulfillment by attending church. If camps lacked a church, operators made arrangements for Sunday services to be led by one of the workers or an itinerant preacher. Gambling and drinking were, however, more popular camp pastimes. Payday, when workers received the balance of their monthly wages after their commissary

45 The account book does not identify Chloe Lud as Tom's wife but the fact that they share the same last name and Tom withdraws cash on her account makes it reasonable to assume their relationship. Account book, 1872, Osteen Papers; Bond, "Development of the Naval Stores Industry," 198.

46 Hickman, Mississippi Harvest, 148-149; Hickman, "Black Labor in Forest Industries," 89.

accounts were deducted, was the most lively time in the camps. In the 1890s a Florida producer complained that “I do not feel good one bit today. We paid off yesterday, and the negroes gambled, sang, danced and caroused all night long. Some of them are lying around asleep now, while others are still gambling I guess from what I see. During the night the lucky ones would come and call me to keep their winnings lest they lost them and the unlucky to beg an advance of a quarter or so.” Producers often found it very difficult to get any work done in the few days following payday. However, they usually overlooked drinking and gambling and made no efforts to control their workers as long as they were able to perform their jobs at a minimal level. Some producers arranged for their workers’ transportation to the nearest town where goods unavailable at the commissary could be purchased. Here workers received a break from the monotony of camp life and could socialize with laborers from other turpentine operations.

In most camps, located far from towns, the owner and overseer served all law enforcement functions. Producers preferred to run their camps as they saw fit and resented the intervention by outside authorities. The boss settled differences between the workers and decided guilt and punishment. Most used their authority with moderation, adopting policies that facilitated the camps smooth operation and maximum production. Justice ranked second in importance. In cases where one black worker killed another the incident was rarely reported to outside authorities and, if the murderer was a good worker, he was rarely punished. He would, though, have to face retribution from his victim’s friends and relatives. Other bosses, however, abused their near-absolute power in the isolated camps. One Hancock County, Mississippi camp


49 Hervey Evans to Mattie McNair Evans, 16 August 1899, Patterson Papers.

50 Hervey Evans to Mattie McNair Evans, 30 July 1899, Patterson Papers; Hickman, Mississippi Harvest, 149-150.
had such a bad reputation for violence against workers that many laborers avoided it. Another
camp in Harrison County was nicknamed “the graveyard” by area blacks because it was rumored
that many of its workers disappeared, never to be heard from again.51

In many respects, life for turpentine workers changed little after the Civil War. Various
laws and practices restricted laborers movement between employers and the work remained
rooted in primitive technology. Turpentine workers occupied the lowest rung of black society.
Their standard of living, education, and work were lower than that of most other blacks who
worked in agriculture or at sawmills and viewed the turpentine laborers as backwards strangers
with little world experience. Historian E. W. Carswell maintains that the poor and transient
turpentine workers contrasted significantly with Florida’s established black families who entered
the state with white settlers during and after its territorial period.52 And Nollie Hickman argues
that “because of his low income, his utter dependence on the white man, and his slave-like status
in relation to his employer, the turpentine Negro was considered inferior by others of his own
race.”53

A comparison of turpentine laborers with logging and sawmill workers reveals that,
despite similarities, those employed in the naval stores production endured harsher working and
living conditions. During the 1880s and 1890s, logging and lumber work increasingly became a
specialized, wage-earning occupation. The work, however, remained regular and reliable.

51 Dobson and Doyon suppose that black turpentine workers found camp life picturesque
and communal. They maintain that the camp offered a simple, secure existence and that workers
were attracted to the industry for its positive qualities. Dobson and Doyan, “Expansion of the
Pine Oleoresin Industry,” 51; Hickman, Mississippi Harvest, 144-145, 152.

52 Michael D. Tegeder, “Prisoners of the Pines: Debt Peonage in the Southern Turpentine
of Sites,” 4; Hickman, “Black Labor in Forest Industries,” 88; Hickman, Mississippi Harvest,
139-140. E.W. Carswell, Washington: Florida’s Twelfth County (Chipley, FL: E.W. Carswell,
1991), 255.

53 Hickman, Mississippi Harvest, 139-140.
Wages were low, although relatively adequate and attractive considering the alternatives, but finances could become tight when the mill ran at reduced capacity, laid off workers, or reduced hours. Poor market conditions or inclement weather, which prevented timber harvesting or its transportation to the mill, could cause a slowdown at any time with little warning, just as in the naval stores industry. However, even when the mills failed to run, the company continued to charge the workers for rent, board, utilities, and commissary charges. Blacks, who represented a significant portion of the timber industry work force, were attracted to lumber camps by the demand for unskilled manual labor and the relatively stable cash income the industry offered, which at least exceeded that in sharecropping. The constant competition for labor made workers reasonably assured that they could ultimately find employment with another company.54

Both black and white workers spent a large part of their day with each other, especially at logging camps. They rode to the logging site, worked, and spent much of their free time together. Both groups labored for the same hours at the same wage and even wore the same uniforms. However, as in the naval stores industry, blacks rarely received the highest-paying skilled jobs. Some companies, in fact, used only blacks in logging operations and just whites at their sawmills. At logging camps whites filled the managerial and skilled labor positions. The best opening blacks could receive was as log sawyer. At the mills whites and only select blacks held positions, there too blacks performed the jobs that required the least skill. Blacks who did

labor in saw mills commonly enjoyed a standard of living higher than that of other loggers and turpentine workers.55

As with turpentine camps, logging camps were transient, appearing in areas where lumber companies planned to begin logging and disappearing when the trees were gone. Buildings were consequently only temporary structures. The construction of churches, schools, or recreational areas was unfeasible. Few families lived in the logging camps. Most often these camps worked twenty to forty men. But as lumber companies began constructing their own railroad tracks, they replaced the shanty camps with “camp trains.” Boxcars served as dormitories, tool sheds, blacksmith shop, commissary, kitchen, segregated dinning halls and private quarters for the foreman. Dormitory cars measured about twelve feet by forty feet and were fitted with bunk beds. The kitchen car was normally in the middle of the camp train with segregated dinning cars for whites and blacks on either side. The segregated dormitory cars were attached to their appropriate dinning car. However some camps, instead of providing sleeping cars for black workers, set up portable shacks which could be taken down and moved when the camp train relocated. Meals, unlike sleeping and dining arrangements, were normally the same for black and white workers. Workers received grits and oatmeal for breakfast but the staples for other meals included pork or beef, cornbread or biscuit, peas or beans, and coffee. As with turpentine laborers, timber workers purchased their supplies from the commissary using a ticket system. At the end of each month the commissary charges were deducted from wages and the employees received any remaining amount in cash. It was not uncommon for workers to receive nothing at month’s end. Many such camps had a juke joint where itinerant musicians, often hired by the boss, provided entertainment. But as rail lines and roads improved transportation in the

southern pine region, companies no longer found it necessary to keep the workers in isolated logging camps. Instead, they could live with their families in more permanent communities established by the company and transported to and be from the logging site for work during the day. These new communities resembled towns more than camps, housed several hundred people, including women and children and offered far more conveniences and comforts than the typical turpentine camp.\textsuperscript{56}

Where virtually all turpentine workers endured living and working conditions worse than those later lumber towns, leased convicts, suffered conditions even harsher than that of most. During Reconstruction, first southern counties and then states began to lease their convicts as a solution to rising prison populations and empty treasuries. They sought the maximum amount of punishment at a minimum cost to the government. By 1880 all of the former Confederate states except Virginia leased their convicts and in 1890 over 27,000 convicts performed labor in the South.\textsuperscript{57}

Georgia and Florida, the two principal naval stores-producing states during the late nineteenth century, quickly established the practice after the war. With nowhere to house its


\textsuperscript{57} However, the lease system, like peonage, predated the Civil War. Most southern states had some system of convict leasing—Alabama, Arkansas, Florida, Georgia, Louisiana, North Carolina, and South Carolina. Convicted criminals, who were unable to afford their fines, could be hired out to anyone who paid it for them. If no one paid the fine, the sheriff would turn the convict over to whomever bid the highest for a certain period of labor. Under this system laborers could find themselves forced back to work for employers who paid their fines. N. Gordon Carper, "The Convict-Lease System in Florida, 1866-1923" (Ph.D. diss., Florida State University, 1964), 3-5; Jonathan M. Wiener, "Class Structure and Economic Development in the American South, 1865-1955," \textit{American Historical Review} 84 (October 1979): 981; Jeffrey A. Drobney, "Where Palm and Pine are Blowing: Convict Labor in the North Florida Turpentine Industry, 1877-1923," \textit{The Florida Historical Quarterly} 72 (April 1984): 413, 416; William Cohen, "Negro Involuntary Servitude," 55; Edward L. Ayers, \textit{Vengeance and Justice: Crime and Punishment in the 19th-Century American South} (New York: Oxford University Press, 1984), 212.
prisoners once federal troops burned the state penitentiary, Georgia passed its first convict lease act in December 1866. But it was not until 1868, when a hundred black prisoners went to work constructing rail lines, that the provisional governor leased the first convicts under this new legislation. In 1897 the Georgia General Assembly passed a new convict lease law that made the system even more flexible. It prohibited the leasing of convicts for longer than five years, permitted subleasing, and placed bidding on a per-convict basis instead of on the entire population regardless of number. Because convicts could now be sublet, employers no longer had to pay for unneeded ones when business slowed. Also, because lessees paid for each convict, the state could boost its revenue by increasing its number of convicts. Thus between 1870 and 1910, the number of convicts in Georgia grew ten times faster than the general population. Most of the increase came from a sharp rise in the number of incarcerated young black men who served increasingly lengthy sentences. In 1882, for example, the state's black convicts on average received sentences twice as long as whites for burglary and five times as long for larceny.58

Florida, like Georgia, lacked the facilities in which to house them. The state's first solution was to incarcerate them at the old U.S. armory at Chattahoochee, which by 1869 held three hundred convicts. The next year, however, it began experimenting with leasing by contracting to lease fifteen convicts to cut and hew 200,000 feet of lumber for a railroad trestle. Over the next ten years, instead of developing its penitentiary system, Florida gradually moved toward full-scale convict leasing. Under the Bourbons, the system received a boost from long-term leases and especially the allowance of subleasing. White support for the institution

intensified with the discovery of phosphate in the state in the 1880s, which spurred further
demand for convict labor. It was during this decade that convicts probably began work in the
naval stores industry.\textsuperscript{59}

Like virtually all wage laborers in the naval stores industry, the great majority of convict
workers were black. Whereas before the war most prisoners were white, after the war blacks
made up ninety percent. Historian Edward Ayers points out that the transformation in the
southern prison population resulted from the states’ assumption of control over blacks after
emancipation freed them from their masters’ control. The measure rested on southern whites’
belief that blacks were innately criminal, would never work unless compelled, and that the white
south was entitled to cheap black labor for society’s good.\textsuperscript{60} To this end the white legal
establishment targeted blacks. J.C. Powell, a former turpentine camp captain, observed that in
the 1870s and 1880s “it was possible to send a negro to prison on almost any pretext, but difficult
to get a white man there, unless he committed some very heinous crime.”\textsuperscript{61} He asserted that “the
bulk of our convicts are negroes who could not by any possibility learn a trade, and how to
employ them at anything save the simplest manual toil is a problem not yet solved.”\textsuperscript{62} Whites
could and did become ensnared in the South’s lease system, but most camp captains, including
Powell, preferred to work black convicts. Because it required a serious offense for whites to be
sentenced to the penitentiary, white convicts tended to be more dangerous criminals than black
prisoners. White convicts typically resented work in the turpentine industry, labor they, like the

\textsuperscript{59} Mancini, One Dies. Get Another, 184; Drobney, “Where Palm and Pine are Blowing,”
415; Carper, “Convict Lease System in Florida,” 25-26, 36, 45-46, 109; Powell, American
Siberia, forward.

\textsuperscript{60} Ayers, Vengeance and Justice, 150, 197, 199; Liechtenstein, Twice the Work of Free

\textsuperscript{61} Powell, American Siberia, 332.

\textsuperscript{62} Ibid., 5.
rest of the white community, viewed as fit only for inferior blacks. Whites therefore had a reputation for working less, complaining more, and rebelling with greater frequency than black convicts. Their resistance took the form of assaulting guards, escaping, attempting suicide, performing low-quality work, and mutilating themselves in the hope of receiving a hardship pardon.63

Although a large percentage of convicts labored in the turpentine production, especially in Florida, their number remained a relatively small part of the overall industry work force. In 1890, when turpentine production had only just begun and a mere five hundred Floridians worked in it, state convicts made up thirty-nine percent of the labor force. Even then, fewer than ten percent of producers worked state convicts. On average, between 1880 and 1910 only seven to eight percent of naval stores workers were state convicts. In 1898, 734 Florida convicts, seventy-one percent of the state’s prison population, labored in the turpentine industry.64 Thus, whereas naval stores production played a large role in the world of convict leasing, the reverse cannot be claimed; prisoners represented only a small portion of workers.

An analysis of the Florida state convicts who labored in the turpentine industry in 1898 reveals a profile that changed little during the leasing program’s existence. The great majority of prisoners, over eighty percent, were black men. Fifteen percent were white men, four percent black women, and less than one percent white women. Over two-thirds of the convicts sentenced in 1898 were between the ages of sixteen and thirty. One was as young as eleven and the oldest was sixty-seven. More than half of Florida’s convicts were sentenced for some type of theft or


breaking and entering and around twenty-two percent were serving time for either murder or attempted murder. Only one percent were committed for rape or attempted rape. Just over sixty percent were sentenced for less than three years, around fifty-seven percent for two years or less, and thirty-eight percent for one year or less. Nearly a quarter received sentences of ten years or more. Of the 734 convicts, fourteen were reported to have escaped, and two were killed by guards while attempting escape. Thirty-five, or nearly five percent of the convicts, were reported to have died that year. It appears that Florida convicts leased to turpentine operators differed little from the overall state convict population. This profile also resembles that of twenty-nine Georgia convicts who labored at a Berrien County turpentine operation around the turn of the century. Of these convicts, all but one were between the ages of fourteen and thirty-seven and most were sentenced for gaming, larceny, carrying a concealed weapon, and attempting escape.\textsuperscript{65}

Convict turpentine laborers performed the same tasks as free workers, almost always at separate camps, but usually at a quicker pace. Convicts rose at 4:30 AM and by 5:00 AM were on their way from the stockade to the forest work. They trotted to and from work on a squad chain, by which the men were attached together at the waist. Once in the woods, a few miles from the camp, they worked under the task system in three or four squads, each squad watched by one or two guards. Guards followed the convicts through the woods, keeping as much distance as would allow them to prevent a possible escape attempt. After resting for thirty minutes for lunch, convicts resumed work until completing their tasks, which often kept them busy until dusk. They then marched back to camp the same way they had left.\textsuperscript{66} Powell reported that “they kept this gait up all day long, from tree to tree, and as the labor is exhausting in the

\textsuperscript{65} Report of the Commissioner of Agriculture of the State of Florida, 1897-1898, 81-85, 93-99; Lichtenstein, Twice the Work of Free Labor, 130.

\textsuperscript{66} As during the antebellum period, the task system was necessary in turpentineing to gauge the amount of work performed. Drobney, “Where Palm and Pine are Blowing,” 419-421; Powell, American Siberia, 22, 29; Lichtenstein, Twice the Work of Free labor, 128-130.
extreme, I have frequently seen men on their way back to camp drop of fatigue, and their comrades on the squad-chain drag them a dozen yards through the dirt before the pace could be checked so as to enable them to regain their feet. There would be a prodigious clatter of iron, a cloud of dust, a volley of imprecation, and the fallen man would stagger up, dash the dirt out of his eyes, and go reeling and running on.”

It was not uncommon for convicts to endure this schedule six and even seven days a week.

Not all convicts could withstand the intensity of such a demanding schedule. Handicapped convicts presented special challenges to camp managers who were required to find some niche for them. At one camp a blind convict was given work at a pump to which he learned to find his way over time. An insane convict, described as an “idiot,” proved less useful. When put to work in the forest, he attempted to eat the raw turpentine and returned to the camp with it caked in his mouth. New convicts were often unable to keep up the prescribed pace and entered a period of depression and despondency. But within time, most reportedly developed the physical stamina to endure. Depression associated with loss of family contact, however, probably continued longer. According to one turpentine camp manager, convicts’ relatives and friends usually forgot about them after a short period of incarceration. Within the first year of their sentences convicts began receiving increasingly fewer letters and inside of two years correspondence usually ended completely. Many convicts lost their spouse as well. It was widely believed that because a felony conviction was grounds for divorce, a prison sentence automatically constituted one.

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The chaplain who attended to Florida’s largely forgotten convicts faced the daunting task of single-handedly ministering to the dejected population of all the camps. Even he admitted that “owing to their scattered condition under subleases, [I] cannot effect much good.”\textsuperscript{70} During the second half of the 1890s, the chaplain visited fifteen of the sixteen camps every nine weeks, requiring him to travel annually between 2250 and 2500 miles, and preached between eighty-five and ninety sermons. He went to the camp at Palatka in eastern Florida’s Putnam County only twice because it required a hundred miles of extra travel and contained only sixteen convicts.\textsuperscript{71} From his rapid tour he concluded that “the health of the camps . . . was very good, and they seemed to be very well cared for.”\textsuperscript{72} He lamented, however, that the “morals of all the camps [were] as good as could be expected under the circumstances. We have one grand evil that exists on some of the camps, to-wit: gambling.”\textsuperscript{73}

Despite the chaplain’s claim to good “health of the camps,” conditions at these scattered facilities, in fact, varied greatly. Like all turpentine operations, those employing convicts periodically moved to isolated areas in search of fresh pine stands. The initial camps at a new site tended to be the most primitive. At one such camp in the late 1870s, convicts slept in a twenty-foot by forty-foot log house on sloping platforms that ran one over the other down both sides of the structure. At night a long chain running the length of the bunk house was used to secure smaller chains running from the convicts’ leg irons. The spaces between the building’s


\textsuperscript{71} His effort, he reported, produced more than ten conversions a year. Report of the Commissioner of Agriculture of the State of Florida, 1897-1898, 92; Report of the Commissioner of Agriculture of the State of Florida, 1895-96, 79.

\textsuperscript{72} Report of the Commissioner of Agriculture of the State of Florida, 1897-1898, 92.

logs were not sealed, allowing wind, cold, and dampness to enter. However, during the summer heat, the cracks, no doubt, provided welcome ventilation. Pine knots which burned in the middle of the floor, provided light. At night an armed guard kept watch at the front. Guards stayed in another primitive building constructed near the cell house. A simple lean-to served as the camp kitchen where cooks prepared food on a dirt bank and hung their pots and kettles from pieces of wire attached to its roof. Under these primitive conditions food preparation was hopelessly unsanitary, especially in the summer when a layer of gnats often covered meals as they cooked.74

Within a short time more substantial camp facilities were constructed. A high stockade typically surrounded turpentine convict camps. Inside the yard little vegetation grew. Most buildings were constructed of rough pine boards and whitewashed. The bunk house resembled a warehouse and was the largest building in the camp. As much as one-hundred-feet long, both houses usually had uncovered rafters and boards and, except for barred windows and postings of the state prison authority’s rules, bare walls. Some even lacked floors, and in cold weather a fire was built on the ground and the smoke allowed to escape however it could.

At many camps the structure was divided into a dining hall and sleeping quarters. Bedding varied greatly; convicts at some camps had individual cots, but most slept on long platforms covered with hay and blankets, with no sheets. In some cases unchanged bedding grew disgustingly filthy. At one Florida camp bedding went unwashed for nearly a year. Sleeping convicts were chained by their waist chains to a chain that ran the length of the bunkhouse. At night guards inspected each link to ensure its security. If a convict wished to change his sleeping position, he had to call to the night guard and get his permission. The dinning hall contained a heating stove, tables, and boxes and broken chairs for sitting. It appears that at some camps, however, convicts came directly from work to the bunk house, chained at their portion of the

bedding platform, and ate their supper there. Convicts ate their fare using dishes, pans, and spoons. Knives and forks were forbidden since they could be used as weapons. For bathing, convicts used barrels of water placed in the sleeping quarters. Twenty-five to thirty convicts used each barrel, which was commonly not emptied or cleaned, favoring the spread of disease and infection. In addition to the bunk house, camps contained a commissary, kitchen, pig pen, and garden plot.\(^{75}\)

Segregation policies appear to have varied among camps, despite state legislation that forbade housing black and white convicts together. In the mid-1880s, Alabama forbade the chaining of black and white convicts together when not at work. The rule applied to both state and county convicts. The Georgia legislature, in 1891, went one step further and made it a crime for convict lessees to chain blacks and whites together, even at work. Compared to Georgia, Florida was slower and less radical in its requirement of separating prisoners. In 1905, it simply forbade chaining men of the two races together and four years later required counties to house the races separately. Florida said nothing about work. Mississippi’s legislature in 1906 and in 1908 prohibited housing or feeding convicts together and stated that the races should work separately when a separate arrangement was feasible. In his recollection of experiences as a boss of convicts at a turpentine camp, J.C. Powell makes no mention of separating convicts by race at the camps he managed except in the case where a sublessee requested an all-black work unit. It also appears that if a camp contained female convicts, special quarters were reserved for them.\(^{76}\)


As with housing arrangements, the quality of food in convict camps could vary from adequate to condemnable. Diets typically consisted of salt pork, pork fat or “white bacon,” cornbread, black-eyed peas, rice, beans, sweet potatoes, and occasionally beef and fish, but at one camp located twelve miles outside of Palatka, Florida, convicts subsisted on meat and bread that was not fully cooked. According to one observer, the camp commissary keeper exercised considerable influence over provisions. He “is generally a very important individual in a convict camp, for he controls, to a large extent, the food given not only to the men, but to the guards, and to the captn., consequently the captn. and he are usually very good friends, each knowing that he is to a certain extent, dependent on the other, and it often happens that the commissary man is the real ruler of the camp, though nominally the captn. is responsible for what is done.” At some camps convicts took the initiative themselves to supplement their diet. Because fresh pork was rarely included as part of camp meals, convicts sometimes killed and ate hogs stolen from either the camp or neighboring farmers. They also foraged in the woods for wild game. One Florida convict died after attempting to dig a ground tortoise from his burrow using a turpentine dipper. When he crawled head-first into the hole to retrieve his prey, the ground caved in over him.

Convicts leased to turpentine outfits were usually at the mercy of incompetent guards. Guarding convicts was a difficult and low-paying job. Guards did not have to perform physically exhausting labor, as did the convicts, but they did have to keep the same long hours guarding the prisoners both in the camp and in the woods. They also lived in the rustic and isolated camps. Because producers needed to keep costs low in order to make a profit in the frequently depressed industry, guards received little compensation for their long work and primitive living condition.

77 “Horrible Treatment of Convicts.”


The occupation, therefore, attracted generally unreliable workers. Most guards were young men who lacked better prospects in the area surrounding each camp. Many worked sloppily, caused trouble, and stayed at the job only a short time. There was, consequently, a constant turnover in personnel. The inability to attract reliable white men as guards led some producers to use trusted convicts to oversee other prisoners. Known as the trustee system, the practice was relatively common but posed its own shortcoming. One camp manager found that trustees inspired confidence in themselves by preventing other convicts from escaping, only to later use that trust and the loosened restrictions it brought to run away themselves.80

Although convict camps provided employment for local men, many whites living in areas surrounding the facilities strongly opposed their introduction into the community. Local whites were especially averse to the trustee system. According to one report, frequent escapes did “not give the citizens in the vicinity of the convict camps much feeling of security.”81 After trustees reportedly committed a series of crimes in the early 1890s, concerned local citizens complained to the Florida Board of Commissioners of State Institutions and petitioned that the trustee system be abolished. In other localities citizens protested by more direct means. At one Taylor County, Florida, turpentine operation a black convict who became lost in the woods was marched back to camp at gun point by an angry white man. Another black convict from the same operation found himself fired upon as he approached a house to have an ax sharpened. Other local whites sabotaged turpentine operations that used convict labor by removing the gum from boxes, throwing it on the ground, and replacing it with dirt. More cunning protesters drove nails into the pines just above the last chip. The next swipe with the hack resulted in a broken blade. As a


result of such action at one camp a dozen hack blades broke in one day, greatly interrupting work. In 1896 the neighbors of an Alachua County, Florida, turpentine operation complained about the inhumane treatment of the convicts and threatened that “if the county or state officers do not do something to prevent it, they will rise en masse and release every convict in the camp.”

Camp bosses and guards maintained order and an exhausting work pace through the use of brutal punishment, most commonly with beatings. It appears that, beginning in the 1870s, most convict camps replaced the whip with a strap of tough leather measuring one and a half feet by three inches and attached to a wooden handle. Until the turn of the century there was no legal restriction on the number of blows a convict could receive or on the frequency they could be administered. Whippings could easily become uncontrolled, sadistic forms of torture and even death. At their discretion, a warden could turn the event into a cruel game for his amusement. For example, when a Florida camp boss caught one of his convicts stealing dinner rations, he forced a woman with whom the prisoner collaborated to administer the first blows. She made gentle strokes with the strap until the boss threatened her. “At this stage,” he explained, “the negress fully believed that her life depended upon her vigor, and she beat a devil’s tattoo upon the prostrate trusty.” Once satisfied that the woman had exhausted her physical strength, the

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82 The Board’s subsequent resolution that forbid the use of trustees outside the stockade without the presence of armed guards met with opposition from lessees who complained that such action would bring an expensive hardship. Report of the Commissioner of Agriculture of the State of Florida for the Period Beginning January 1, 1893, and Ending December 31, 1894 (Tallahassee: John G. Collins, State Printer, 1895), 62-63; Powell, American Siberia, 327-328, 332-333.


85 Powell, American Siberia, 131.
warden took the strap and continued beating the convict himself. The boss then forced the convict to beat his female accomplice. The warden described with amusement how “the scene of their late loves reëchoed to the thuds of the strap and the screams, pleas, and protests of his quondam sweetheart.” Once the ordeal was complete, the boss pronounced the convict’s flogging “artfully performed.” 86 He believed that such punishment was neither harsh nor unjustifiable. “The life of the convict was hard,” he explained, “and the punishments often severe, but they were not inhuman, and were invariably necessary, not only for our safety but for the safety of the peaceably disposed prisoners.” 87 Moreover, the boss added, the rough nature of the convicts, whom he characterized as “‘Cracker outlaws’ and cut-throat negroes,” necessitated harsh punishment. 88 Powell also believed that severe punishment was required because discipline was more difficult to maintain when convicts spent most of their days outside the camp. Other captains, however, apparently relied less on the strap. At one especially well run camp near Floral City, Florida, beatings occurred only six times a year. 89

Beating was not the only method of discipline in turpentine convict camps. Some wardens devised more cruel and unusual forms of punishment. They had convicts strung up by their thumbs and left teetering on their toes for hours. At the largest turpentine business in Florida, a sick convict who failed to work was hung by handcuffs from a tree branch so that his feet dangled above the ground. When he screamed from the pain after twenty minutes, a guard

86 Ibid., 131-132.
87 Ibid., 118.
88 Ibid., 30
89 Matthew Mancini puts the late nineteenth century use of the lash in the perspective of its time. Flogging, he explains, did not carry today’s connotation of cruelty and was generally regarded by older Americans in the late 1800s as a common and acceptable form of discipline within the home, school, farm, and factory. Mancini, One Dies, Get Another, 77; “White Slavery in Florida.”
severely beat him with a grape vine. Others endured the especially cruel “ordeal by water” in which guards strapped down a prisoner, forced a funnel into his mouth, and poured water down his throat. The victim’s expanded stomach caused great pain and sometimes death.90

Georgia records for 1895 and 1896 indicate that turpentine camps had a much lower rate of hospitalization, twelve percent, than did the overall convict population, thirty-nine percent. However, this statistic no doubt says more about the primitive and isolated nature of turpentine camps—which were notorious for lacking hospital facilities—than about the frequency of illness or injury.91 In fact the Georgia penitentiary physician complained that “under the present management the prisoners are frequently moved to places where there is no preparation to care for them, and on this account they suffer a great deal.”92 However, those turpentine camps that reported hospitalization indicated that convicts working in the naval stores industry suffered from the same illness and injuries as did those in other work camps. Respiratory diseases, bilious fever, intestinal ailments, and cuts were common in all camps. Some camps experienced attacks from contagious diseases. For example, one-half of the convicts hospitalized at Camp Magnolia in Clinch County, Georgia, in 1895-1896 had influenza. Prisoners suffered the greatest amount of illness and death during the summer months when the heat was most intense. The rainy months of July and August also adversely affected convicts who caught chills, fever, and pneumonia after working in water. Convicts also contended with diseases they brought with them into the camps, especially tuberculosis and venereal disease.93 In the late 1890s the


91 Annual Report of the Principal Physician of the Georgia Penitentiary from October 1, 1895, to October 1, 1896 (Atlanta: George W. Harrison, State Printer, 1896), 117-142.

92 Ibid., 110.

managers of a Florida turpentine camp that employed convicts reported that "the main sickness we have to contend with is bilious attacks. We have to give quite a lot of them blood medicines to keep their blood in condition, as they have old cases of different kinds that return occasionally."\(^9^4\)

Although it is difficult to know the exact rate of mortality for convict laborers in turpentine, it appears to have been twice as high as the overall prisoner population's. In general, mortality among all leased convicts varied depending on their treatment and the business in which they worked. Convicts leased to plantations tended to have a better chance of surviving to the end of their sentence than those who worked in coal mines, railroad camps, and turpentine operations. At their very worst, death rates could run as high as twenty-five percent. Historian Robert S. Blount, however, finds that official reports list prisoner death rates over the years of Florida's leasing practice at between one and four percent. But at some camps the frequency was higher. In 1899 twelve out of fifty-five convicts who labored at a Padgett, Florida, turpentine camp died. Located in a low palmetto flat, the camp was wet much of the year.\(^9^5\)

Convicts who endured these terrible working and living conditions had little means of voicing complaint. State prison officials visited the isolated camps infrequently and, if a prisoner had the rare opportunity to speak to a state official, it was the convict's word against the guards' and warden's. Except for the name of the lessee, Florida had no knowledge of exactly who was in charge of the convicts, under what conditions they worked and lived, or how often or brutally


they were punished. By the late 1890s, however, Florida began limited efforts to bring convict leasing under tighter state control. The Commissioner of Agriculture who had charge of the Florida convict lease system, a state legislative committee, inspection agents who reported to the Commissioner of Agriculture, and a prison chaplain all made periodic visits to the convict camps. Every twelve to fifteen months the Commissioner of Agriculture made a short visit to each camp and interviewed the convicts to see if they had any complaints. Only rarely though did prisoners report any problems, knowing that, although their discussions with the Commissioner were conducted in the warden’s and guards’ absence, the trustees would report the conversation. Convicts also understood all too well that the captain and guards would tell a different story and that they would more likely be believed. The same circumstances prevented convicts from discussing grievances with the legislative committee that visited camps every two years. In the days preceding the committee’s visit, which was announced in advance, camp conditions underwent a transformation. Living quarters and clothes were cleaned, the food got better, and whippings decreased. State inspectors made more frequent visits than the legislative committee, but the law seriously restricted their ability to thoroughly examine camp conditions.

In 1896 a frustrated agent asked the governor that “the law be amended so as to enlarge the duties of the Agent, authorizing him in his visits to inspect the quarters, and look after the management and treatment of the convicts, and see that the contracts with the lessees are complied with. Under the present law, the Agent has no authority to look after these matters.”

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Inspections were typically superficial and uncritical. One agent, for example, found all camps in generally good condition but at one recommend that a new bunk house be built.\textsuperscript{99} Another reported that he made “a tour of inspection of the several convict camps of the State, to correct certain abuses and improper use of authority which had been reported. In every camp except one—of which due report was made—we found the convicts well cared for, well fed and clothed, and but little sickness among them.”\textsuperscript{100} The fact that at least one agent was a naval stores manufacturer himself calls into question the reliability of both the inspectors and the system reliability.\textsuperscript{101}

Although they possessed severely limited ability to complain to officials, convicts in turpentine camps resisted harsh conditions in other ways. One convict feigned insanity to avoid work. He began speaking gibberish and cut down a tree which he was supposed to be boxing. In response he was whipped, the camp manager reported, “until he admitted the ruse and promised to drop it in the future. He had no more attacks after that, and made it a point to take new prisoners aside and warn them in a fatherly way against the insanity dodge.”\textsuperscript{102} In a more dramatic attempt to avoid the hard work, another convict, while cutting boxes, he drove his ax through his foot, cutting a severe gash. The wound, however, healed well enough for him to get about sufficiently to split wood. Still miserable, he again cut his foot, but this time the deep wound refused to heal and he died of gangrene after suffering in agony. Other more desperate convicts attempted suicide. When a guard threatened to whip a convict for not working hard

\textsuperscript{99} W.J. Hillman to W.D. Bloxham, 25 July 1903, Convict Lease Program Subject Files, 1889-1916, Board of Commissioners of State Institutions, Florida State Archives.

\textsuperscript{100} Report of the Commissioner of Agriculture of the State of Florida, 1895-1896, 78.

\textsuperscript{101} W.J. Hillman to W.D. Bloxham, 25 July 1903, Convict Lease Program Subject Files, 1889-1916.

\textsuperscript{102} Ibid., 64.
enough, the distraught prisoner, a black preacher sentenced for stealing cotton, used a boxing ax to slit his throat. Missing his jugular vein but severing his windpipe so severely that his tongue dropped through the gapping cut, he was capable of only making a faint whistling sound to get a guard's attention. He recovered after receiving stitching for the wound. In yet another instance a poor white man sent to prison for murdering his brother-in-law refused in disgust to chip faces. When threatened with a whipping, he defiantly ordered a guard to shoot him, then attempted to break his skull with the weighted end of his hack. He, too, survived his self-inflicted wound.103

Escape, however, was the most common form of resistance. Escapees represented a double loss for the camp. Not only did the producer loose the labor for which he had already paid, but if the convict was not caught within two months, the operator had to pay a two-hundred-dollar fine. Some convicts appear to a have attempted escape spontaneously out of desperation. One Florida convict in the 1890s tried to escape after the entire camp received fifty lashes one night for not chipping their required task. When they were threatened with the same punishment the next day, he tried to get away. Another convict used more cunning in escaping from a Florida turpentine camp. One night he succeeded in cutting his chain and sneaked off his bunk and toward the cell house door. When the patrolling guard turned his back, the convict pushed the backdoor wide open, blocking the guard's view of him, slipped around the side of the building, and left the camp never to be seen again. In Georgia, where figures are relatively complete, 1,174 convicts escaped during the lease's forty year existence. In the 1890s the typical escaped convict laborer in Florida was a black male who fled after serving less than one year for either robbery or murder.104

103 Ibid., 60-63.

104 Coulter, James Monroe Smith, 69; Carper, "Convict Lease System in Florida," 118. Powell, American Siberia, 79. For five of these forty years the number for escapes is unavailable. Mancini, One Dies, Get Another, 68; Report of the Commissioner of Agriculture of the State of Florida, 1897-1898, 90.
Because recapturing convicts proved difficult once they made their way away from camp, if guards happened to see them on the run, they shot them. Apparently guards used little restraint with their aim, shooting to kill rather than merely to halt the fleeing prisoner. At one Florida turpentine camp three convicts out of around fifty were killed in escape attempts. At another Florida camp a guard shot an escaping convict twice and, once he was down, shot him a third time. He lingered before dying. In Florida from 1874 to 1920, an average of seven state convicts died each year from gunshot wounds they received while trying to escape.105

Once convicts successfully made it out of the camp, four conditions aided them in alluding authorities. First, there existed no procedural method for capturing convicts. Camp bosses and guards coordinated the effort as best they could. If a convict successfully slipped away from a camp, guards used hounds to track him. Camp managers trained young hounds for this job by ordering trustees to run through the woods and putting the pups on his trail soon afterwards. Many convict camps used fox hounds for this task because their slower speed enabled the guards on horseback to keep up with them. However, if the hounds failed to track an escapee within a few hours of his departure, his likelihood of recapture dropped to less than thirty percent.106 Second, within the surrounding areas there was a great demand for black labor, especially workers who already possessed skills in turpentining. Escaped convicts found little difficulty in securing employment in out-of-the-way naval stores operations, which hid them from recapture. Third, the area’s white citizens, who tended to despise the black convicts but often hated the convict lease system even more, sometimes agreed to assist escapees in an effort to discredit the system. Fourth, the wild, inhospitable countryside surrounding camps offered a safe haven for runaways. Some parts of the turpentine belt, especially the area closest to the


106 Drobney, Lumbermen and Log Sawyers, 162; Powell, American Siberia, 24.
Gulf, were vast swamps with virtually impenetrably thick vegetation and with very little settlement, even by the standards of the sparsely-populated piney woods region. The escapees who lived in this coastal area survived off what the wilderness provided. Deer, black bear, catersouts, wild hogs, foxes, wolves, rabbits, raccoons, and panthers were plentiful in the dense woods. Escapees built log huts with dirt floors and animal skin bedding. They occasionally emerged from their hideouts only to purchase such supplies as powder and shot.\(^{107}\) Historian Matthew Mancini concludes that “literally thousands of escaped convicts must have inhabited the late-nineteenth-century Southern landscape.”\(^{108}\)

A comparison of convicts involved in turpentine manufacture and those involved in other types of business reveals that prisoners who labored in naval stores production both experienced unique conditions and shared experiences with other convicts. Of the convicts leased to Florida’s railroad camps, phosphate mines, and turpentine operations, reportedly “none can suffer more than the convicts sub-let to work in turpentine forests.”\(^{109}\) The convicts at one turpentine camp dreaded the work so much, they rejoiced when the state leased them to a planter.\(^{110}\) “The fact was that the work at the pine woods, particularly the chipping, had broken down most of the long-time men,” J.C. Powell explained. “They were eager to exchange the hack and dipper for the plow and hoe.”\(^{111}\) The convicts who were fortunate enough to be spared

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\(^{107}\) Powell, American Siberia, 31, 324-325, 324-326.

\(^{108}\) Mancini, One Dies, Get Another, 68.


\(^{110}\) In Florida a division of the state convicts occurred every few years. When it occurred, the lessee and the sublessees often changed. All convicts were collected at a central point for redistribution, an ordeal that no doubt resulted in considerable stress from being uprooted from one area and sent into unknown conditions. Drobney, “Where Palm and Pine Are Blowing,” 427-428; Powell, American Siberia, 134, 138.

\(^{111}\) Powell, American Siberia, 341.
turpentine work, had good reason to feel thankful. Powell reported that farm work proved “much more satisfactory to the convicts themselves than any other at which they have ever been engaged. In point of severity it is not to be compared to turpentine culture, and the facilities for obtaining fresh vegetables on the farm is a matter of the first importance.”

But although work and punishment at turpentine convict camps were more difficult and harsh than those at other types of operations, in other ways conditions appear to have closely resembled camps for convicts engaged in other types of work, both industrial and agricultural. In the late 1880s and early 1890s, seventy-five percent of convicts who worked in Tennessee coal mines were black. Most lived in rough board structures and slept on planks covered by filthy ticking stuffed with straw. Their diet consisted of cornbread, pork, black-eyed peas, beans, and coffee. Whipping was the most common form of punishment. Convicts leased to agricultural operations experienced similar conditions. At one Georgia plantation convicts lived in a long bunk house and were chained in at night. The entire camp was surrounded by a stockade.

Despite convict leasing’s characteristically brutal nature and distinction as a form of forced labor, the practice, whether in industrial pursuits or agriculture, represented neither a form of slavery nor a functional replacement for it. Although both systems were forms of forced labor, they each operated quite differently. First, slaveholders carried the cost of sustaining the entire slave community which included such relatively unproductive members as the elderly, the sick, and young children. Convict employers concerned themselves mostly with productive men. A second difference is the low financial interest that the lessee had in the convict. Whereas each slave represented a considerable investment to his owner, lessees had little long-term financial stake in the individual convict. The latter’s death, release, or escape consequently did not

112 Ibid., 349.

represent a significant loss.\textsuperscript{114} As capital, slaves were important individually where as convicts were only collectively so. As one early twentieth century reformer found, “the lessee has no interest in the convict except to secure the largest amount of labor in a given time. What matters it to him if the convict’s health is broken down? There are plenty of more convicts.”\textsuperscript{115} This endless supply reinforced the cruel treatment of convicts who were important to their employer only as a group not as individuals. But despite the less individual value of convicts compared to slaves, financial cost of convict leasing could present a greater problem than the experience of slave ownership when seasonal work cycles or economic downturns created periodic idleness during which time the maintenance cost for the entire convict work force continued. Whereas individual slaves could be sold or hired out, convicts were leased in lots and, until changes in state legislation, could not be subleased.\textsuperscript{116}

Despite this economic drawback, analysis of convict leasing in the turpentine industry largely supports recent scholarship that argues that convict leasing helped to modernize the southern economy by providing a cheap and reliable labor force for a region short of investment capital. Edward Ayers contends that the convict lease system helped in the transition from an agricultural economy to one of fuller capitalist development by providing a reliable labor at a fixed and predictable price and therefore helping produce quick profits. Convicts could be driven to work at a more rapid pace and for longer hours than free workers would tolerate and at difficult jobs that free workers shunned.\textsuperscript{117} Charles K. Dutton, a New Yorker and head of a naval

\textsuperscript{114} Mancini, One Dies, Get Another, 20-24.

\textsuperscript{115} Keeler, Crime of Crimes, 14.

\textsuperscript{116} Mancini, One Dies, Get Another, 24.

\textsuperscript{117} Carper, “Convict Lease System in Florida,” 49-50, 143-144; Drobney, Lumbermen and Log Sawyers, 151; Shofiner, “Negro Laborers,” 183; Clark, Greening of the South, 22; Oshinsky, “Worse Than Slavery”, 70; Ayers, Vengeance and Justice, 4, 185, 191-193.
stores company, explained that he leased Florida convicts because “turpentine culture was exhausting work, and it was difficult to obtain enough labor for the proper cultivation of any great number of trees. Natives of Florida’s piney woods would quickly abandon the work when any other type of livelihood became available.”

Alex Lichtenstein agrees that convict leasing supplied a reliable and predictable labor force required of the South’s developing iron mines, railroad construction, brick yards, sawmills, and turpentine camps. Instead of repressing the region’s industrial economy, he argues, “convict labor was a central component in the South’s modernization.” The region was poor in capital and rich in natural resources and convict labor offered a solution for industrial growth. Lichtenstein finds that economic modernization is commonly tied to forced labor as producers attempt to control workers who resist entering wage labor relationships, a situation that was especially so among naval stores producers. Lichtenstein explains that “the combination of labor uncertainty, production on a narrow margin, destructive methods of extraction, seasonality, geographic mobility, and isolation encouraged many turpentine operators to look to the county courts for their labor supply. Forced labor, he argues, is also often a necessary phase in the process of capital accumulation that enables capitalist development. Finding itself at an economic disadvantage with so little investment capital, the South used forced labor to spur its economic progress without upsetting the traditional racial order.” Thus instead of repressing the region’s industrial economy, Lichtenstein argues, “convict labor was a central component in the South’s modernization.” He concludes that “progress is not necessarily progressive for all

118 Quoted in Ayers, Vengeance and Justice, 192.

119 Lichtenstein, Twice the Work of Free Labor, xvii.

120 Ibid., xv-xvi, 4-5, 11-13, 19-20, 170-171, 187-188, 195.

121 Ibid., xvii.

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peoples, and that the bearers of modernity frequently carry with them its antithesis.”122 But whereas the manner in which producers employed convicts in the naval stores industry certainly fits this argument, the relatively small number of such workers involved in turpentine manufacture, less than ten percent, calls into question the degree to which production owed its continuation to convict leasing.

When combined with similar findings by other scholars who examine the restricted freedom of wage laborers, the broader argument that varying forms and degrees of forced labor helped the South develop economically appears valid with regard to the naval stores industry, which with slavery’s end, turned to two alternative means of forcing blacks to work, debt peonage and convict leasing. David L. Carlton maintains that although peonage was not unique to the South, the practice was more widespread in the region because of the undercapitalized economy that consisted primarily of export agriculture and extractive industries that required routinized and relatively unskilled labor. It is, therefore, not surprising, Pete Daniel adds, that the cotton belt, especially the Mississippi Delta, the turpentine region, particularly south Georgia, North Florida, and southern Alabama and Mississippi, and railroad construction camps throughout the South produced the most peonage complaints.123 In his doctoral dissertation Michael Tegeder, like Lichtenstein, finds no contradiction between forced labor and economic development as well as no significant divide between planters and industrialists or antebellum and postbellum economics. He maintains that “continuities in the development of forced labor in southern turpentine production were not incompatible with the postbellum process of modernization.”124 Turpentiners, who commonly struggled under debt themselves and could

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122 Ibid., 195.


expect low profit margins at best, sought financial relief by reducing their labor costs to barely more than subsistence wages. Labor expenses accounted for between fifty and sixty percent of production costs and, unlike expenses of leases, tools, and supplies, which were fixed, the producer had some control over them. Forced labor offered the turpentiner the ability to pay low wages and still enjoy a relatively reliable labor supply.  

In the three decades following the Civil War, considerable continuity existed between the naval stores workers' antebellum and postbellum experiences. Labor laws—enticement, emigrant agent, vagrancy, and contract legislation—and the movement of free labor that they restricted, combined with convict leasing, forced many southern blacks to toil at turpentine production against their will. Although most such workers received wages, often low and based on piece work, the legal system commonly left them little choice in terms of their employment. Laborers continued to work at the same tasks as before the war and to lived in camps that remained isolated, primitive, and transient. For convicts, work requirements were greater, the living conditions more isolated and crude, and the brutality visited upon workers more intense than those of wage laborers. Although these conditions could also be found in other areas of southern business such as agriculture and especially the lumber industry, they were perhaps more broadly characteristic of the naval stores industry.

125 Ibid., 13, 49, 52.
ANOTHER NEW SOUTH:
PATTERNS OF CONTINUITY IN THE SOUTHERN NAVAL STORES INDUSTRY

VOLUME II

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in

The Department of History

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During the first decades of the twentieth century, the naval stores industry, with considerable assistance from the newly formed federal Bureau of Forestry, at long last began successful efforts to adopt less destructive production methods than those employed since the business began in the American colonies centuries earlier. University-trained researchers pioneered practices that not only produced a higher-grade gum than the older practice of boxing, but also caused less harm to the tree. Their successes then fostered a more receptive environment for scientific forestry among many producers, which allowed for further improvements. These innovations ultimately averted the impending forest depletion that had brought the industry to the brink of collapse. The naval stores industry not only benefited from federal forestry efforts, but also from research and experiments conducted by the Bureau of Chemistry. Where the Bureau of Forestry focused on improving gum harvesting, the Bureau of Chemistry worked to advance distilling and marketing of turpentine and rosin. Together, these government agencies introduced significant changes to the conservative industry.

Indeed, the likely threat of deforestation spurred many turpentine producers to consider at last alternative, less-destructive methods of harvesting gum. By the early twentieth century, the naval stores industry’s growth, its continued movement into the deep South’s dwindling virgin pine forests, and producers’ persistent use of destructive harvesting practices presented manufacturers with an impending crisis. Operators began to take note when their production costs rose in relation to returns and, more ominously, when their most conservative estimates predicted that, at the then current rate of boxing, virgin timber supplies would disappear before
The reduced timber acreage by the turn of the century was not only reflected in higher prices, but was visually obvious as well. In 1901, one Georgia resident recalled that “in 1864 when I first went over the railroad from Savannah to Thomasville there was an almost unbroken forest of magnificent pines extending from Bryan to Thomas Co. through which the railroad cut its way like a ditch—but now one may go over the same rout [sic] and scarcely see a merchantable pine—From most of the visible land the timber is entirely gone and the same state of things prevails in much of the piney woods part of the state—If these lands were covered with well tilled farms it would be well enough but most of them are barren desolate wastes.”

About the same time, a naval stores factor complained that “the people of Georgia are disposing of one of themost [sic] valuable assets of the state without receiving adequate compensation therefor.” He argued that “if the law making power of Georgia had taken up actively the preservation of the forests twenty years ago, the value of real estate within the pine belt would have been many millions more than it is to-day.”

Similar conditions existed in Florida. In 1902, a naval stores factor explained that during the short time the turpentine industry had existed in that state rapid tree loss “has brought about conditions which the people of the South have too long ignored, and the time is fast approaching when the method employed by the native turpentine operators must be replaced by a more scientific and less extravagant mode of operation. Other nations and other people long since

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2 Archibald Smith to Charles H. Herty, 7 June 1901, Herty Collection.

3 J.P. Williams to Charles H. Herty, 20 November 1900, Herty Collection.
went the way we are so blindly pursuing and have perceived the error of that way, and have forced private greed to give way to the public good by a wise and efficient system of forestry.

And why may not the people of the South profit by their dearly bought experience and take steps to profit and maintain the wealth still stored up in their forests? Such protection cannot come too soon.4 Others were concerned about the effect that the unsightly, denuded forests would have on Florida’s growing tourist industry.5

Despite the failure of late-nineteenth-century efforts to develop a less destructive gum-harvesting technique to help avert the destruction of the forests, an inventor, in 1900 attempted to find a new way. Born in Milledgeville, Georgia, in 1867 and educated at the University of Georgia and The Johns Hopkins University, Dr. Charles H. Herty sailed to Germany in 1899 to continue his chemistry studies. Although trained as a “pure” chemist in the United States, his experiences in Germany led him to believe that he could best use his education for practical ends. He was especially interested in advancing his native South’s economic condition by improving the region’s existing industries and helping it develop the technology to start new ones. His interests in the turpentine industry were stirred by his favorite lecturer in Charlottenburg, Germany, who described the American turpentine industry as “butchery” and insisted that, without change, it would disappear. Transforming the naval stores industry was just the crusade Herty sought.6


5 Winthrop Packard, Florida Trails: As Seen From Jacksonville to Key West and From November to April Inclusive (Boston: Small, Maynard and Company, Publishers, 1910), 279.

Herty spent the academic year of 1900/1901 serving on the faculty at the University of Georgia and contemplating the problems of American turpentine production methods. He corresponded with producers and visited south Georgia to view first-hand the effects that traditional gum harvesting practices had on the pine trees. He learned how the destructive methods had driven the industry southward and closely examined the problems boxing caused. The box, he discovered, not only weakened the tree’s structure, left it open to infection and insect attack, and reduced its vitality by interfering with the circulation of sap between the root and the needles, but it also reduced the pine gum yield. Weaker trees produced less gum than those not stressed by having a cavity cut into their bases. And because the box received the gum at a fixed point, no matter how high the face climbed, in all but the first years of harvesting the traditional system delivered resin that had deteriorated from ever-increasing exposure to light and air.7 Herty found the naval stores industry wasteful in several other ways. First, the persistent deterioration of the forest and the utter absence of any effort to encourage new growth doomed the industry’s future. Next, the gum collection method was inefficient, leaving portions of each year’s harvest wasted on the ground. “We are not only killing the goose that lays the golden eggs,” Herty lamented, “but we are actually failing to pick up all of the wealth during the dying process.” Third, he faulted the antiquated distilling method that continued to rest entirely on distillers’ experience and most often failed to produce rosin that reached its full quality potential.8 Along with field observations, Herty studied literature that fully explained the French system of gum collection and reviewed the U.S. Patent Office records to determine what had already been tried. He was fully aware that French turpentine producers had used the cup and gutter system for decades and that American inventors had attempted similar methods in this


8 Charles H. Herty to John M. Egan, 18 January 1901, Herty Collection.
country. What was needed, he believed, was an economical system that allowed the harvesting practices to remain as little changed as possible.9

Despite his enthusiasm for the project, Herty doubted his efforts would succeed. He feared “that the end of the turpentine industry is so rapidly approaching in our state it is possible that even should I succeed in the work I may be too late to be of any real service to this sector of the South.”10 He also worried about the “question of negroe labor,” whether black workers would be able to learn the new and somewhat more tedious method. “As to whether this labor can perform the work under another system,” he concluded, “experiment only can tell.”11 Along with timing and labor concerns, Herty worried that even his best effort might meet the same fate as earlier attempts to introduce new methods. On his trips to operations in the Valdosta and Fargo, Georgia, area, he was “amazed to find in each case that the turpentine people showed so little regard to the future of the industry in that they ‘box’ not only the good sized trees but also trees almost small enough to be called saplings.”12 Herty believed that turpentine producers’ traditional conventions had prevented the naval stores industry from adopting innovation. Although Herty believed them to be robust and hard-working—especially noble characteristics in the Progressive era—he thought producers resisted change because they lived “on the outer edge of developing civilization, with few of the comforts and conveniences of life, indifferent to the utter lack of efficient business methods in their operations, and strongly wedded to work

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10 Charles H. Herty to John M. Egan, 18 January 1901, Herty Collection.

11 Ibid.

12 Charles H. Herty to Byron B. Brower, 24 April 1901, Herty Collection.
practices which have been handed down from generation to generation as they steadily moved from North Carolina toward Texas.\textsuperscript{13}

With deep questions about his acceptance by producers, in the spring of 1901 Herty began to lay the groundwork for his initial experiment. He first contacted the leading naval stores factors in Savannah for permission to experiment on their land. Not all were encouraging. One part-owner of a Savannah factorage house responded that he “had no confidence in the project, that I had already made some experiments myself and do not believe any new method could be invented to take the place of the old way.”\textsuperscript{14} J.P. Williams, a cotton and naval stores factor, believed differently, however, and granted his permission to conduct experiments on his company’s forest near Statesboro, in southeastern Georgia. With a test area secured, Herty next visited Gifford Pinchot, the head of the recently created Bureau of Forestry, in his Washington, D.C. office. After listening to Herty’s plan, Pinchot agreed to lend assistance, beginning a pattern of cooperation between federal agencies and the naval stores industry that would last for over half a century. He offered Herty a position as collaborator with the Bureau, an appointment that only paid three hundred dollars a year, but came with invaluable fringe benefits: access to scientific instruments, a travel allowance, Bureau stationary—which lent greater prestige to Herty’s efforts—and a chance to publish his results. Another $150 raised by the Savannah factors also helped pay for equipment. Herty also sought broad support from producers through a presentation on his plan before the actual work began. To reach an even wider audience, he ran a description of his proposal in the Atlanta Constitution.\textsuperscript{15} Bewildered by his need to act as a

\textsuperscript{13} Herty, “Turpentine Industry in the Southern States,” 339.

\textsuperscript{14} J.B. Chestnett to Charles H. Herty, 5 September 1901, Herty Collection.

public relations man, he complained that “in Germany the practical man seeks the help of the scientific man, with us the scientific man seeks the help of the practical man.”16

Herty knew that his system had to incorporate eight important features in order to be accepted by both American producers and workers. First, turpentine operators needed to be assured of greater profits; otherwise, they would have no direct interest in adopting the system. Second, the equipment should cause the tree as little injury as possible. Next, the system had to allow the task of chipping to remain unchanged, otherwise labor difficulties could develop and threaten the system’s acceptance. Fourth, the placement of the equipment must require no special skill not already possessed by the average turpentine worker. Fifth, equipment construction should be as simple as possible and unaffected by the hardening of resin. Next, the equipment had to be adaptable to the widely varying sizes of trees used in turpentineing. Seventh, it needed to hold so tightly to the tree that it could not accidentally fall off, but also had to be easily and cheaply removed to allow it to be installed at the beginning of each season. Lastly, for the resin to be scraped out of the cup most efficiently, workers needed to be able to remove the cup without difficulty from the tree, but it had to hang securely enough that grazing cattle could not knock it off. Although the French method provided many of these characteristics, its use in the United States, Herty believed, would require the workers’ complete retraining. The French method employed a one-streak chip, that created a flat face, where Americans used two-streak chipping which created a V-shaped pattern. Any system used in America needed to accommodate that style of chipping.17

Although similar to the French system, the method of collecting gum that Herty discovered did not require unfamiliar tools, new techniques, or expensive retraining of workers.

16 Charles H. Herty to John M. Egan, 18 January 1901, Herty Collection.

17 Herty, New Method of Turpentine Orcharding, 14, 16.
It permitted chipping to continue as usual. The only change in turpentining came when instead of boxing, workers hung cups and gutters, and, rather than dip gum from boxes with spade-shaped dippers, laborers scraped gum out of cups with trowels. To install the system, two workers used cornering axes, just as they would in cornering a box, to create a smooth face by removing the bark. Then, swinging the ax sideways, the laborers removed just enough bark and sapwood to create a flat surface half the width of the smooth face. Next, they used broad axes to cut incisions about one-fourth inch deep at the top of the flat surface. Both incisions inclined toward the center, but they did not meet. One extended an inch beyond the end of the other. Into these incisions the workers inserted the gutters—galvanized iron strips about two inches wide and from six to twelve inches long. The upper gutter declined to the center of the face and the lower gutter extended a little beyond, forming a spigot that channeled gum into the cup hung by a nail below.18

On July 20, 1901, Herty and his team hung the first cup and gutters. Because he could not find a pottery manufacturer to make his small order of earthen cups, Herty used galvanized iron cups instead. Under the eye of a local woodsriver hired by Herty, baffled and amused workers hung the equipment in four groups, representing first, second, third, and fourth year boxes. Each group contained one hundred trees, half from which gum was harvested employing the box method and the other half using cups and gutters. Herty kept records of the quantity and quality of gum collected using the two different systems. He also noted the effect that temperature and rain had on resin flow.19 Within days of the experiment’s start, southern newspapers reported “that no more important public work than this has been undertaken in

18 Reed, Crusading for Chemistry, 19-21.

19 In spring 1979 a historical marker was erected at the site of Herty’s Statesboro experiments, now a part of the Georgia Southern University campus. Courson, “Here Began a Revolution,” 10, 12; Herty, New Method of Turpentine Orcharding, 16.
Georgia in many years, and that if Prof. Herty accomplishes the task he has set for himself the state will be ‘incalculably benefited.’”20 By the fall, Herty’s data indicated that his method held great promise. The cupped trees produced 186.06 barrels of gum while the boxed ones yielded only 86.06 barrels. However, scrape from the boxed trees brought their total yield to 177.06 barrels. Although the cupped trees thus provided only ten pounds more in resin, the benefits of the cup remained significant. Because the cups yielded far more spirit-rich soft gum than boxes, their use resulted in more turpentine produced at the still. Not only that, but the rosin was of a higher quality. Furthermore, cupped trees proved to withstand the wind better than boxed ones.21

Most informed observers expressed great faith in Herty once his results indicated initial success. Pinchot, in fact, offered him a full-time position at the Bureau of Forestry, which Herty joined at the beginning of 1902 after resigning from the University of Georgia.22 Many turpentiners also supported Herty’s efforts, as did The American Forestry Association, which endorsed Herty’s project stating that “his work, in line with the movement for practical forestry in the United States, promises to preserve a source of great wealth for the South. That he has the support of the national bureau of forestry (sic) is a source of encouragement.”23 In 1902, one industry official reported that turpentine men “now all see the necessity of preserving the timber, and getting as much of the gum as possible, or in other words preventing the great waste that has in the past robbed the producer of much of his profits.”24 But given the history of failed efforts at


21 Courson, “Here Began a Revolution,” 12.


23 “Guarding the Forests,” *Macon, Georgia News*, 28 October 1901, Turpentine newsclipping file, Forest History Society, Durham, NC.

innovation, not all were convinced Herty could succeed in saving the industry. In October, Georgia’s Assistant Commissioner of Agriculture argued that the pine forest was certain to disappear. “There is no help for it. The trees cannot live longer than four years after they have been tapped. If we could preserve the forest it would accomplish a great deal, but the demand for naval stores calls for wholesale and almost indiscriminate destruction of the pines.” The Atlanta Journal defiantly responded to the commissioner’s doubt by explaining that boxing, not the tapping itself, killed trees and that otherwise stands could potentially be worked for decades.

With growing industry support and the resources of the Bureau of Forestry behind him, Herty began a larger-scale experiment in 1902. The Bureau financed the needed equipment and a large turpentine-producing outfit, Powell, Bullard and Company, allowed the use of their timber, located near the town of Ocilla in southeastern Georgia. Using the producer’s labor to determine how easily the transition to cups could be made, Herty outfitted one-, two-, and three-year old crops (10,000 faces), half with his cups and gutters and the other half with boxes. Workers were instructed to chip, dip, and scrape normally. The gum collected using the two different systems was distilled separately. To render accurate dipping results, measurements were made of distilled products, not dip, which contained trash and water. The company sent the rosin to the Southern Naval Stores Company in Savannah for grading. The land-owning company kept the yield and profit records, which they later furnished to the Bureau.

25 “Can Forests be Saved?” Augusta, Georgia Herald, 20 October 1901, Turpentine newsclipping file, Forest History Society, Durham, NC.

26 Turpentine Operating in Georgia Forests, Atlanta Journal, 31 October 1901, Turpentine newsclipping file, Forest History Society, Durham, NC.

27 Herty, “Turpentine Industry in the Southern States,” 348, 350-351; Herty, New Method of Turpentine Orcharding, 18; Reed, Crusading for Chemistry, 21-22.
Problems plagued the experiment from the beginning. The cup manufacturer was slow to deliver. Herty had placed an order for 31,500 clay cups with the Chattanooga Pottery Co. of Downing, Tennessee. However the cups arrived a week late and with freight costs that nearly doubled their expected price. They were also not of the design Herty had specified; he requested oval bottoms, but instead received cups with flat ones. Labor problems also troubled the experiment’s launch, a difficulty that was anticipated but not for the particular reason it occurred. Producers, and Herty himself, suspected that the industry’s all-black labor-force “could not be taught to work in any but the orthodox way.” However with proper instruction, Herty found early on that workers could learn the new tasks well in only a few hours. Difficulties arose because the laborers had little faith in the strange new system that they were asked to install and felt it was beneath the dignity of good turpentine workers. As relatively light work, they believed it was more suitable for women and children. Those who reluctantly performed the task condescendingly termed themselves “cup niggers.” Herty, in exasperation, found that “the Negro laborers proved even more conservative than the white operators.” Eventually the workers were convinced to cooperate, squads were organized, and the work proceeded smoothly.28 Once the experiment was underway, there were early doubts that the new system was performing as hoped when the boxes showed greater output that the cups early in the season.

By the end of the season, however, records indicated that the cup system performed far better than the box. The virgin cups yielded sixteen percent more gum than virgin boxes, and the cup-collected gum produced eighteen percent more spirits than that harvested from boxes. When amounts of spirits derived from scrape were also considered, the difference was even greater—23.43 percent more spirits derived from gum collected in a cup. Although the second-year cupped faces collected gum that produced only 5.51 percent more spirits than boxes, the third

year yield was a substantial 58.58 percent greater and the fourth an impressive 66.29 percent more. The yield, combined with the superior quality of the gum, made profit percentage rise above yield percentage increases. Based on Herty’s Ocilla experiments, producers could expect to net $412.54 more from their crop of first year faces, $341.54 from second year, $513.38 from third year, and $516.48 from fourth year. The increase in the third- and fourth-year faces was largely explained by reductions in the distance the gum had to travel to reach the receptacle, since cups, unlike boxes, could be raised. New faces showed increased yield because of the cupped trees’ greater vitality over boxed ones and because less gum was lost in dipping cups than boxes. When removing the gum from a box, workers separated out the contents and transferred them to a bucket sitting several feet away. With cups, however, laborers removed the cup, held it directly over the bucket and scraped the gum out. The experiment also demonstrated that cupping proved less fatal to pines than boxes. Less than half the number of trees cupped blew down or died compared with boxed ones. Because it cost around $350 per crop to purchase and install cups and gutters, the expense could be made back in the first year of use. Although none of the tools except the gutter benders were specialized, all tools—cutting shears, broad axes, and claw hatchets—could be purchased from Chattanooga Pottery Company and shipped with the first shipment of cups.29

Despite the praise heaped on him by the press as the Ocilla study concluded, Herty made clear that he did not invent the concept of the cup and gutter system. He had merely devised a method whereby the lateral placement of the gutters, one about an inch higher than the other, facilitated the American style of chipping, thus making it adaptable to the American method of production. In fact, by the time Herty received his patent in 1903, at least fourteen other cup-

type devices for collecting raw turpentine were already registered. He openly acknowledged
having read bulletins on the French method, especially a publication prepared for a recent Paris
Exposition.30 “I have gained the confidence of the turpentine people by being absolutely fair and
truthful in every statement I have ever made them,” he proclaimed, “and I would not have this
record sullied by a silent assertion of credit to which I do not believe I am entitled.31

Herty did not wait for the season to end before proclaiming the Ocilla experiment a
success. He used both newspapers and trade journals to publish his efforts. Most importantly,
he delivered the keynote address at the newly-chartered Turpentine Operators Association
meeting in Jacksonville on the night of September 10, 1902. After listening to the Florida
governor, the leading turpentiners in the South, many no doubt anxious over approaching timber
depletion, eagerly listened to Herty explain his system that promised larger yields, less tree
damage, and would pay for itself in the first year.32 Despite the interest of his Jacksonville

30 E. Moulie to Charles H. Herty, 15 September 1902, Charles H. Herty to E. Moulie, 22
September 1902, and Charles H. Herty to George W. Wilson, 29 September 1902, Herty
Collection.

31 From early in Herty’s experiment, J.C. Schuler, who had developed his own cup
system in the late nineteenth century, regularly contacted him, offering his assistance and
reminding Herty of his own patented device. Despite Schuler’s apparent belief that Herty was
merely copying his earlier design, the two inventions were indeed different. Schuler’s device
consisted of one piece and gutters, and when raised could only be reinstalled on the barked tree
surface, thus reducing the potential area of a tree’s face. Schuler’s method also required that
deep incisions be cut in the tree to support his apparatus. The cut weakened the tree’s structure
September 1902, D.W. Ketchum to Charles H. Herty, 13 September 1902, Charles H. Herty to
John C. Powell, 21 October 1902, Charles H. Herty to Commissioner of Patents, 16 December
1902, Charles H. Herty to John R. Young, 11 October 1903, and Charles H. Herty to George W.
Wilson, 29 September 1902, Herty Collection.

32 In 1905 Herty estimated the cost at around $370, $260 for 10,000 cups and 1800
pounds of galvanized iron, $45 for freight, $4 for cutting and bending gutters, $1.50 for nails, and
$60 for labor. This did not include the cost of tools. Chattanooga Pottery Company sold broad
axes for $12 per dozen, claw hatchets for $6 per dozen, tin snips for $1.50 for two, gutter benders
for 75¢ each, gutter boxes for $50 each, gutter pullers for $1.50 each, and dipping knives for $6
per dozen. Herty Cup Hand Book, 1905, Herty Collection; Reed, Crusading for Chemistry, 23;
“To Save Forests,” New York Evening Sun, 10 September 1902, Turpentine newsclipping file,
Forest History Society, Durham, NC.
audience, Herty continued to find many producers cautious of change. He took hope, however, that their disposition would actually work toward the industry's advantage: "Our Southern people are conservative, they are not prone to run after novelties, but where conviction is based on careful thought success is assured by reason of the same elements of strength which are the basis of that conservatism." He felt confident that the entire industry would eventually be won over to the new system.33

Also excited by the results, Pinchot encouraged Herty to prepare a report on his success. Herty eagerly complied, desiring to put his beneficial information in as many producers' hands as possible. The Bureau, however, was slower to publish his report than he hoped. By late January 1903, Herty detected that interest in his system was decreasing as producers began preparations for the upcoming turpentine season and still no bulletin appeared answering questions and addressing concerns. To stimulate the use of cups, Herty, by that winter, began a tour of Georgia and Florida, explaining the benefits of his system and helping pioneering producers install their new cups and gutters. If Herty could not travel to an individual producer, he sent one of his assistants who had worked with him at Ocilla. Finally in May 1903, A New Method of Turpentine Orcharding was published. A forty-three-page Department of Agriculture bulletin with illustrative plates and drawings, it guided producers through the basic principals of the cup and gutter method. In it, Herty described the current boxing method and carefully identified its faults. He then gave an overview of his own experiments before detailing the directions and cost for installing, using, and raising cups and gutters.34

33 Charles H. Herty to Thomas Gamble, Jr., 12 July 1904, Herty Collection.

A New Method of Turpentine Orcharding outlined a procedure that differed little from the original method Herty first developed in 1901. Before work in the woods began, thirty-inch galvanized strips were cut into lengths of between six and twelve inches and placed in a special device that bent them. This preparation was usually performed in the cooper shop. Around mid-February the various sized gutters were separated and loaded onto a wagon along with cups for distribution in the woods. Once the equipment was placed in the forest, two ax men worked as a team to prepare each tree. Using broad axes, they created two flat subsurfaces about eight to twelve inches high by six to ten inches wide, beginning about one inch above the ground. The flat surfaces met at a wide angle just below where the season’s chipping would begin, each half the width of the face. At the top of this flat surface, the ax men made two incisions, one on each side of the face, declining downward, with one side about an inch above the other. Once the incisions were made, workers inserted the gutters into the slits, the bottom one first. In time the green wood tried to return to its former position and created the tension needed to hold the gutters in place. After the gutter was secured, a claw hatchet was used to even off the trunk where the cup would rest. Then another worker drove a nail two-thirds of the way into the tree just below the end of the lower gutter from which he suspend a cup. Usually two ax men and a cup man worked as a team.35 When dipping, workers slipped the cup from its nail and, using a


35 An alternative method was, however, soon available in a cup and apron system. The apron installed much like the gutters and also served to guide the resin into the cup. But unlike the gutters, the apron consisted of one piece of curved galvanized iron and it also served to hold the cup which inserted into a specially-designed grove. The apron was curved on one side to fit the tree’s round face and bent to prevent the gum from running over the edge, but guided it toward its slopping center where the gum then spilled into a cup. Asa L. Brower and John O. La Fontisee, “Report of the Investigation on the Naval Stores Industry and Statistics on the Production of Turpentine and Rosin for the Seasons of 1907-8 and 1908-9,” 15 March 1909, Austin Cary Memorial Forestry Collection, Department of Special Collections, George A. Smathers Libraries, University of Florida, 12-13, 15; James Berthold Berry, Farm Woodlands (Yonkers-on Hudson, NY: World Book Company, 1923), 339-340; Herty Cup Handbook; Herty, New Method of Turpentine Orcharding, 32.
metal knife, scraped the gum from the bottom and sides of the cup into a ten-gallon bucket placed directly below. Once filled, workers emptied the bucket into barrels placed intermittently throughout the woods. Dippers occasionally had more than a single cup to empty at each tree. Chippers sometimes removed full cups and replaced them with empty ones, especially during July and August when gum flow was the heaviest. The full ones were hung on nails about the trees' base and emptied by dippers on their next pass through the forest.36 Before scraping, which continued despite the reduced build-up of dry gum, workers removed the cups and gutters, dipping the former and cleaning the latter, and inverted the cups on the ground. After scraping the face, gutters were raised, allowing the entire winter for the wood to grip them.37

Just as producers began studying Herty's publication, he resumed his naval stores research with a European tour sponsored by the Bureau. He visited Austria, Holland, Belgium, and England, but his most fruitful study came during visits to France and Switzerland. In France he observed how naval stores production was carried on in cooperation with lumbering and attentive reseeding. Although the French system was admirable in its conservation, Herty concluded that it was too expensive for practical adaptation in the United States. In Bern he visited a Swiss scientist who worked on discovering how resin formed in conifers. Here Herty learned of the surprising discovery that the number of resin ducts increased in the new wood of wounded trees.38

Most of Herty's time in the years following his return from Europe was consumed with efforts to manage the company he co-founded to manufacture cups. Unable to find a producer of  

37 Herty Cup Handbook; Herty, New Method of Turpentine Orcharding, 38.
38 Reed, Crusading for Chemistry, 30, 32.
clay cups for his 1901 experiment and unsatisfied with the design, cost, and late delivery of the cups used in the 1902 study, Herty faced even more trouble in securing a manufacturer for cups to manufacture producers for the 1903 season. He failed to locate a company that would agree to produce enough cups of the correct design at the right price. He requested that the cups have oval bottoms, which the Chattanooga Pottery Company failed to provide in 1902, and he wanted the cups bigger to prevent a run-over of gum from especially productive trees. C.L. Kreger, the manager of Chattanooga Pottery, suggested the construction of a plant in the heart of the pine belt to specialize in turpentine cup production. After careful consideration, Herty, John H. Powell—manager of the firm on whose land Herty conducted his 1902 experiment—and other naval stores interests in Savannah and Jacksonville, principally Consolidated Naval Stores Company, put up the money for a plant. Because Herty, a modestly paid Bureau of Forestry researcher, lacked investment capital, Powell loaned him $1,000. In the end, the group did not build a new plant, however. Instead they bought Chattanooga Pottery. Powell served as the company’s president and Kreger remained as general manager.39

Herty continued as a researcher with the Bureau, which showed a continued interest in improving the naval stores industry, but persistent problems with the new company and conflicts with Pinchot strained Herty’s position there. Herty made it no secret that he intended to profit from his invention, at a rate of twenty-five cents per one thousand cups. Under the assumption that the Bureau knew of his plans, he began application for a patent which he received in early February 1903. But once Pinchot heard of these activities, he telegraphed Herty explaining that, as a Bureau employee, Herty could not charge for the use of the system. Herty reluctantly agreed to stop receipt of royalties. But activity with the company grew complicated. In order to move their supply, Chattanooga Pottery was selling cups at too low a price to profit and, by 1904, it

39 Ibid., 23-24, 26, 29.
still operated in the red. Now neither Herty nor his company was benefiting financially from the sale of cups. With Pinchot unwilling to budge on the royalty question and the company in need of his expertise, Herty respectfully resigned from the Bureau in March 1904.40

Pinchot offered Herty a considerable raise to stay at the Bureau, but Chattanooga Pottery offered a far greater return and became the company’s director. As an employee of Chattanooga Pottery, not only did Herty enjoy a far more lucrative position than he had held at the Bureau of Forestry, he could work at the same project as he had under Pinchot. In return for exclusive right to manufacture and sell Herty’s patented cups and gutters through the end of 1910, the company agreed to pay Herty $20 for each set of ten thousand. Herty would also work full time for the company from April 1, 1901 to April 1, 1908 at an annual salary of $2,400. His duties included promoting the cups, stressing the importance of early ordering, assisting producers with installation, and instructing workers in how to use the system. He was also required to defend the patent and protect it from infringement at his own expense. At the end of 1910 Herty was promised the opportunity to purchase the plant at a fair price.41

As director Herty saw the company through several crises involving the cups. First, in January 1905, a bitter freeze hit the southern naval stores belt causing the water in hanging cups to turn to ice, cracking them. Damage varied considerably among producers. One in Apalachicola, Florida, lost twenty-five percent of two crops, around five thousand cups. In other areas damage was heavier. A Shellman, Georgia, producer lost ninety percent of his cups, a total of 15,000. Some very large producers lost as many as 80,000 to 90,000 cups. The producers hit hardest by the freeze unfortunately were the first ones to show confidence in the system. After investigation, Chattanooga managers realized that fifty percent of cups at least half full of water,

40 Ibid., 28-29, 34-37.

41 Ibid., 41-43; Charles H. Herty to C.A. Howell, 10 January 1905, Herty Collection.
broke in freezing temperatures. Luckily for Chattanooga Pottery Company, few producers demanded that the company replace the broken cups at its own expense. However, the company did face a problem filling the sudden flood of orders from turpentiners hoping to replace their broken cups before the next season. Lacking the capacity to fill the orders, Chattanooga had to turn to other potteries for help. After the 1905 freeze, Chattanooga recommended that producers remove the cups and set them inverted on the ground during the winter months. Second, following the 1905 freeze, the American Can Company began marketing galvanized metal cups as winter-proof substitutes for clay ones. Chattanooga reached an agreement with American Can, which claimed to know nothing of the patent, whereby American Can sold metal cups through Chattanooga to operators who preferred them over earthen cups.\textsuperscript{42}

Each type of cup possessed both benefits and disadvantages. Clay cups cost half as much as metal cups, but clay cups were more likely to break. If they remained on the tree all winter, they could break during freezes. During summer fires, water standing in the clay cups caused the same result by cooling the cup’s interior so that it expanded less than the hot exterior, causing breakage. Clay cups were also heavier and therefore more expensive to ship from the factory to the producer. Although metal cups were cheaper to ship and did not break as easily, they tended not to perform as well as clay ones. Because the gum clung more stubbornly to their sides, workers used a metal knife to scrape the cups which wore away the galvanizing, allowed rusting, and shortened the cups’ lives. The rust also, no doubt, colored the gum, lowering its

grade. Producers also complained that the metal cups heated more on sunny days, causing the evaporation of some of the spirits.43

With either type of cup, however, Herty's system possessed all the benefits he intended and at an affordable price. The expense of beginning the new method was more than offset by the higher quality and greater quantity of gum as well as through the preservation of the timber that boxes damaged. The cup reduced the mortality of turpentined trees by reducing the interruption in sap flow and structural weakening of the tree. The cup also lowered the turpentine forests' susceptibility to fire by eliminating the box—which allowed the damaging heat from fire to penetrate deep into the trees' base—and by reducing the amount of hardened gum collected on the face at any given time of the year. Also, the ability of producers to move cups up the side of the face each spring facilitated a more efficient gathering of soft, high-grade gum throughout each harvest season. The improved method permitted turpentiners to manufacture rosin of a high quality that could not have been imagined before the twentieth century. Where No. 1 rosin was the very best for which producers could have hoped before, by the 1910s there were at least five grades above that. The best quality, Window White, sold for around twenty-five percent more than No. 1. And because the cups could be removed and emptied directly over the dip buckets, workers could more efficiently harvest the gum. Moreover, the ability of chippers to replace full cups with empty ones between dippings enabled better collection from particularly productive trees. Around 1910, this improved grade raised returns by one to two dollars per barrel. In years when depressed markets drove profit margins down, the use of cups could make the difference between a net profit and a loss for the year. The use of cups also made the formation of scrape consistent from year to year, ranging between fifty and seventy barrels

per crop. As early as 1903 Progressive Farmer extolled the virtues of Herty’s system. “The cup-and-gutter system,” it reported, “works to great advantage both for the turpentine operator and the owner of timber lands. It assure [sic] the former an immediate profit at very little additional expense, and the latter by inflicting the least possible damage to his timber.”

Some producers, however, negated the benefits of the cup by putting too many faces on their trees. Twice as many faces did not yield twice as much gum per tree. On pines eleven to thirteen inches in diameter two feet from the ground, two faces yielded only fifty percent more gum than one face. In one crop this reduced the yield per cup by ten to fifteen barrels. The trees also suffered from the extra chipping which reduced the amount of cambium tissue. At best the tree’s growth was severely reduced. At worst the pine was essentially girdled and died. The larger surface of the wounded trunk left weakened trees more vulnerable to insects and disease. Weakened trees were also more susceptible to wind. Only pines sixteen-inches in diameter or larger could yield enough gum to justify the cutting of two faces.

The worst abuse of the cup system, however, was the effort to harvest gum from trees under six inches in diameter. As the amount of virgin timber declined and second-growth appeared in some areas, desperate producers fitted saplings, that would have been far too small to box, with cups and gutters. Not only did the yield from such small trees rarely cover the expense of their operation, but the shock halted their growth and weakened many to the point of death. Moreover, in cupping small pines, producers were ensuring that second-growth stands of


45 “Larger Profits in Turpentine,” The Progressive Farmer (15 June 1903), Turpentine newscipping file, Forest History Society, Durham, NC.

sufficient size would never permit the industry's continuation. Even by the late 1920s this abuse remained a persistent problem.47

Despite occasional misuse, producers generally recognized the cup and gutter system's benefits and, after a slow initial start, began a steady adoption of the method. In the first year, only a few producers had access to the limited supply of equipment but, by 1904, cups and gutters were more readily available. Several events in the first decade of the twentieth century helped the situation. The endorsement of several forestry organizations and support of the factors, who agreed to lend the capital for investment in cups and gutters, aided sales.48 The Executive Committee of the Consolidated Naval Stores Company, for example, pledged "to use every influence to our respective commands toward bringing about as near as possible the universal use of cups as against boxes in the production of naval stores."49 Then in September 1905, a hurricane crossed southern and western Florida, blowing down ten percent of the boxed trees and none of the cupped ones. After this natural demonstration orders rose.50 However, a rise in naval stores prices at the same time prevented sales from reaching their potential and the pottery facility's capacity went untested.

By around 1910, the use of cups showed promising expansion in first-year crops, especially among large producers whose substantially-sized operations were the most threatened by the reduction in large timber tracts. Where only fourteen percent of all spirits produced in


49 "Turpentine Makers Advocating Conservative Methods," Turpentine newsclipping file, Forest History Society, Durham, NC, 1.

50 Charles H. Herty to Dixie editor, 1 August 1904, Herty Collection.
1908 and 1909 came from cupped trees, about a quarter of the spirits from virgin crops did.\textsuperscript{51} In his 1910 travel account of Florida, Winthrop Packard expressed relief that “the old crude method of boxing the trees is fortunately, rapidly passing and in the place of the great hole cut in the base of the trunk one often passes through miles of trees that have flower-pot like receptacles hung beneath them to catch the pitch.”\textsuperscript{52} Five years later, two industry experts found that “the damage to standing timber due to turpentine operations has been considerably reduced.”\textsuperscript{53}

However, for total gum production, including both old and new crops, cup use was much higher in the western areas of the longleaf pine belt (fig. 8.1). In Mississippi and especially Louisiana and Texas a few large and well-financed corporations owned large areas of the remaining virgin forests and either adopted the cups, if they worked the timber for turpentine themselves, or insisted that their lessees adopt the system. In 1909 34.5 percent of the total southern turpentine yield was collected in cups. In some states the percentages were much higher, 44.7 in Louisiana and 43.5 in Texas. By contrast, Herty’s system was responsible for collecting only one percent of all gum in Georgia, 16 percent in Florida, and 8 percent in Alabama. There was an equally great divide between the East and West in terms of first-year crop use of cups. In Georgia, where turpentine had been produced longer and smaller and mid-sized operations were common, only 10.5 percent of gum came from cupped trees where in Texas and Louisiana, the newest producing states with the greatest concentration of larger producers, 59.5 percent came from cups. Regional difference in cup use was a major contributing factor, along with better quality timber, in the larger yields produced in the more


\textsuperscript{52} Packard, \textit{Florida Trails}, 281-282.

\textsuperscript{53} Schorger and Betts, \textit{The Naval Stores Industry}, 40; For figures related to the number of crops employing boxes and cups see Appendix A.
Percentage of Crops Worked by Cup System by State
1909, 1914, and 1919

Figure 8.1. Percentage of Crops Worked by Cup System by State, 1909, 1914, 1919

western areas (fig. 8.2). In 1919 Texas, Louisiana, and Mississippi had a combined average yield of forty-three barrels of turpentine per crop, compared to Georgia and Florida’s yields of slightly less than twenty-six barrels. Although this regional disparity persisted, cup use continued to grow in all areas. Across the South from 1909 to 1914 its use increased 395.7 percent and the number of crops using the box system declined by 64.3 percent. By 1916 an estimated 75 percent of crops used the cup and gutter method and in 1919 over 80 percent (fig. 8.3). 54

Figure 8.2. Turpentine Yield Per Crop, 1909 and 1919

Figure 8.3. Total Number of Crops Worked by Cup and Boxing Systems, 1909, 1914, and 1919
For a variety of reasons some producers refused to adopt the cup and gutter system. Despite ample evidence that the system would quickly pay for itself, in the first years after its development there remained uncertainty. Even if the equipment would pay for itself within a year, its adoption required a large initial capital outlay that some financially-strapped producers could not afford. Although Herty developed his system to deviate as little as possible from the traditional turpentining method, other producers objected to the training their workers required to use the cups. These operators believed cupping represented too great a departure and, realized that if inadequately trained, laborers could cause the near complete loss of gum by improperly installing the system. Also, many workers complained about the new extra work of hanging and removing cups. Chippers did not like the added burden, required by some producers, of performing their job at each face after placing a shield over each cup to prevent pieces of bark and wood from falling in. There were also problems with the cups themselves. Careless workers broke them accidentally and, despite manufacturer’s suggestions to prevent it, freezing temperatures caused many to crack. One Georgia producer had to remove his clay cups from roadside trees after passing travelers shot at them. In response to that percentage of producers who continued to use boxes, Weekly Naval Stores Review editor Thomas Gamble complained that “the method of exploitation commonly followed during the last hundred years is crude, wasteful, destructive, and sadly shortsighted.” He blamed “inertia, not financial obstacles” as “the chief reason why these conservative methods have not been more generally employed.”

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The conservation efforts that began to spread across the South in the early 1900s and of which Herty was a part, had their origin outside the region where they began three decades earlier. In the mid 1870s, concerned Americans, many of them from the North who had watched their own disappear into sawmills, began efforts to conserve the nation’s forests. George Perkins Marsh advocated the preservation of large timbered areas in a “natural” or “primitive” condition. At the same time the American Association for the Advancement of Science established a committee to promote federal and state legislation to protect forests and encourage timber cultivation. Partly as a result of its efforts, Congress in 1876 appropriated funds for a forestry agent at the Department of Agriculture. By 1890, conservation was becoming popular in the South. Albert Cowdrey identifies three late-nineteenth century developments that pushed the region toward support of conservation: depletion of resources, growth of organization, and the development of science. The South by 1900 could find much about the conservation movement to support. It offered the region improvements in agriculture, forestry, river basin planning, and public health. These improvements fit well with the New South Creed, which sought efficient resource use and development and was not shy about accepting outside help or leadership to accomplish these ends. Pinchot, as director of the Division of Forestry, won the region’s timber product industries over to scientific forestry by offering considerable assistance to their resource management efforts, help they readily accepted.57

Southerners grew even more interested in forestry and government research assistance as Herty’s argument that the cup and gutter system alone could not save the naval stores industry proved accurate. He maintained that “so long as the system of leasing turpentine privileges from timber owners continues, whereby the turpentine operator has but slight direct interest in the

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future of the timber, and so long as the saw mills continue active in cutting small trees along with
large ones, while the native follows with burning the woods each spring for his cattle thus
preventing reproduction there can be but little hope of permanency. The rich harvest provided by
past centuries is limited. It is being rapidly garnered. Unless something be done for
reproduction in the waste places the end will be reached before very many years pass by.”

With the increasing timber scarcity, forest products manufacturers attempted to make the best use
of what little remained. Turpentiners and especially large lumber companies invested in
remaining virgin forests in excess of the near-term needs. In June 1901, the *Atlanta
Constitution* reported that “Savannah naval stores factors and shippers have long realized the
condition of affairs in Georgia and it is only within the year that several firms there have
purchased in the aggregate hundreds of thousands of acres of turpentine land for the purpose of
keeping their business going. They went to Florida because there they could get the virgin
forest.”

The lumber industry was responsible for a large portion of the forest’s rapid loss. In
1909, lumber production peaked at twenty-one billion board feet, nearly half of the country’s
total. Although it declined after that, southern sawmills remained busy for the next two decades.
Turpentining, however, also took its toll on timber stands. By 1909, the turpentine industry was
responsible for the lose of an estimated thirty-seven billion board feet of southern timber.
Georgia lost more than any other turpentine-producing state, ten billion board feet. Thirteen

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58 Charles H. Herty to Dixie editor, August 1, 1904, Herty Collection.


60 Over a month later, W. D. Wood of Darlington, South Carolina, complained in a letter
to the editor of the *Charleston News and Courier* that the region’s rapid deforestation was certain
to result in soil erosion and flooded streams. “Plea for Long Leaf Pine,” *Charleston New
Turpentine newsclipping file, Forest History Society, Durham, NC.
billion disappeared from the Carolinas. Florida, where the industry had only recently expanded, lost five billion; Alabama, where the industry had continued steadily since the Civil War, saw a reduction of six billion; and Mississippi fell by three billion. By 1915, the supply of longleaf was growing acutely short in North Carolina, South Carolina, and Georgia and, although considerable stands remained in Alabama, Mississippi, Louisiana, and Texas, most were controlled by large syndicates who refused to permit turpentining. Florida offered the best turpentining opportunities, because a large portion of the timber was owned by small investors.61 But, by the 1920s, Florida too suffered from timber depletion. After 1923, the state lost its status as the leading naval stores-producing state, its timber worked out, cut out, and consumed by widespread forest fires. In 1920 the United States Secretary of Agriculture reported to the Senate that “so pronounced is depletion of the timber upon which our naval stores industry depends for its supplies that it is commonly regarded as a dying industry in the United States.”62 By 1923, only between one-fifth and one-sixth of the original pine forest in the South remained. Of the roughly one hundred million acres that had been cut over, one-third lay wholly empty of new growth. In a few areas of the South, sizable tracts of virgin pine remained, but many counties had lost their forests entirely.63


By encouraging reseeding, the development of the southern pulpwood industry helped as well make forestry appear more attractive. The industry first emerged in the South in Hartsville, South Carolina in 1891, and by 1930, two dozen small mills had opened. Pulpwood processing became a significant factor in the southern economy by providing a steady market for small trees. Owners of clear-cut land could replant and wait but a few decades, if they so desired, before selling the immature trees for pulpwood. When stands were now thinned, the small trees selected for cutting provided an early, although small, return from forest land. Thus forest owners did not have to wait for the trees to reach full maturity to realize a return.  

Along with the continued loss of timber and the pulpwood industry's encouragement of reseeding, Herty helped promote conservation in the South. His success inspired continued applied research at the Forest Products Laboratory in Madison, Wisconsin, established in 1910, and at government experiment stations set up in Florida and Mississippi. And because Herty had developed such a useful system with which the producers' needs were made central and since he had proved so genuinely eager to work with them in improving the industry, more naval stores men were afterward willing to consider other conservative methods developed by foresters.  

Herty's work began when the South's conservation movement was in its infancy. As early as the late nineteenth century a few state efforts had begun. In 1894, North Carolina produced a report on the condition of the timber lands in the eastern portion of the state and two years later Alabama began a similar study. The most important and sustained effects originated in the early

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64 "The First Forest," 3.

65 Herty's greatest achievement in southern forest use, however, came nearly three decades later when as the director of the Savannah Pulp and Papers Laboratory, funded by the City of Savannah and the Chemical Foundation, he demonstrated that with the proper treatment, southern pines could be used in newsprint manufacture. Before Herty's later efforts, newsprint producers avoided southern pines because the excessively-pitchy southern pine pulp gummed up paper-making machines and the sheets that did make it through were too dark in color to use. Reed, Crusading for Chemistry, 47; Courson, "Here Began a Revolution," 12-13.
twentieth century. In 1904, progressive Louisiana lumberman Henry E. Hardtner, who in the late nineteenth century began purchasing cut-over land and reseeding it, convinced the Louisiana state legislature to create a Department of Forestry. However, the state never funded the project. By the 1910s the pace of southern forestry development quickened. Virginia, Texas, North Carolina, and Louisiana organized divisions of forestry and some southern colleges began offering courses in forestry. In 1914 Georgia established the region’s first forestry school. Later that same year, the Southern Pine Association was organized, and in 1916 the Southern Forestry Congress held its first meeting. Organized by the North Carolina state geologist Joseph Hyde Pratt, forester John S. Holmer, and Hardtner, the Congress sought to address the region’s forest problems. Meeting into the 1920s, it campaigned for additional national forests, reforestation, more scientific methods of naval stores production, creation of a research organization, the passage of the Clarke-McNary Act of 1924—which provided for state and federal cooperation in forest management—and the development of state forestry departments. In an effort to encourage the regrowth of forests, between 1924 and 1927 all the naval stores producing states established forest extension services.66

With all these efforts in place by the mid 1920s, optimism settled over the South.67 In 1923, the American Forestry Association magazine reported that “provided that forestry is practical in the piney woods of the South, southern pine can maintain and even increase its ascendancy in the lumber markets of America and the world.”68 One year later, Thomas Gamble, editor of the Savannah Weekly Naval Stores Review, expressed relief that “a new sentiment has

66 Frank Bedingfield Vinson, “Conservation and the South, 1890-1920,” (Ph.D. diss. University of Georgia, 1971), 124-125; Cowdrey, This Land, This South, 137; Davis, Encyclopedia of Forest and Conservation History, 476; Martin, “An Historical and Analytical Approach,” 139-140.


sprung up in the last few years through education and the spreading of more exact knowledge as to actual conditions, and there is apparent today in every state a group working for the protection of the young pine.”

Despite the considerable attention focused on forest conservation, the naval stores industry itself failed to create any association strong enough to address effectively its specific problems. Charles Herty found it “strange that an industry as large as this one has no organization of any kind, no meetings for the discussion of subjects pertaining to its welfare.”

This situation did not result from a dearth of organizing initiatives, but from the failure of producers to maintain interest in such organizations once formed. Since the late-nineteenth century efforts to establish regional associations had produced only short-lived groups. Another attempt was made in 1901 with the formation of the Turpentine Operators Association, which hoped to respond to the diminishing supply of virgin timber, overproduction, and soaring labor expense. The association met with very limited success in its short life, however. There was a small decrease in production in the following years, but it was probably a result of declining timber availability. Other efforts at organization met similarly short-lived and disappointing results. In 1909, Texas and Louisiana producers created the Western Naval Stores Association headquartered in Beaumont, Texas. Producers, factors, and dealers in 1914 created the Turpentine Farmers Association, headquartered in Savannah. In the late 1910s the Turpentine and Rosin Producers Association of New Orleans formed. All of these groups lasted for short periods and suffered from the turpentiners’ inability or unwillingness to cooperate in lower

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production. When naval stores prices declined, producers were more likely to increase
production, the greater output seeming the best way to preserve cash flow. Because of
paternalistic labor policies and multi-year timber leases, even financially independent operators
faced difficulty curtailing production. Few operators who owned their own land increased their
production during periods of low prices.71

In the 1920s, turpentiners experienced somewhat more success in addressing their own
concerns. Founded in 1925 and based in New Orleans, the Pine Institute of America conducted
experiments to discover the chemical properties of turpentine and rosin and to develop new uses
for these products. It also sought improved marketing, encouraged scientific forestry, and
lobbied for government experiment stations. But it closed within a decade because of
insufficient financial support. Turpentiners also benefited from such groups as the Georgia
Forestry Association, which focused a portion of its attention on naval stores production.
Organized in 1921, the Association included among its aims preserving the naval stores industry
and perpetuating of the new pulp and paper industries from what appeared as a certain
devastation of the state’s forests and then the eventual loss of these businesses. The Association
worked to encourage cup use and limit the size of trees worked. It also advocated fire
protection.72

71 Turpentine Operators Association members agreed to pay $1.25 for each box cut, $22
for chipping each crop, $3 1/3¢ per barrel dipped, $20 to 25¢ per one hundred trees racked, $16
for driving a two-horse buggy a month, and $20 for driving a four-horse one. Butler, Treasures
of the Longleaf Pines, 247; A. Vizard to Charles H. Herty, 19 December 1900; Herty Collection;
Herty, New Method of Turpentine Orcharding, 9; Martin, “An Historical and Analytical
Stores Industry,” 50.

72 Butler, Treasures of the Longleaf Pines, 247-248; George H. Priest, Jr., Naval Stores:
Production, Consumption and Distribution (Washington, DC: United States Department of
Commerce, 1927), 3; Thomas F. Armstrong, “Georgia Lumber Laborers, 1880-1917: The Social
Implications of Work,” The Georgia Historical Quarterly 67 (Winter 1983): 438; Brower and La
Fontisee, “Report of the Investigation on the Naval Stores Industry,” 1, 70; Campbell, et. al.,
Naval Stores Industry, 77; Martin, “An Historical and Analytical Approach,” 112, 140; L.F.
Hawley, “Forest Service Investigations of Interest to the Naval Stores Industry,” in Naval Stores:
In the absence of a strong organization to focus on improving the naval stores industry, most efforts were initiated by the federal government. The government-supported conservation agenda represented a new cooperation between business, state, and federal agencies in the South, an alliance also seen in the first decades of the twentieth century with efforts to fight the boll weevil and improve public health. At the federal level, one means used to encourage improved practices was by placing leasing conditions on public pine land used for turpentining. Beginning around 1910, for example, turpentining was permitted in the Florida National Forest as a means to add income to the site's management. When the Forest Service leased boxes it demanded the strictest adherence to the improved methods. Only timber in an area designated by a forestry officer could be worked. Pines smaller than ten inches in diameter at breast height were off limits. Trees sixteen to twenty-five inches in diameter were allowed two cups and pines larger than twenty-five inches in diameter were permitted three cups. Cups and aprons had to be placed as near to the ground as possible. No nails could be used to attach the cups or aprons to the tree and, when the aprons were removed, it had to be done by pulling, not chopping. Chipping streaks were not to exceed one-half inch in height and the face was not to rise more than fourteen to sixteen inches each year. And the hack or puller used had to satisfy the Forestry Service officer. During July and August, the most productive months, two streaks could be made on a face in a week but the height could still not increase more than one-half inch. If the forester discovered the chipping process was in violation of regulations, he could remove cups.

Producers had to pay for any badly damaged trees. Each tree was worked fourteen out of fifteen years. Front faces were worked for seven years. Following a year of rest, back faces were worked for another seven. Producers had to agree to expend all possible means to suppress

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History, Production, Distribution and Consumption, ed. Thomas Gamble (Savannah: Review Publishing and Printing Company, 1921), 139; “Welcome to Annual Meeting Georgia Forestry Association, at Savannah,” 8 May 1942, Georgia Forestry Association Papers, Special Collections Division, The University of Georgia Libraries, University of Georgia.

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forest fires, even placing their workers at the disposal of Service officers to fight the blazes. If laborers were impressed to fight fires more than one mile from the lessees timber the producer would be compensated for their service. As a precaution against fire, a space of three feet was to be raked around each tree. Finally, Forestry Service officers had unlimited access to records of production, cost, and yield to ensure that all requirements were met.73

Then, in 1908, an Agricultural Appropriations Bill allotted ten thousand dollars for a study of how the turpentine industry contributed to the death of the southern forest. By 1917, the United States Forest Service had published seventeen bulletins on naval stores production, Herty’s 1903 booklet on his new harvesting method being one of the most important. Within a few years, the Forest Service operated two experiment stations in the South, one in Asheville, North Carolina, and another in New Orleans. Both worked on efforts to reduce forest destruction caused by turpentining. In 1923, tests began at a branch station at Starke, Florida, on private second-growth tracts granted for the Service’s use. Here foresters experimented with methods that would result in profitable turpentining, high gum yield, and conservation of the harvested pines. The men who worked for the Service at this time received pay from the government, but large naval stores companies and factors had to cover the cost of their travel and accommodation when they worked in the field. At times foresters found themselves staying in private homes.74


74 In 1911 and 1912, the Forest Service conducted experiments on different pine species in Arizona, California, and Oregon to determine their feasibility for producing turpentine. Although the pines of the West yielded sufficient gum, the cold weather in Arizona, which began earlier than in the Southeast, shortened the production season there. There was also a dearth of skilled labor. All potential workers, whites, Indians, and Mexicans would have required extensive training and the cost of importing experienced black workers from the South was deemed too expensive. Schorger and Betts, The Naval Stores Industry, 44-46; Vinson, “Conservation and the South,” 154; “First Forest,” 2; Lenthall Wyman, Experiments in Naval Stores Practice (Washington, DC: United States Department of Agriculture, 1932), 5; G.P.
Austin Cary was arguably the most influential federal forester to bring improved scientific management to the turpentine industry during this new era of government involvement. Born in Massachusetts in 1865, he studied biology at Bowdoin College where he received his undergraduate and graduate degrees. He also attended The Johns Hopkins University and Yale University. Cary entered the new field of forestry after a 1892 chance meeting with Bernard Fernow, the head of the U.S. Division of Forestry, who hired Cary as a forestry surveyor and investigator. With practical knowledge of forestry and an academic mastery of natural sciences, Cary went on to teach at Yale in 1904 and the next year at Harvard. He also authored a Manual For Northern Woodsmen, a well-known, straightforward guide to land surveying, forest mapping, timber estimating, and log and wood measurement. As an advocate of private enterprise and believer that economic motivation was the best road to conservation, Cary drew strong opposition from Pinchot, who promoted government-ownership and control of forest resources. But with Pinchot removed from office in 1910, Cary’s forestry career advanced; Cary would remain with the Service for twenty-five years, until his retirement. His first assignment was on the West Coast, but his graceless and unsociable behavior, combined with his resentment of government over-regulation, caused him to clash with his supervisors and eventually led to a transfer. From several options he chose the South, where he began work the next year.75

Shigler, interview by R. White, 30 June 1959, Oral History Interview, Forest History Society, Durham, NC, 4.

75 “List of Materials in the Austin Cary Memorial Forestry Collection,” Department of Special Collection, George A. Smathers Libraries, University of Florida, i; Gloria Hutchinson, “Pioneer Maine Forester, Austin Cary: A Diamond in the Rough from East Machias, He Wrote the Book on Modern Forestry,” Austin Cary file, Forest History Society, Durham, NC, 51-53, 68, 71-72; Vinson, “Conservation and the South,” 159-160; Cowdrey, This Land, This South, 137-138; Shingler interview, 6; Peter Koch, Utilization of the Southern Pines (Washington, DC: United States Department of Agriculture, 1972), 1478; “Austin Cary,” Austin Cary File, Forest History Society, Durham, NC, 28-29; Berry, Farm Woodlands, 345.
Headquartered in Florida, Cary was left to operate on his own as the Forest Service concentrated most of its efforts in the West. Here he set about achieving his goal of stabilizing the southern forestry industry. His straight-forward manner (which had caused problems in the West), his support for private property rights, and his opposition to government regulation helped him win southerners over to forestry, his greatest career achievement. Cary understood how to approach the individual producers and gradually convince them to accept his scientific ideas. First he asked producers if they had any problem with their operation, then walked into the woods with them, evaluated the situation with the producer, and suggested solutions. Through his efforts, turpentine operators learned the best size of steaks, the most productive chipping frequency, the optimal diameter tree for gum production, the appropriate number of faces per tree, the effects of turpentining on tree growth, and the benefits of the cup and gutter system. They so trusted Cary and his recommendations that, at their request, the Forest Service sent him on a trip to France in 1924 to observe the conservative management of the maritime forests there. Cary continued his work in the South even after his retirement in 1935. By this time many in the region considered him the father of southern forestry. He was visiting forestry students at the University of Florida when he died of a heart attack in 1936.76

Whereas Austin Cary is perhaps most notable for his successful efforts to advance applied conservative methods, another federal forester made the most numerous research

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76 Cary conceived a plan, apparently based on the French method, whereby, he believed, the turpentine industry could make the maximum use of timber. According to his proposal, trees should be bled for the first time at twenty to twenty-five years of age and worked for three years before allowing them to rest for another ten. After this period they could be cupped again and trees larger than fifteen inches could be fitted with two cups. After three years of work and another ten years of rest, the process would be repeated. “List of Materials in the Austin Cary Memorial Forestry Collection,” i; Hutchinson, “Pioneer Maine Forester,” 51-53, 68, 71-72; Vinson, “Conservation and the South,” 159-160; Cowdrey, This Land, This South, 137-138; Shingler interview, 6; Koch, Utilization of the Southern Pines, 1478; “Austin Cary,” 28-29; Berry, Farm Woodlands, 345; Richard C. Davis, Encyclopedia of American Forest and Conservation History (New York: Macmillian Publishing Company, 1983), s.v. “Austin Cary.”
contributions. Eloise Gerry, who sometimes worked with Cary, pioneered studies into a problem that continued to plague turpentine producers after the development of the cup system. Although the cup reduced the damaging effects of turpentining a tree, the wound created by chipping continued to harm the pine. Herty himself recognized that “if the tree is not wounded, turpentine is not produced; if it is girdled, the tree dies. Somewhere between these extremes lies the most efficient operation.”

Gerry, who held a Ph.D. from the University of Wisconsin, undertook research to discover this balance. Trained as a wood anatomist and specializing in the study of wood formation and development, she focused on discovering what caused gum to flow from turpentinized trees. Working at the Forest Service’s Forest Production Laboratory in Madison, Wisconsin, Gerry discovered that resin ducts were much more numerous in the trunk just above the most recent streak. Gerry examined the development of resin duct tissue, refining the data produced from earlier studies. Her work led to the recommendation that producers follow the installation of cups and gutters with an immediate chipping and allow the tree to stand for about a month before regular chipping began.


79 Her work continued studies that had begun in the first decade of the 1900s. While in Europe in 1903, Herty learned that extra resin ducts formed in trees above and below the worked face after two to four weeks. This explained why the boxes had yielded greater amounts of gum with the first dipping than had the cups in the 1902 experiment. With boxing, the practice of cornering caused the extra ducts to form early, before the first chipping. In using the cup system, resin ducts did not begin to increase until after the first chip of the season, meaning the increased resin flow did not come until later. Herty, “Turpentine Industry in the Southern States,” 360-362; Schorger and Betts, Naval Stores Industry, 10.
Gerry’s work also provided a scientific basis to explain the benefits of lighter chipping, a justification many operators required before altering their practices.Smoke. One of the greatest obstacles to light chipping was a persistent belief that originated with the naval stores industry’s introduction into America, that gum was tree sap. By the first year of the twentieth century, American scientists understood from Gerry’s work that unlike sap, which was water-based and circulated between the roots and the needles, gum was manufactured by the resin ducts in the layers of new wood just below the bark. At the time a tree was chipped, it contained no gum. Rather, the trees’ exterior wood cells manufactured gum following the wound as a way to protect the exposed wood from insects, disease, and evaporation. Although many producers accepted the finding, the older idea persisted among some into the 1920s. One forester now found that “it seems difficult to get away from the notion that by tapping gum is drained from a reservoir in the tree...”

Gerry further discovered that the extra resin passages that formed as a result of wounding were most numerous in the rings nearest the bark and extended up the trunk from two to three feet from the point that chipping began each year. Narrow streaks kept the face in the maximum area of production throughout the year. If producers chipped three-fourths to one inch each time, the face would rise out of the region with the largest number of resin ducts. Narrow streaks also

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80 Before 1910, Forest Service experiments at Walkill, Florida, demonstrated that chipping only one-half inch wide and deep would provide the same gum yield as broader and deeper chips while a the same time doubling the working life of the tree and reducing mortality. Beginning in 1910 government turpentine leases in the Choctawhatchee National Forest in Florida required lessees to chip no more than one-half inch each week at a time when chippers commonly removed three-quarters to one inch of bark. Over the next decade some producers switched to lighter chipping. Eloise Gerry, Improvement in the Production of Oleoresin Through Lower Chipping (Washington, DC: United States Department of Agriculture, 1931), 3; Dyer, “History of the Gum Naval Stores Industry,” 7; T. F.P. Veitch and V.E. Grotlish, “What Uncle Sam Does for the Naval Stores Industry,” in Naval Stores: History, Production, Distribution and Consumption, ed. Thomas Gamble (Savannah: Review Publishing and Printing Company, 1921), 136.

81 Hawley “Forest Service Investigations of Interest to the Naval Stores Industry,” 140.
protected a layer of sapwood behind the face, which kept the tree vibrant by severing only a few of the passages used to carry sap between the roots and the needles. They also helped protect the resin-producing cells from the damaging effects of drought. If chips were cut too deeply or the gutter or apron driven too far into the trunk, the sap wood could be cut through. Very large trees were especially susceptible to this threat because the sapwood tended to be thinner. If the sap became severed the tree would begin to dryface. It was important to keep the tree healthy to ensure that it achieved optimal annual ring growth. Gerry researched the O hack, whose .75-inch blade was designed to make a smaller streak. However, the O hack required more effort to make a chip and workers complained that they could not make their tasks as quickly as with the No. 1 hack. Workers also had difficulty beginning light chipping on a virgin year because of the difficulty involved in stooping to reach such a low point on the truck. Workers were perplexed when they received instructions to chip lightly. For all the previous years they had worked in turpentine, they were taught that “The deeper you go into the meat, the more blood you get.”

By 1931 Gerry’s continued experiments showed that one-fourth inch chips yielded the best results. Although wider chips could yield more gum initially, the shorter chips allowed longer production from some of the short resin ducts that Gerry discovered. One-fourth inch chipping provided for better wood development and greater growth of oleoresin-yielding tissues. There was no need, she believed, for faces to exceed eight to twelve inches per season. The low chipping exposed less wood to pitch soaking and insect attack. It also helped maintain the tree’s vigor and wood formation, which later made trees more valuable for timber. Gerry forthrightly

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83 Maunder, *Voices from the South*, 36.

84 Such narrow chipping required the O hack or even the newly invented OO hack with a .625-inch wide blade. Low-faced trees continued to produce new wood growth, even during the
conceded that if producers were harvesting for the short-term before logging their timber, they could indeed collect more gum through moderately high chipping. Lessees too might opt for more intensive chipping since their short-term interests might be best served in this manner. Ultimately, however, producers could gain more gum in the long run from a forest worked using lower chipping.\(^8\)\(^5\)

Although working in a field almost completely dominated by men, Gerry was highly respected by both the foresters and producers with whom she worked. Her research and publications were taken seriously and her recommendations adopted.\(^8\)\(^6\) Her presence in the field, however, caught the foresters of the 1910s and 1920s, who politely referred to her as “Miss Gerry,” off guard. One, for example, described her as “a very bright able woman.” He also found her “very attractive. She had a good figure, a pretty face, a good complexion, but she couldn’t talk about anything but her job. She was just as sexless as old Doc Cary.”\(^8\)\(^7\) The southern racial climate demanded that special arrangements be made when Gerry journeyed to the region for her research. On one trip, her studies required that she collect fresh wood chips by following a black chipper through the woods for a day. The forestry supervisor, however, “couldn’t hear to that. A girl would have been in great danger right off the bat.” So, for several later years of harvesting. The pines apparently adjusted to the continued production of oleoresin. Where severely chipped trees slowed their growth by one-third to one-half, low-chipped trees reduced their growth only a little, even above the face where the growth was most affected. In the healthier, low-chipped pines the face healed over quicker with new wood growing at the sides.


\(^8\)\(^6\) Shingler interview, 6.

\(^8\)\(^7\) Inman F. Eldredge, interview by Roy R. White, 9 July 1959, Oral History Interview, Austin Cary File, Forest History Society, Durham, NC, 8.
days, Gerry followed the black worker under the watchful eye of a white ranger who accompanied her to ensure her safety.88

Along with Herty, Cary, and Gerry, other government-supported researchers made many new discoveries during the 1910s and 1920s that helped the industry. For one, their studies showed that lighter methods of chipping could reduce the frequency of dryface and the fungi that often accompanied the ailment. To have the safest assurance against dryface, trees were not to be worked beyond three years. Researchers also found that older trees with crown lengths less than one-third the total tree height were deemed to be the most susceptible to dryface and producers were advised to avoid them. If dryface did occur, producers could let the pine rest for a few weeks and thereby enable it to better resist the condition. After the period, producers could either double chip the face each week to rapidly raise the face above the affected area before it expanded further, or they could ignore the dryfaced area and begin the next streak above it. Researchers recommended that infested trees be removed after turpentining to prevent the fungi's spread and any additional turpentining should be continued with great caution.89

Foresters also explored the problems associated with fire. Fire damage to pines remained a widespread problem in the first decades of the twentieth century. Although damage done by fire was less per average acre in the southern piney woods than in forests of other areas of the country, such a large percentage of the southern pine forest was burned that overall damage in the region was much more extensive.90 Work by foresters in the 1920s demonstrated

88 Ibid., 6-8.


that persistent burning practices seriously damaged the pines and hurt their gum yield. They conceded that the practice of yearly raking and burning of the pine straw, chips, and spilled gum reduced the amount of flammable material on the forest floor and, in turn, the later likelihood that accidental fire would rage out of control. The practice, however, in no way rendered the forest fireproof. Producers often finished their raking and burning before needles had completed their fall in late winter, and occasionally the fire encouraged a subsequent needle release that could easily feed another fire. Also, longleaf seedlings and saplings, although more fire resistant than other species, often succumbed to the burning, reducing the chances of reforestation.

Foresters also discovered what producers had been unable to realize from casual observation, burning slowed the growth of trees not directly affected by the fire. Not only did burning consume the debris, it also damaged the humus layer which otherwise provided nutrients to the trees. Studies showed that longleafs grew eighty percent faster on unburned land than on burned. On unburned land gum production rose between twenty-five and one hundred percent. Thus, in the most conservative estimates, producers could increase profits by twenty-five percent by keeping fire out. For some producers, the twenty-five percent loss of potential profits was an acceptable sacrifice for greater insurance that a conflagration would not consume their entire stand. With the great threat of fire from lightning and especially herdsmen, producers opted to burn the forests under conditions over which they had relative control. Eloise Gerry discovered that in cases where controlled annual burning accidentally spread into the tops of trees, the consequences could be devastating for turpentiners. If turpentine continued in such stands, half of such trees could be expected to stop producing or die, and although surviving trees appeared to recuperate fully after several years, they actually experienced retarded wood-cell and resin-tissue growth.91

Foresters discovered that the damaging effects of fire caused long-term harm to the industry. Fire killed up to two-thirds of the round trees which left timber tracts sparsely stocked. Some operators by the 1920s worked tracts containing between fifteen and thirty trees per acre when, if fire had been repressed, they might have been working forty-five to ninety per acre. Denser stands lowered operating costs by reducing the time laborers spent walking between trees and raising the number of faces each could attend.92 Another problem that persisted was the lack of care for formerly turpentined tracts. Although the adoption of the cup system made them have less flammable, pitchy faces, trees could still easily ignite, especially if debris accumulated at the base. Because many producers began harvesting from very young trees, the neglect of these formally turpentined stands ensured that many would never mature.93

With these findings foresters recommended that producers replace their raking and burning practices with organized fire prevention methods. According to their strategy, rather than reduce the risk of large fires by burning away the small deposits of flammable debris each year, turpentiners would contain fires and suppress them before they grew too large. The recommended proposal called for continuing the practice of raking around the trees as a precaution. Instead of setting fires, however, producers were to construct a network of fire lanes and breaks which foresters assured producers would cost less to construct than their expenditure for annual raking. Where raking cost between seven cents and fifteen cents per acre, fire prevention cost just four cents to six cents per acre. Although a risk of a large, disastrous forest fire...

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93 Wyman, Experiments in Naval Stores Practice, 4; Forbes and Stuart, Timber Growing and Logging and Turpentining Practices.
fire was present even with the new protective methods, foresters promised producers that the increased profits from not burning offset it.94

But the turpentiners were at the mercy of local tradition that demanded periodic burning. Cattlemen—in invoking traditional custom—believed grass growing on the forest floor was rightfully theirs to use. They demanded burning to keep down undergrowth and encourage grass for their livestock. Even if the forest’s owners did not want their property burned over, they raked their trees in anticipation of the cattlemen setting fire to it anyway. “The cattleman was your friendly enemy,” explained the son of one Florida turpentiner of the period.95 Some farmers contributed to the problem; believing that the boll weevil thrived in wooded areas surrounding their cotton fields, they demanded eradication of the pests through fire. A 1926 Pine Institute of America bulletin explained that “the turpentine farmer, where fires are allowed to run wild, is really in a vicious predicament, for when he does burn the woods others may do so at the wrong time with great damage to him, Yet any burning at any time costs him heavily.”96

As a means of controlling fire and other resulting forms of tree damage, foresters advocated an end to the practice of free-ranging livestock. Timber land owners possessed the right to use the stands and had the obligation of paying taxes on the property, but beyond these legal rights and obligations they had little control over the acreage. The way piney woods southerners saw it, an investor bought land for the timber and until he harvested it and put the cut-over to some other productive use, they had a right to the range. Because there were no fences, livestock was permitted to roam over the countryside, grazing on the native grasses. The


95 Herbert L. Kayton, interview by Roy R. White, 7 October 1959, Oral History Interview, Forest History Society, Durham, NC, 1; Elliott Maguire, interview by author, tape recording, St. Augustine, FL, 5 June 1996.

96 Wernicke, “Piney Woods Sense,” 3.
number of animals involved was considerable. In Washington County, Florida, for example, the forest provided grazing for around ten thousand head of cattle and twenty thousand hogs. Sheep and goats also browsed the forest, especially during the spring and summer months when the grasses’ lushness peaked. Goats and pigs damaged stands considerably. Goats were fond of the tender tips of young pine stems and branches. Although hogs obtained most of their forage from acorns and low-growing plants, they did not hesitate to dig up and devour the starchy roots of longleaf pine seedlings. Sometimes they even dined on large saplings. In sufficient numbers hogs could destroy longleaf reproduction over a sizable area. By 1930, foresters concluded that, in many areas of Georgia and Florida, hogs had killed between five and seven percent of the young longleaf pines under three inches in diameter and in a period of several months could seriously injure between forty-six and eighty-five percent. Except for the danger of fire, cattle and sheep grazing caused little damage to the pine forest. Although cattle might trample pine seedlings, they actually benefited the younger trees by consuming much of the flammable debris. However cattlemen’s insistence on setting fire to the forest floor ran afoul of the growing conservation movement’s stand against controlled burning.  

At one Southern Forest Congress meeting the cattlemen were attacked for their stubborn persistence in burning. Foresters and land owners wanted to fence in the range and protect it from fire to encourage regrowth. According to the law at the time, it was the landowners’ responsibility to fence in the forest, not the herders’ duty to fence in their livestock. Controlling access to the forest was in the land owners’ best long-term interest. Cattlemen, the foresters complained, had no future stake in the property they harmed each year. Cattlemen consequently disliked the foresters and their efforts at reforestation, which they viewed as the forerunner of a

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stock law. Given that angry free range herders were known to destroy fences in protest, one
ingenious company which owned large tracts of timber in Georgia enclosed forty-four thousand
acres only after putting their own recently-purchased cattle out to graze on their property.
Because the company had a legitimate purpose for fencing in their property, local residents
accepted the change. It thus appears that piney woods herders of the early twentieth century
closely resembled similar men in the Georgia upcountry in the second half of the nineteenth
century as described by historian Steven Hahn, in that they did not reject efforts toward property
improvement, but at the same time viewed stock laws as an unjust attack on their economic
welfare. 98

Foresters also made efforts to understand other factors associated with yield variation
that were not as obvious as deep chipping, burning, and free-ranging livestock. By the late
1920s, they made significant strides in understanding the variation in gum yields between
different timber stands and individual trees within those stands. In general, researchers found
that all factors that favored the trees' health favored resin production but that moisture was the
most important factor in gum secretion. The greater the amount of water in a tree, the greater
absorption by the cells, which created abundant pressure necessary to encourage the open resin
ducts to exude gum. This finding explained the drop in gum yields during drought. Also,
moisture in both the ground and air affected gum yield, which rose appreciably after rains in
warm humid weather. Temperature also influenced resin production. High temperatures
encouraged gum yield and low temperatures, below 10° C., severely retarded it. However, to

98 Vance, Human Geography of the South, 140; Harley Langdale, Jr., interview by
Harold K. Steen, 1991, Forest History Society, Durham, NC, 38. The company also took control
of hunting on its property, allowing permits only on the condition that hunters exercise care with
fire and report any that they saw and regulating trapping by leasing rights. Maunder, Voices from
the South, 76-77. Steven Hahn, The Roots of Southern Populism: Yeoman Farmers and the
Transformation of the Georgia Upcountry, 1850-1890 (New York: Oxford University Press,
1983), 247.
affect yields, temperatures had to remain low for twenty-four hours, meaning that cool evenings did not necessarily hurt turpentining provided daytime temperatures rose sufficiently. Increased daylight generally helped gum production, but it also possessed negative effects. By stimulating photosynthesis in the crown, thus increasing nutrients available to the tree, and heating the trunk, which favored resin production, the increasing number of sunny hours in summer aided operators. However, light also increased transpiration from the crown, reducing water pressure and emission of spirits. These discoveries explained why spring yields were smaller and production during July and August rose. In mid-summer, eighty percent of weekly gum flow occurred within twenty-four hours of chipping, but in the cooler days of the spring and fall the same percentage of flow required five days.99

Even under similar growing conditions, researchers discovered, trees in different areas could have yields that varied as much as three hundred percent. Pine trees growing in sandhills produced less gum than pines growing in slightly more fertile soil. In the former, trees tended to grow more slowly, failed to achieve great height, and consequently produced less resin. Thus the trees in the Carolinas and south Florida, which grew in sandy hardpan land, yielded less than stands in Georgia, north Florida and across the Gulf coast. Large trees with full crowns tended to produce more as a result of their greater strength. Within the same stand, however, certain trees tended to outperform other seemingly identical trees growing close by. Gerry discovered that such trees usually grew in more open spaces than the others, possessed broad, large crowns, straight, not forked tops, long and very green needles, rough, thick bark, and if examined, usually had wide annual rings. Even with this characterization to go by, woodsmen had difficulty identifying the most productive trees because the root system of individual trees and deep soil

conditions, neither of which was easily detectable, also greatly influenced yield. To confuse matters more, some trees possessed a genetic orientation toward greater wood growth at the expense of resin production while others tended to grow less wood, but yield great quantities of gum once wounded.\textsuperscript{100}

As researchers began to acquire better a understanding of the dynamics of gum production, they began campaigning for careful resource use to render the industry sustainable. Scientific study confirmed what informed observers suspected—the pervasive practice of cupping small trees not only harmed the pines, but produced an unprofitable yield. It was estimated that seventy-five percent of the second-growth pines in Georgia and South Carolina that measured more than eight inches in diameter had already been bled and that many trees even smaller were in production. Many of these stands were but fifteen years old. Even the trees growing on the best quality land could not withstand chipping until they were, at the earliest, around twenty years old. And if young pines survived the drain on vitality caused by turpentining, their growth was either greatly slowed or stopped. In some cases, producers worked small trees at a loss because they were mixed in with larger ones, and the workers insisted on working all to make their crop. Gerry estimated that a very vigorous tree 5.4 inches at breast height yielded only half as much as 8-inch trees. Pines of the latter size yielded only about half as much as 11- or 12-inch diameter trees. Gerry recommended that producers ignore trees less than ten inches in diameter because the small trees yielded so little and their future use was seriously jeopardized by turpentining. One forester equated the turpentining of small trees with cutting them down, so great was the harmful effect on them. In fact, a large portion of the undersized trees did either stop growing, blow down, burn up, or fall victim to dry face or pests. By exploiting the young,

\textsuperscript{100} Wyman, Experiments in Naval Stores Practice, 9, 33, 36; Eloise Gerry, "A Study of Externally Matched Southern Pines Which Produce Widely Different Yields of Oleoresin," Carry Collection, 2-4.
second-growth stands, producers were ensuring that the southern pine forest would never
return. ¹⁰¹

Not only did foresters encourage the conservation of young pines, they addressed the
problem of the growing number of acres of cut-over wasteland in the South. Much of the land
fell into the hands of the states and county governments, seized for delinquent taxes. Some states
attempted to sell the cut-over acres as potential farmland. In 1901, for example, the Georgia
Department of Agriculture made the erroneous claim that “where the trees have been removed
there remains a cleared field well-suited to agricultural purposes, in some instances adopted to
the raising of the highest priced cotton, the long style or sea-island variety, or other staple crops.”
The same tracts, it claimed were suitable for commercial fruit and vegetable production.¹⁰² In
fact the cut-over pine forest land tended to be relatively infertile, which is why settlers had
avoided it in the first place. The application of commercial fertilizers could increase cotton,
corn, and wheat yields on it but with the low crop prices of the time, the added expense of
fertilizer made the land only marginally profitable at best. Some producers searched for
innovative ways to market their used up acreage. In 1906 John D. Robertson purchased land in
Lake County, Florida, and set up a still which he operated for seven years. Over this period he
accumulated over 12,000 acres. When he had finished in the area, he sold the property in 1913
to the Lake County Land Owners’ Association which developed it as a residential area called

¹⁰¹ Forbes “Passing of the Piney Woods,” 136; Harley Langdale, Jr. interview, 2; Eloise
Gerry, “Recent Observations on the Effects of Turpentining on the Structure of Second-Growth
Slash and Longleaf Pines,” Journal of Forestry 21 (March 1923): 2-3; “Good Naval Stores
Practice,” 2; Gerry, “Goose and the Golden Eggs,” 2; Brower and La Fontisee “Report of the
Investigation on the Naval Stores Industry,” 29-30; Wernicke, “Piney Woods Sense,” 60; Baker,
on the Growth of Slash and Longleaf Pine,” 1930, American Turpentine-Farmers Association
Papers, Georgia Agrirama, Tifton, GA, 1.

¹⁰² Georgia Department of Agriculture, Georgia Historical and Industrial (Atlanta:
George W. Harrison, State Printer, 1901), 355.
Fruitland Park, a community that remains in existence. Another turpentine operation eventually sold out to a lumber mill in the 1910s. The mill, in turn sold their one thousand cut-over acres to the Lake County Groves Corporation which succeeded in cultivating orange groves on the barren plot. Such successful cases were rare. To address the land use issue, the Southern Cutover Land Conference was organized in New Orleans in 1917. Although conference goers considered the option of reforestation, they ultimately settled on the unfeasible plan to turn the land into pasture and crop fields.\textsuperscript{103}

Factors pushed to reforest denuded timber tracts through reseeding. The more easily cultivated slash pine, however, and not the once dominate longleaf, was the foresters’ chosen favorite. Without periodic burnings, which the forestry establishment then shunned, the longleaf would be quickly shaded out by faster-growing species. And its long tap root, which even very young longleafs sent down, made it difficult to grow in nurseries. Although less hearty at a young age, the slash pine grew faster than the longleaf, making it marketable at an earlier age. And best of all, studies showed it could actually yield more gum than the longleaf. Only in the poorest soils, where no other species could thrive and where vegetation cover was much needed to curb erosion, did most foresters believe the longleaf had a place.\textsuperscript{104}

The combination of the improved methods and the conservation efforts made between 1900 and 1920, both facilitated by federal intervention, averted the depletion that forestry experts had been forecasting. Turn-of-the-century technical changes also helped by reducing the nation’s over-dependence on wood. Treated railroad ties lasted thirty-five to fifty years instead of the

\textsuperscript{103} Vance, \textit{Human Geography of the South}, 135; Clark, \textit{Greening of the South}, 29-30. William T. Kennedy, \textit{History of Lake County, Florida}, Lake County Historical Society, Tavares, FL, 43, 74.

previous five to ten. Building materials such as brick, stone, cement, iron, and steel replaced wood in the construction of buildings, ships, bridges, freight cars, and farm implements. American wood consumption consequently declined rapidly after 1905 and timber supply estimates became more optimistic. Greater confidence in the forests’ regrowth resulted as well from improved understanding of the growth rates for different trees, climate, and topography.¹⁰⁵ One naval stores industry observer found as early as 1910 that “young trees grow where the old ones have been taken out and in many a once-plowed field stands to-day a young growth that will soon be big enough to yield a ‘crop of boxes.’”¹⁰⁶ In 1923, Eloise Gerry observed that second-growth trees had a remarkably rapid rate of growth which offered much hope for the industry’s future. In the mid 1920s, Georgia, for example, possessed only one million acres of virgin pine growth, but had nine million acres of second-growth timber.¹⁰⁷ In 1924, Thomas Gamble explained that “the return of Georgia to first rank this season as a naval-stores state is due to the working of trees which have come up since 1900 and, almost without protection, have recovered the land held for centuries by their forebears. Great sections of the state possess today a vigorous growth of young pines that, with moderate care, will develop in a comparatively few years into prolific yields of the oleo-resin from which spirits turpentine and rosin are made.”¹⁰⁸ Another observer jeeringly explained that “people who regret the turpentine camps set the day not far ahead, in three years or in five, when the smoke of the last still will have vanished and the ruthless ax of the woodsman following will have cut the last tree for the second-quality lumber


¹⁰⁶ Packard, Florida Trails, 277.


which the turpentine-bleeding process leaves behind. Others say the end of the trees is something like the end of the world. It has been prophesied almost since the beginning and has never yet happened.\textsuperscript{109}

The passing of the timber supply crisis won many producers over to the federally funded forestry efforts. A 1927 U.S. Department of Commerce bulletin accurately summarized the impact of conservation methods on the industry, stating that “the lumber and Naval Stores industries are now fully awakened to the fact that their natural resources are being depleted, and they realize that their continued existence is dependent upon scientific measures of conservation and reforestation.”\textsuperscript{110} But despite the obvious successes of government and business cooperation

\textsuperscript{109} Packard, Florida Trails, 277.

\textsuperscript{110} Priest, Naval Stores Industry, 2. The development of the American naval stores industry bears a remarkable resemblance to the kauri trade in New Zealand. In the early nineteenth century Europeans discovered large tracts of virgin kauri trees, some more than sixty feet in girth. Where these trees had grown for thousands of years, Europeans found deep resin deposits, which they soon began mining. Kauri, used in the manufacture of varnishes, linoleum, glue, and ceiling wax, grew in demand and its production grew into a major industry that lasted into the twentieth century. At the industry’s peak in 1899, eleven thousand tons of kauri were exported. At first producers gathered gum from near the surface, but as these easily-accessible supplies dwindled, it became necessary to dig for it, sometimes as deep as ten meters. Gum could also be collected from living kauri trees. Climbers or “tree bleeders” scaled the trucks, harvested gum in the forks of branches and on their decent cut incisions in the trucks at two-foot intervals. Within a few months the climbers returned, gathered the gum which had collected on the wound, and cut more scars to continue the process. While some entrepreneurs tapped the trees for gum, others cut them for lumber. Settlers cleared the cutover land of stumps to begin agriculture. Because of the damage resin producers caused the increasingly scarce trees, the bleeding process was outlawed in 1905. For a short while attempts were made to extract gum from kauri wood chips using solvents. The number of kauri dwindled to the point that, by 1925, only five thousand tons of resin was exported and by 1952 just twenty-one tons. As the kauri forests disappeared, foresters sought efforts to restore New Zealand’s woodland. Because it required a century for a kauri seedling to reach marketable maturity, foresters chose to plant imported radista pine. With its rapid growth, prolific seed production, and adaptability to New Zealand’s geography and climatic conditions, radista pine was ideal to reclaim forest land. In the 1930s, as part of a conservation program much like the United State’s Civilian Conservation Corps, New Zealand pine forests were replanted. By the late twentieth century over one million acres of natural and planted radista pine forests covered New Zealand and provided the raw material for an overseas market in lumber, plywood, turpentine, and tall oil. John Drew, “Let’s Face It,” Naval Stores Review 92 (May-June, 1982): 4.
and the large operators' general acceptance of federal and state involvement, in the late 1920s other producers, especially smaller ones, continued to look on forestry as a meddlesome and intrusive movement and persisted in their employment of practices little changed from one hundred years earlier.

Where federal forestry efforts led to great advances in gum harvesting, another federal agency, the Bureau of Chemistry worked as well to improve the quality of the turpentiners' product and develop more reliable marketing standards. Beginning in 1915, the Bureau conducted demonstrations on improved distilling methods, developed both privately and by the Bureau, which would give better yields. Distillers had relied on their observations of the water and turpentine consistency exiting the worm and the sound of the resin in the still to regulate the temperature. Interruptions or noise from thunderstorms could sometimes make the still impossible to regulate. Even for the most experienced and astute distiller, the challenges of such primitive operating methods produced widely varying results. In an effort to improve the distilling process, a physician and turpentine producer from Cordele, Georgia in 1908 developed a still thermometer which allowed for better regulation of heat. He also calculated out the optimal temperatures for various grades of gum, 250° F. for virgin, 260° F. for average, and 270° F. for old gum. Both the thermometer and temperature recommendations enabled distillers to produce more uniform results and the greatest quality and quantity. In 1916, another inventor developed a recording thermometer that gave a charge's temperature history. Because it showed the speed and direction of temperature changes, it allowed for even better still regulation. The Bureau also sent agents into such important naval stores centers as Savannah to work with factors as well as individual producers on distilling problems. G.P. Shingler, who worked for the Chemical Bureau in the 1920s, invented a ten-ounce "nursing bottle" marked to indicate when water should be added, the temperature raised or lowered, or the rosin discharged, by measuring
the water and spirit consistency of the fluid exiting from the condensing tube. Because many
distillers could not read, these gauging devices were designed to be used by the illiterate.
Shingler joined Austin Cary and Eloise Gerry in the field, visiting producers and demonstrating
better ways of managing forests, chipping, and distilling. They also printed and distributed
posters and circular letters warning of wasteful losses through careless handling of gum,
distilling, and treatment of the spirits and rosin.111

Perhaps the Bureau's greatest contribution to production came in the late 1920s with the
introduction of a new kind of refining process, steam distillation. Although first performed in a
crude fashion in 1868 in Georgetown, South Carolina, and improved by the French eight years
later, steam distillation in the United States did not mature until researchers with the Bureau's
Naval Stores Research Division worked out an acceptable design. Early problems with the
original process involved the discoloration of rosin, by that time the most valuable of the naval
stores products. Wood chips, one of the most common foreign particles in raw gum, lodged on
the steam coils, where they charred between still runs and discolored the rosin from successive
charges. The presence of water vapor in the still also tended to give the rosin a cloudy
appearance. Naval stores researchers solved the problem by developing a method of cleaning the
gum before it entered the still. By this process, gum was melted to make it more fluid, diluted
with spirits of turpentine to make it more liquefied, then filtered and finally sprayed into water
where it settled. The improvement led to the rapid proliferation of steam distilleries (fig. 8.4).112

111 Robson Dunwody, "Proper Methods of Distillation and Handling in the Production of
Thomas Gamble (Savannah: Review Publishing and Printing Company, 1921), 132-133; Shingler
interview, 1-3; Butler, Treasures of the Longleaf Pines, 81; Veitch and Grotlisch, "What Uncle
Sam Does for the Naval Stores Industry," 138.


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The Bureau of Chemistry was also instrumental in establishing improved naval stores production standards. By the turn of the twentieth century, no uniform industry standards of purity and grade existed and individual ports tended to follow different requirements. In 1869, the New York Port Authority created standards for rosin, but these did not apply to southern ports. In 1894, the Savannah Board of Trade established its own naval stores grades, but its authority did not extend to other ports. In an effort to remedy the lack of uniformity and the increasing problem of adulterated spirits, Georgia and Florida, the two most important naval stores-producing states, each passed legislation requiring purity of spirits shipped from their ports and providing for inspectors to enforce it. Although the export of adulterated spirits slowed to a trickle following these acts, no safeguard was provided for the quality of rosin and standards continued to vary so much between ports that in 1910 there existed sixty different grades. In some cases, the confusion caused rosin of presumably the same grade to be, in fact, as much as two grades different. Finally, in 1912, the Bureau of Chemistry established uniform standards for both rosin and turpentine based on color. W.W. (Water White) and W.G. (Window Glass)
represented the two palest and thus most valuable grades. Lower grades included N. (Extra Pale), M. (Pale), K. (Low Grade), I (Good No. 1), H. (No. 1), F. (Good No. 2), E. (No. 2), D (Good Strain), C. (Strain), B. (Common Strain), and A (Black). The Bureau of Chemistry issued sets of glass standards by which inspectors could grade rosin. The original set was kept at the Bureau office in Washington and matching sets were kept at the major naval stores ports. Once the standards were in place, prices varied widely between grades. The lower ones sold for roughly half the price of the higher ones. The older naval stores region tended to make a larger percentage of the lower grades while states where the industry was new, especially Louisiana and Texas, manufacture more better-quality products, which came from gum harvested from virgin faces and from using improved methods.113

Although the plan helped the industry by providing added assurance to consumers that the products they purchased were in fact of the standard they expected, some in the business viewed the government’s increased role with suspicion. The head of one factorage house believed that “when the Government takes hold of the naval stores business at all it will take hold of it effectively, and we will have Governmental inspection and supervision from the tree to the trade. . . . [S]uch work will require a very large number of petty Government officials, whose stamp will be necessary before a barrel of rosin or turpentine can be marketed or shipped. Of course the turpentine operator will have to foot the bill.”114 The government’s involvement did


114 C. Downing to W.C. Powell, 13 February 1914, William C. Powell Papers, Special Collections Library, Duke University.
not prove to be at all as intrusive as suspected. By around 1920, Savannah had four naval stores inspectors who each examined 1,200 barrels of rosin and 300 barrels of turpentine each day at the season’s height. Producers, however, paid for the service. Inspectors fees cost nine cents per barrel of rosin and twelve cents per barrel of turpentine. The factor paid the fee which then charged to the producers’ accounts. At the urging of both consumers and producers, the Bureau in 1918 began collecting and publishing statistics on production, stocks on hand at stills, ports, dealers, and principal consuming industries.\(^{115}\)

The system of turpentine and rosin standards and inspections reached maturity in the federal Naval Stores Act of 1923. Designed with consumer interests in mind, it prohibited interstate commerce or foreign export of adulterated or mislabeled naval stores. It reaffirmed the standard grades for turpentine and rosin, but authorized the Secretary of Agriculture, who oversaw the Bureau of Chemistry, to establish new ones and modify the existing standards if needed. Enforcement of the act was the duty of the Food, Drug, and Insecticide Administration and violations were to be reported to the Department of Justice. The act also provided for inspectors to check products ready for shipment.\(^{116}\)

The naval stores industry’s successful efforts to alter production methods represented the convergence of two significant developments, the near-total loss of the southern pine forest and the emergence of federally-backed scientific forestry in the United States. Whereas others had tried and failed at developing a cup-type system in the nineteenth century, Herty’s success was owed in large part to producers of whose mind’s the seemingly impending timber depletion made


more receptive to alternative practices. His efforts also benefited from his formal training in forestry and the support of the nation’s newly-formed forestry establishment. These advantages permitted Herty to develop a practical and affordable method, qualities that did not necessarily guarantee its adoption. But the endorsement of the Bureau of Forestry helped convince producers of its merits. Herty's demonstrated desire to work in cooperation with producers ushered in, by the 1910s, an era of forestry experimentation and study unlike anything seen before in the industry. Although Herty shifted his attention to other areas of southern economic improvement, Austin Cary, Eloise Gerry, and other foresters continued research and close work with turpentiners. Their efforts led to far greater understanding of the influences of deep chipping, burning, and free-range grazing on turpentine yield. Federal assistance through Bureau of Chemistry research also helped naval stores producers by developing distillery improvements and uniform marketing standards. For the time being, their efforts rescued the turpentine industry from certain doom.
Chapter Nine

Fresh Challenges:  
The Naval Stores Industry Faces New Problems

During the first decades of the twentieth century the naval stores industry faced challenges on several fronts. Although improved methods of production did retard depletion of pine timber, overall stands remained scarce, and the industry, with no more fresh pine territory to exploit, could not solve its resource problem by moving as it once had. As timber grew increasingly scarce and, consequently more expensive, labor and supply costs also rose, reducing the industry's profitability, especially during the First World War. At the same time, producers had to adjust to a change in market demand that caused rosin prices to rise above those for spirits. During these difficult years the gum naval stores operators faced growing competition from foreign producers, most notably the French, whose superior methods were the envy of American producers. The development of a revolutionary new way of manufacturing turpentine by well-capitalized, heavy industry at home intruded on their market as well. On top of profitability declines, a change in market emphasis, and new challenges for market share, the factorage system, which by the late-nineteenth century had virtually disappeared in cotton production, developed an even firmer grip over the naval stores trade and producers than ever before. All of these developments created a difficult business environment for naval stores producers during the first three decades of the twentieth century.

As southern timber began supplying a growing percentage of national lumber production, a problem developed as lumber companies grew ever more hostile to the practice of leasing their pines to naval stores men before chopping the trees or "turpentining ahead of the cut." From 1880 to 1920 lumber production in the South increased nearly ten times from 1.6 billion board
feet to 15.4 billion board feet. The first World War created an immense demand for lumber. The government needed wood for factories, warehouses, offices, military training camps, and most importantly, ships. Because pine lumber, especially that cut from longleaf logs, was water resistant and thus did not require seasoning, it was heavily used in ship construction. By 1917, the South provided thirty-seven percent of U.S. lumber. Some lumber companies experimented with leasing but found turpentineing too troublesome and suspended the practice. Despite requirements to the contrary, some turpentine producers left nails and gutters in trees because their removal was too expensive and burdensome, especially when nail heads broke off in the process. Turpented trees sometimes dryfaced, even with the use of cups, and the fire hazard associated with turpentineing remained a perpetual danger. A growing demand for pine lumber meant some stands were cut before turpentineing could begin.1 When large timber holdings were worked for turpentine, it was typically done by the lumber concerns themselves or very large naval stores outfits, not smaller individual producers. Around 1910, the majority of new Georgia turpentine orchards were operated by timber owners who harvested gum before cutting. And by 1919 corporations employed forty-one percent of the industry’s wage earners, operated forty-seven percent of the distillery operations, and were responsible for the same portion of product output.2


Foresters complained about the timber industry’s increased reluctance to capitalize on such a potentially valuable resource as turpentine and the hardship it placed on turpentine producers. In the South forester, Asa L. Brower, complained in 1909, “there are large areas of round timber present, yet, as far as the small [turpentine] operator is concerned, a scarcity, artificially induced, prevails, and is beginning to make itself felt as keenly as that in the East. The ‘round’ timber is held by the large lumber companies, which are usually antagonistic to turpentine operations. Some few are beginning to permit turpentining, either performing the operations themselves or else leasing the privilege to large naval stores companies. Generally, it can be said that the future of the naval stores industry in these parts is still problematic.”

The situation remained the same over a decade later. In 1923, Eloise Gerry admitted that the increased use of the less-harmful cup and gutter method had prompted some lumber companies to allow turpentining in their stands. “The additional profits which come from turpentining longleaf and slash pines before they are cut for lumber,” she explained, “may be likened to the golden eggs of Aesop’s famous goose. Treat the goose well and the valuable product continues without unduly injuring the producer.” However, she complained, “there are still conservative timber owners, whose interests are centered in the products of the sawmill, who are inclined to shake their heads dubiously when asked why they do not turpentine their timber before it is logged. They remain skeptical even when they are reminded that when they do not turpentine their timber, or when they work it for two years only, they are throwing away or wasting all or at least a considerable part of an important and valuable natural resource.”

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Independent producers suffered from the serious reduction in pine acreage that had already resulted from both their exploitative practices and lumber companies growing reluctance to lease stands. By the first decade of the twentieth century both North Carolina and South Carolina each had about forty naval stores establishments, but the output of their operations was extremely small. The great turpentine-producing days in these states had passed (fig. 9.1). At this time, Georgia lead in the number of naval-stores-producing establishments with over 650. However, the industry in many areas of the Peach Tree State was aging, having existed there since the 1850s. Moreover, independent producers experienced increasing difficulty locating acceptable tracts since the majority of new turpentine establishments in Georgia at the turn of the century.

Figure 9.1. Percentage of Naval Stores Production by State, Selected Years from 1905-1944

Joseph B. Hosmer, Economic Aspects of the Naval Stores Industry (Atlanta: Georgia School of Technology, State Engineering Experiment Station, 1948), 4.
century were owned by lumber companies that were themselves turpentining before logging. As a result of the declining number of available virgin stands, many producers in the state had begun to back-box, a practice which produced less gum than front-boxing. Despite labor and weather conditions very similar to Florida’s, Georgia’s turpentine forests yielded less turpentine. Where Georgia made an average of 26.5 casks of turpentine per crop in 1909, Florida produced 29.8.

In Florida, where turpentine production increased very gradually following the Civil War, turpentiners discovered more available timber than in Georgia. Florida’s rail network, which expanded more slowly than Georgia’s in the late nineteenth century, made up for its retarded development during the first two decades of the twentieth century. New lines improved access to the previously isolated, and thus relatively protected, pine stands. Producers also continued to rely on river transportation to move their naval stores to port. At Picalota, a small St. Johns County community by the river of the same name just below Jacksonville, one large producer had his own dock from which steam boats could service his operation. Hard surface roads, however, provided the best access to remote forests during this period. For example, producers in Walton County, located in the west-central panhandle, claimed in the late 1920s that it was cheaper to haul their naval stores 135 miles by truck to Pensacola than to transport them to the nearest railroad depot, load them on the cars, ship them to the factor in Pensacola, and finally unload them there. Roads also helped producers move their operations. In the 1920s one producer used Model T trucks to relocate twenty-one families, horses, mules, chickens, and at

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5 Ibid., 3, 51, 54, 58-59. As a boy growing up in North Carolina around 1910, Erwin Stephens discovered such long forgotten relics as a single-loaded musket, powder horn, loom, and old turpentine hacks and dippers, all stored in an attic. “The Place,” 14 December 1955, Edwin Duke Stephens Papers, Special Collections Library, Duke University, 1-2; For both combined and separated figures related to turpentine and rosin production see Appendix A.
least one cow from a Manatee County camp to a new location in St. Johns County 225 miles away.\(^6\)

The rapid movement of operations into the state in the 1890s made Florida the largest turpentine-producing state soon after the turn of the century, despite having slightly fewer establishments than Georgia. By the early 1910s naval stores production was the most important industry in Florida with 529 establishments representing a combined capital investment of $14,376,088. The 21,262 laborers it employed earned a total of $6,047,048.\(^7\) Because of Florida’s increased naval stores production, in 1905 Jacksonville surpassed Savannah as the predominant naval stores exporting port (fig. 9.2). (The title reverted back to Savannah in 1923.) Jacksonville actually might have overtaken Savannah several years earlier if not for a disastrous fire in May 1901 which destroyed a large portion of the city. By 1920, seven naval stores factorage houses were headquartered in Jacksonville and two others maintained branch offices there. The Commanders Point Terminal Company operated the largest naval stores yard in the world on the city’s waterfront. It handled the entire naval stores storage business in Jacksonville.

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\(^7\) In comparison, there were 528 sawmills in Florida, representing $13,271,658 of investment capital. Their 13,083 wage earners made a total of $5,098,568. The only other areas of manufacturing that approached naval stores and sawmills were phosphate, kaolin, and Fuller Earth mining and cigar manufacturing. *Twelfth Biennial Report of the Department of Agriculture of the State of Florida from the Years 1911 to 1912* (Tallahassee: T.J. Appleyard, State Printer), 428-429.
thus saving buyers and sellers from having to collect supplies from different yards around the port to fill an order. The yard possessed storage space for 200,000 barrels of rosin, covered

Figure 9.2. Receipt of Naval Stores at Savannah, Jacksonville, and Pensacola, 1914-1930

space for 12,000 barrels of turpentine, and tank storage capacity for another 33,000 barrels of turpentine.8

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In the first two decades of the twentieth century, Florida offered good opportunities for turpentining. The state's central Gulf coast region, protected up to 1910 by its isolation and the state's ownership of the tracts, contained a considerable quantity of virgin pines. Improved transportation and the purchase of timber land by private companies opened the region up to production. In parts of south Florida a large percentage of the original pines remained by 1910, but much of these stands consisted of small trees growing far apart, and the even these acres were widely scattered. In the panhandle, west of the Appalachicola River lumber stands were more readily available. Lumber companies held the majority of the timber there and seldom permitted turpentining of their trees. But in the other areas of plentiful pines, the industry's vigor led to rapidly diminishing resources in parts of Florida just as it had in the Carolinas and Georgia. Turpentining in such places as Washington County reached its peak around 1905, but within five years the lumber companies began to remove the timber. By the late 1920s, the county's naval stores production came from remnant longleaf and slash pine. At this time the relative importance of the naval stores industry in Florida declined, dropping behind lumber in the number of employees and behind both lumber and cigar and cigarette making in amount of wages paid.  

In neighboring Alabama, turpentining continued at a steady but less rapid pace than in Florida. Although areas around Mobile had produced turpentine since before the Civil War, much of the longleaf pine in the southern portion of the state had been left untouched until the turn of the century. Railroad development made these formerly isolated tracts more accessible. In 1902, for example, the completion of a rail line from Georgiana, Alabama, in the south-central heart of the state, to Graceville, Florida, in northern Holmes County—a distance of nearly one

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hundred miles—provided convenient transportation to the pine region that possessed no water access. Lumber and turpentine camps quickly developed along the route. Although Alabama production had long fluctuated, by 1908-1909, the state ranked as the third largest naval stores producer. With its vast supply of virgin pine, producers enjoyed an average yield of 35.6 casks of turpentine per crop, nearly nine casks more than crops in Georgia and six more than those in Florida. But large corporations controlled much of the round timber in Alabama so small producers found little opportunity to move into the state. With only around 190 operations, however, Alabama had fewer than half as many operations as Florida and Georgia had. And with the introduction of such robust naval stores and timber activity, it was estimated that available round timber in south-central Alabama would be depleted by the mid 1910s. Longleaf pine stands in northeastern Alabama were largely ignored because they grew too sparsely for profitable turpentining.\(^\text{10}\)

In Mississippi, where naval stores had been produced since the late antebellum era, manufacture remained erratic until the late-nineteenth century when declining timber stands in older producing states drove turpentiners there. Railroad expansion through the southern part of the state opened fresh areas of virgin pine and linked them with the port at Mobile. As the inevitable destruction took its toll, small independent producers found little room to expand as the lumber companies became increasingly reluctant to lease their stands. When they did lease, it was usually to large turpentine corporations that practiced conservation methods. Declining longleaf timber stands caused a rapid reduction in Mississippi naval stores activity after 1910. At the turn of the century, Mississippi had 145 production establishments which were, on average, larger than those in the older producing areas of Georgia and still growing. In 1904 the

number of producers dropped by fourteen percent but the number of workers they employed rose, indicating the increasing size of the average turpentine business. By 1908 the ninety-four remaining establishments represented the largest manufacturers who had possessed the capital resources to weather the decreasing number of stands. At that time Mississippi was the fourth largest naval stores producer. Its yield of 34.5 casks of turpentine per crop, slightly less than Alabama, indicates that, although the timber resources may have been declining, enough virgin tracts remained to enable a substantial harvest. By 1909, however, nearly half of the Mississippi pines had been bleed and, although the pines in the extreme western and northwestern edge of the longleaf belt remained less affected, their scattered growth mixed with shortleaf pines discouraged extensive turpentining. By the beginning of the First World War, the Mississippi industry was in rapid decline. The interruption in international export trade caused by the war resulted in a drop in production by approximately fifty percent. Like cotton, turpentine was included on the British list of contraband. Even with the war’s end, the depletion of timber brought further declines to the naval stores business. By the late 1920s, the little Mississippi turpentine production that remained could be found only on small, usually scattered tracts.\footnote{Turpentiners were also badly affected by a hurricane in 1906. Nollie Hickman, \textit{Mississippi Harvest: Lumbering in the Longleaf Pine Belt, 1840-1915} (University: The University of Mississippi, 1962), 133, 135-137; Brower and La Fontisee, “Report of the Investigation on the Naval Stores Industry,” 5, 59, 4, 36-37, 52; James L. McCorkle, Jr., “Mississippi from Neutrality to War (1914-1917),” \textit{The Journal of Mississippi History} 43 (May 1981): 92-94.}

In eastern Louisiana, where the naval stores industry was essentially an extension of that in Mississippi, the longleaf forest and industry suffered the same fate.\footnote{Brower and La Fontisee, “Report of the Investigation on the Naval Stores Industry,” 5, 37.} However, the southwestern Louisiana pine forest, separated from the east by the lowlands of the Mississippi valley, experienced surprising success. In this area, as in eastern Texas, pine forests remained
largely untouched until the first years of the twentieth century. The timber was consequently of exceptional quality and jealously guarded by the few large concerns who owned it. Most land companies frowned on the often destructive and wasteful turpentining practices. By 1909, only twenty-five producers operated in Louisiana, most in the eastern pine forest, and but eight worked in Texas. In 1903, the Houston Texas Post complained that because lumber men were producing millions of board feet of lumber without first turpentining the timber, “millions of dollars are being lost annually as a result of neglect on the part of those interested.” Those companies that did work their timber for turpentine did so themselves, employing only the most conservative methods. Because they insisted on improved methods, these producers enjoyed substantially higher yields and less destruction of the timber than in any other state. Texas operations yielded 43.5 casks of turpentine per crop and Louisiana, principally the western area of the state, collected 44.7 casks, forty percent more than Georgia producers.13 Producers in western Louisiana and east Texas did face a special problem, however; certain insects indigenous to the region hampered the regrowth of pine forests once turpentined and harvested. Pine sawfly larvae, which hatched from eggs laid in slits in the needles, fed on both new and old needles and could defoliate young seedlings. Although attacks by this insect only rarely killed the trees, they could severely stunt their growth. The leaf-cutting ant could also greatly weaken young pines. During the early winter or in the hot summer, whenever other green vegetation became scarce, these ants harvested needles on which they cultivated a fungus that they used for food.14


14 The naval stores industry failed to establish itself west of Texas. During the Civil War efforts were made to supply the northern state’s naval stores needs from the Pacific coast forests, but production there suddenly collapsed with the resumption of southern manufacturing in the 1870s. Although west coast trees could yield substantial gum, their tough, rough bark had to be removed before chipping could begin, adding a prohibitably expensive procedure to the harvest. Howard E. Weaver and David A. Anderson, Manual of Southern Forestry: With Special Adaptations for Students of Vocational Agriculture (Danville, IL: The Interstate Printers and
The rapid decline of the virgin pine forest, the lumber industry's tight control of remaining stands, and these companies' expansion into naval stores production challenged producers by creating a timber scarcity that drove up both purchasing and leasing prices throughout the South. By the early 1900s, Georgia pine lands, which could have been purchased for from 50¢ to $1.50 several decades before, sold for between $4 and $8. By the 1920s an acre sold for between $50 and $100 or more. Prices rose in Florida as well. In 1917, a large Florida timber owner offered 38,000 acres of timber land for $7.60 per acre. Even his open "prairieland" was expected to bring $4.75 per acre. Two years later another 28,000 acres were anticipated to sell for between $5 and $5.50 per acre. At these high prices it was easier for producers to lease than purchase pine timber tracts; the number of acres owned by producers dropped as the number of leased acres grew. Where turpentine makers harvested gum from 3,249,577 acres of land that they owned in 1909, by 1914 that amount dropped twenty percent to 2,594,331 acres. Over the same period the number of leased acres grew nearly eighteen percent from 4,807,338 to 5,833,757.\(^{15}\)

The cost of leasing, like that of purchasing timber, rose as supplies grew more scarce. Leases that cost from $100 to $200 per crop in 1896 rose to as much as $500 by 1899. Leasing costs continued to rise slightly from the turn of the century into the 1920s. In 1906 one producer paid $21 to rent three hundred turpentine boxes near Lexington, South Carolina, and another $120.47 to rent 1721, or about $700 per crop. By 1920, however, prices had risen considerably to between $1,000 and $2,000 per crop for a three year lease. By the mid 1920s lease costs increased to $2,000 and even $2,500, and some crops in Georgia reportedly reached as high as $3,000 to $3,500. By the late 1920s, however, leasing prices appear to have declined to around $1,200 of a four year lease as second-growth stands reached sufficient maturity.16

Because lumber companies, which tended to frown on the turpentining of their trees, now owned most of the pine land, the lease agreements required practices that would ensure preservation of the timber quality. In the first years of the twentieth century, lease agreements such as the one between Mississippi-based Dantzler Lumber Company and Union Naval Stores Company allowed for traditional boxing methods to be used provided they were worked in a "skillful and workable manner, according to the prevailing methods in the naval stores production trade." In virgin timber, owners permitted as many as three boxes to be cut in one tree, as long as 3.5-inch-wide bands were left between each face. However, no trees less than eleven inches in diameter one foot from the ground could be boxed. Occasionally producers worked timber on a percentage basis, paying the owner fifteen to thirty percent of the gross value

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of turpentine and rosin produced, depending on the timber’s quality. As the cup and gutter system became more widely used and its benefits increasingly recognized, landowners required producers who leased their timber to employ these new methods. Some owners offered reduced prices to encourage early adoption of cups and gutters. New agreements insisted that cups were to be hung at the appropriate time on only trees of a designated size, usually nine inches in diameter or larger at breast-height. No more than one face was allowed on trees smaller than fourteen inches in diameter and no more than two faces were permitted on larger trees. Chipping was also to be practiced judiciously and fire kept out of the forest. But in the event a blaze accidentally started, producers were to rake around the tree. Finally, all of the equipment, especially nails, was to be removed from the trees.17

Although naval stores prices—particularly rosin prices—rose in the first part of the twentieth century, production cost increases made the business less profitable. Until 1913 profitability declines resulted from overproduction, a condition that worsened in 1914 due to disruption of foreign trade caused by the First World War (fig. 9.3). Although demand improved with the beginning of American war preparations, persistent low prices combined with high next year costs rose nearly fourteen percent, another twenty percent the next, and an amazing production costs drove many producers out of the business. Between 1914 and 1915, overall costs for a twenty-crop operation increased only slightly, from $25,046 to $25,233. The twenty-

Turpentine and Rosin Exports from the United States 1901-1930

Figure 9.3. Turpentine and Rosin Exports from the United States, 1901-1930

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Figure 9.4. Average Weekly Gum Naval Stores Wages Per Wage Earner, 1899-1930
Donald Fraser Martin, Jr., “An Historical and Analytical Approach to the Current Problems of the American Gum Naval Stores Industry” (Ph.D. diss., University of North Carolina, 1942), 339; For figures related to chart see Appendix B.

Figure 9.5. Ratio of Estimated Wage Cost to Gum Unit Prices, 1899-1930
saw their wages rise from fifty percent to one hundred percent. At one operation in the Florida
panhandle, the wages for chipping one thousand faces rose from 75¢ to 80¢ in 1916, to $1.40 by
1919, and to $2.50 one year later. One worker who typically earned $6.83 per week in 1916, by
1920 made $19.88.\textsuperscript{19} In 1921 a naval stores man recalled that before these wage increases “labor
was abundant, cheap, healthy, and efficient. Every fall and winter trainload after trainload of
expert turpentine negroes were brought into Georgia, Florida, and Alabama from North Carolina
and South Carolina (the turpentine industry declining in the latter states and undergoing
development in the former). Labor was so abundant that Sambo was willing to work efficiently
for six days in the week and give good value for the wages paid him. Times have changed and
Sambo with them. The competition between the employers of their labor became so keen that
Sambo’s compensation was increased.”\textsuperscript{20}

Even before the extraordinary rise in production costs associated with the First World
War, entering the naval stores business had become an expensive undertaking. For example, the
expense of beginning and operating a twenty-crop operation in 1909 required building a camp,
purchasing equipment, and leasing timber at a total cost of around $26,000. The greatest portion
of this capital outlay was the timber lease, which amounted to around $20,000. Eight mules,
three horses and saddles, harnesses, and wagons would run $2,100. Twenty shanties, costing $75
each, along with two substantial dwellings to house the manager and overseer costing $300 a
piece would total $2,100. Producers could expect to spend $1,250 for a twenty-five barrel still.
Barns, a commissary building, and barrels added another $550. After this initial investment,
operating the business over four years required $81,005, mostly for labor costs. Chipping

\textsuperscript{19} "Division of Cost of Producing Naval Stores," Cary Collection, 1-3; Clifton Paisley,
"Wade Leonard, Florida Naval Stores Operator," \textit{The Florida Historical Quarterly} 51 (April
1973): 390; For figures related to annual wages see Appendix A.

\textsuperscript{20} Carson, “Increased Cost of Naval Stores Production,” 73.
consumed the most, $17,400 or just over twenty-one percent of wages. All other jobs—boxing, cornering, raking, dipping, scraping, hauling, inspecting, and distilling—would run $22,295 over the four years. Salaries for the number of white managers and guards sufficient to oversee work in twenty crops and food for their horses would total $11,280. The 2,360 turpentine barrels and 8,240 rosin barrels required for four years cost just over $10,000. Interest, taxes, depreciation, and marketing costs added another $20,206, making the total cost over four years $101,211.  

Production costs typically decreased each year a crop was worked, usually by fifteen to twenty percent each year. The drop in the lease price each year accounted for much of the decline. Also the cost of dipping dropped as gum yields declined, causing less need for dip, spirit, and rosin barrels as well. It was also half as expensive to raise the cups as to hang them. However, many costs continue unchanged. The same number of streaks was required in the fourth year as in the first, so that chipping cost remained constant. The expense of hiring a distiller, teamsters, and woodsriders also stayed the same. Not only did the overall operating expenses decline after the first year, so did profits. Each year the gum flow decreased and the grade of rosin it yielded declined. Thus, despite the overall drop in yearly production costs, net returns diminished even more.  

The experience of the Leonard brothers reveals how some operators who entered the business around the turn of the century withstood the difficult years by expanding their business interests into areas other than naval stores. In 1900 the three brothers, all in their twenties, left North Carolina. Samuel and Wade relocated to Florida, where they went to work for other

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21 In 1915 the cost of working twenty crops for four years was estimated to range between $119,480 and $156,040. The primary difference between this and the 1909 estimate was the expense of investing in cups and gutters, which ran between $9,450 and $11,550. Schorger and Betts, Naval Stores Industry, 52; Brower and La Fontisee, “Report of the Investigation on the Naval Stores Industry,” 60-61.

turpentine producers, and Henry began his own operation in Mississippi. None, however, found immediate satisfaction or success. Samuel and Wade were unhappy laboring for others and, in 1906, a hurricane destroyed Henry's turpentine orchard. That year the three brothers formed a turpentine partnership ten miles south of Blountstown in Calhoun County, Florida. With Henry serving as manager of their company, H. C. Leonard and Brothers, they began buying property. With their factor's backing, they purchased three-fifths interest in Chipola Turpentine Company, whose eight thousand acres extended for seven miles along the Chipola River and Dead Lake in southern Calhoun County. The factor owned the other two-fifths of the operation. The brothers continued their land acquisitions, purchasing majority shares of the Maysville Naval Stores Company, which owned 20,000 acres near their other holdings in the county's southern corner. They also purchased the five-thousand-acre Sterling farm in the northern part of Calhoun County. This property contained good pine timber as well as several hundred acres of agricultural land which grew corn, cotton, sugar cane, and peanuts. With this operation conveniently located by the Apalachicola River, the Leonards began shipping their turpentine and rosin upstream to Chattahoochee by boat from where it went by rail to their factor in Jacksonville. Before the First World War their annual naval stores shipments reached approximately $100,000. Though the same channels the Leonards received tools and supplies for their naval stores and farming operations and groceries, clothing, and medicine for their four commissaries, which served one hundred families.

Like other turpentine producers, however, the Leonards' business suffered with the beginning of war in Europe. They attempted to hold rosin off the market, hoping for better prices in the near future, but with no success. To meet their debts, they mortgaged two pieces of property with a combined value of $172,740. They survived the industry's downturn during the war only by diversifying into other areas. By 1918 they ran six small mills producing cane syrup, which out-sold their naval stores. The same year they also began a lumber business. By the mid-
1920s, with the financial disruption of the war behind them, the brothers branched out even further, owning a drug company, livestock business, and two car dealerships. They accumulated $268,772 worth of land and total assets worth $444,419. However their interests in Miami real-estate threatened to undo all they had worked for. When the Miami land boom busted in the late 1920s they had to sell off some of their cut-over acreage and once again mortgage property. They survived even this setback, however, and continued turpentining until around 1940.23

The first half of the 1920s saw a partial industry recovery (fig. 9.6) as timber grew more available, operating costs decreased (fig. 9.7), prices recovered, and production grew more profitable (fig. 9.8). Following the First World War, the southern lumber industry entered a challenging period that required it to squeeze as much profit from its timber holdings as possible. Before 1910 companies rushed to purchase timber in anticipation of a predicted future shortage. The required capital outlay for their purchases, combined with increased taxes on the idle

![Total Barrels of Gum Turpentine and Gum Rosin Produced, 1897-1933](chart.png)

Figure 9.6. Total Barrels of Gum Turpentine and Gum Rosin Produced, 1897-1933
A. Stuart Campbell, Robert C. Unkrich, and Albert C. Blachard, “The Naval Stores Industry,” Studies in Forestry Resources in Florida 1 (May 1934): 39; For figures related to chart see Appendix B.

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Total Cost Per Unit of Gum Naval Stores
1919-1930

$100.00
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$-

1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930

Figure 9.7. Total Cost Per Unit of Gum Naval Stores, 1919-1930
Donald Fraser Martin, Jr., “An Historical and Analytical Approach to the Current Problems of the American Gum Naval Stores Industry” (Ph.D. diss., University of North Carolina, 1942), 340; For figures related to chart see Appendix B.

Net Cash Proceeds Per Fifty Gallons of Spirits of Turpentine
1907-1930

$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$-

1907 1909 1911 1913 1915 1917 1919 1921 1923 1925 1927 1929

Figure 9.8. Net Cash Proceeds Per Fifty Gallons of Spirits of Turpentine, 1907-1930
Donald Fraser Martin, Jr., “An Historical and Analytical Approach to the Current Problems of the American Gum Naval Stores Industry” (Ph.D. diss., University of North Carolina, 1942), 338; For figures related to chart see Appendix B.
property, placed a strenuous financial strain on companies. By the 1920s, lumber owners turned to turpentining to reduce the economic burden. They either turpentined their timber themselves or leased it to individual producers before it was cut. By this time companies had less to fear of turpentining's damage to timber. In stands where cups were used there was only a two percent deterioration in the timber following turpentining. Improved transportation facilitated the movement of logging operations and thus lessened the time from the conclusion of turpentining to the beginning of timber harvesting, the period when fired disease, and insects hurt turpentined stands. Too, the promised timber scarcity failed to materialize, leading owners to relax their grip on forest resources. By 1920 the growing supply of timber from the Northwest and the increased use of other building materials—cement, steel, and brick—made southern timber less valuable.24

The new willingness of lumbermen to lease their timber opened up the naval stores industry to a greater number of producers. Price increases after the First World War (figs. 9.9 and 9.10), attracting the smaller producers who had steadily left the business in the first two decades of the century. Much of the industry growth occurred in the more eastern reaches of the pine belt where by 1925, second-growth pines began to grow large enough in the older naval stores areas to enter production (figs. 9.11 and 9.12). Because this new regrowth tended to be sparsely scattered and less productive than the larger tracts of fully mature virgin trees, it attracted more smaller producers than large operations, the latter requiring greater contiguous acreage. As a result of all these factors, after 1920 there was a resurgence of small producers as timber leases grew more available and naval stores prices temporarily rose. In general, however, smaller producers lacked sufficient capital to invest in improved methods.25 They thus were less


well equipped to take advantage of an industry shift that had begun roughly ten years earlier.

Employing less than five wage earners on average, these small turpentiners either formed cooperatives to share the expense of distilling, sold their gum to larger operators with stills, or paid a central custom distillery to process it for them. It was difficult for a producer to justify the expense of owning and operating his own still with less than five crops. In fact, to run a still full-time, producers needed to work about twenty crops, which covered between four thousand and five thousand acres. This size business would supply enough gum to run a fifteen to twenty gallon still twice a day. Small producers most commonly sold their gum to custom distilleries whose numbers throughout the turpentine belt increased during the early twentieth century. These still operators did business in areas where naval stores production was concentrated, not in

![Season Average Prices of Gum Rosin](image)

Figure 9.9. Season Average Prices of Gum Rosin, 1900-1930

Naval Stores Statistics, 1900-1954 (Washington, DC: United States Department of Agriculture, 1956), 22-23; For figures related to chart see Appendix B.

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interview by Michael Garvey, 19 March 1975, Mississippi Oral History Program, McCain Library and Archives, University of Southern Mississippi, 6.
Season Average Prices of Gum Spirits
1900-1930

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Figure 9.10. Season Average Prices of Gum Spirits, 1900-1930
Naval Stores Statistics, 1900-1954 (Washington, DC: United States Department of Agriculture, 1956), 22-23; For figures related to chart see Appendix B.

Annual Average Number of Wage Earners in the Gum Naval Stores Industry by State
1909 and 1919

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Figure 9.11. Annual Average Number of Wage Earners in the Gum Naval Stores Industry by State, 1909 and 1919
Donald Fraser Martin, Jr., “An Historical and Analytical Approach to the Current Problems of the American Gum Naval Stores Industry” (Ph.D. diss., University of North Carolina, 1942), 316; For Figures related to chart see Appendix B.

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the port cities, which were often too distant from inland forests to justify the expense of moving bulky gum. In 1900, for example, Lewis Charles Yaeger, a hardware man in Tallahassee, purchased land in Wakulla County to the south where he established a custom distillery, the largest such business between Jacksonville and Pensacola. His operation employed over one hundred workers and shipped out rosin and turpentine by the barrel by steam boat and railroad.26

Starting in the first decade of the twentieth century and continuing thereafter, rosin prices rose, creating a situation in which to survive operators had to shift their production focus to what heretofore represented nothing more than a byproduct of distillation. Two developments

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that caused this shift occurred at roughly the same time, each encouraging the other. Increased uses for rosin expanded a demand for it. Whereas rosin remained an important ingredient in soap—improving that product’s ability to suds and fight germs—as well as in the manufacture of paints, varnishes, and lacquer, its growing use in paper production represented a significant change. Since around 1820, rosin had been used as sizing to reduce paper’s permeability by liquid. This use steadily grew until, by 1924, it became the most widespread application for rosin. Rosin was also used in the production of plastic compositions such as sealing wax and roofing cement, in making ointments, plasters, and emulsifying compounds, as well as in linoleum production, which provided a market for low-grade rosins. As these new applications grew, they created an increased demand for high-grade rosin and producers increasingly shifted to the improved methods which were capable of yielding a better-quality product than older practices (fig. 9.13). These combined factors brought rapid change to the market. In 1908 the U. S. Forest Service made the startling announcement that “for the first time in the history of the naval stores industry, the production of rosin in the United States . . . led turpentine in value” (fig. 9.14).

The growing market demand for rosin led to the regular practice of rosin mining. During the antebellum era only the highest grades of rosin brought prices that justified the expense of marketing it. Consequently distillers disposed of most rosin by emptying it into a channel that

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28 “Rosin Passes Turpentine in Naval Stores Value.”
led from the still to a stream, river, or lake, or by simply dumping it on the ground near the
distillery. The practice of harvesting the discarded product began just after the Civil War, when
a Union soldier in Sherman’s army learned of a large rosin deposit near the town of Angier in
Harnett County, North Carolina. The soldier returned two years later, bought the right to mine it,
and profited from the venture until naval stores prices dropped with the resumption of southern production. As new uses for rosin grew in the late nineteenth century, mining revived. Miners first hacked rosin out of beds created where the content of stills had been repeatedly emptied on the ground. Although normally covered by several feet of earth, land beds were easier to both locate and work. Using pick axes, laborers—most of them black—hacked the dried rosin into transportable chunks, which when melted possessed the same qualities as the day it had drained from the still.29 During the first two decades of the twentieth century, miners probably recovered more than 100,000 barrels of the discarded rosin.

One of the most ambitious mining projects began around 1920 at the old Avirett North Carolina plantation, Richlands, that possessed one of the largest and most inaccessible rosin beds. Over the course of half a century, six different stills had operated at Richlands, all within a radius of four hundred to five hundred feet, and their rosin had flowed into Lake Catherine. Two brothers named Graham constructed a dam around the most rosin-rich portion of the lake bed. After pumping the water out and removing the silt layer at the bottom, they began the laborious task of recovering the long-discarded product. As the rosin chunks came up from the former lake bottom, the brothers melted it in a vat at the old still site, ran it through a strainer and dipped it into barrels. Within less than a year, they had recovered 15,000 barrels of rosin and had yet to begin recovery of the main portion.30


30 The practice of rosin mining could create legal disputes over the ownership of discarded rosin, as it did in the 1890s in South Carolina. In 1885 a Mr. Outlaw began operating a turpentine still. He quit after two years and rented the still to D. L. Polson. At that time, rosin prices were too low to justify transporting the product to market. Outlaw and then Polson both made a practice of running the rosin into a pit at the still. The still produced so much rosin that it filled the pit and overflowed into a nearby stream. A dispute over the once worthless rosin’s
At the same time that the rosin market created a shift in production emphasis to which operators had to adjust, gum naval stores producers faced growing competition from both domestic and foreign sources that could offer a superior product. Operators found themselves threatened by American wood naval stores manufacturers who used a radically different procedure to make similar products. The method of distilling a wide variety of products—tar, pitch, turpentine, pine oil, and charcoal—from pine stumps had been attempted in the early 1840s. In 1852 a patent was registered for making tar in a retort and, later that decade, James R. Grist installed one with a 2.5 to 5 cord capacity. The first partially successful plant was built in Wilmington, North Carolina, in 1872, but it and other late-nineteenth-century attempts at wood naval stores production only partially succeeded. Increases in naval stores prices around 1900 revived efforts to perfect the process. In 1907 Homer T. Yaryan, a chemist, who years before had developed an improved linseed oil extraction method and new process to distill water, made substantial advancements in the technique of chemically extracting tar and turpentine from pine stumps at an experimental plant in Michigan. Two years later a plant using the Yaryan design and financed by a wealthy Toledo stock broker was completed in Gulfport, Mississippi. In 1912 a second such factory opened in Brunswick, Georgia.31

Ownership erupted when prices rose high enough to justify mining it and transporting it out of the woods. Polson, the renter, began selling it by the barrel. However, Outlaw’s policy while he operated the still was that if any of his clients desired the rosin from their gum, they were to provide the barrels in which to collect it, otherwise it was his. Thus, Outlaw claimed, Polson was entitled only to the rosin that he barreled during the year that he ran the still. Moreover, Outlaw argued, the rosin that Polson had sold from the pit was there before he rented the still because all the more recently produced rosin had spilled out and run down an embankment into a creek. The outcome of this dispute is unknown. Civil Suit Testimony, B.J.L. Stuckey v M.J. Outlaw and B.L. Outlaw, c. 1890, Darlington County Historical Commission, Darlington, SC; Gamble, “Mining for Rosin in the Old North State,” 37-39.

The destructive distillation method involved collecting wood from pine stumps, cutting it into smaller pieces, and placing it into retorts where it was heated with hot gases to the point of charring. A system of iron pipes kept the heat uniform in the kiln. The temperature could be controlled to within one degree Fahrenheit of that desired. Distillation of a charge required fifteen to twenty hours. By basis of weight, the process yielded seventy-nine percent rosin, nine percent turpentine, eight percent pine oil, and four percent other chemicals. The rosin settled to the bottom of the retort where it could be drawn off, barreled, and sold without further treatment or processed into separate products: creosote oils, acetic acid, and rosin oils. The vaporous extract was further refined into spirits in copper stills to ready them for market. What remained in the kiln was charcoal.32

The wood naval stores industry got off to a very slow and disappointing start. At first there were surprising difficulties securing an adequate supply of stumps to run the facilities, even though stumps were plentiful in the millions of cut-over southern forests. Lumber cutters tended to leave high stumps. In time their sapwood rotted, leaving only the resin-saturated heart. To get stump lightwood to the plants, workers had to move into the cut-over areas, blast the stumps from the ground with dynamite, load the pieces onto wagons, and haul them to the nearest railroad or river to be transported on barges to the plants. Subsequent improvements made stump acquisition easier, however. Hercules Powder Company developed a way to blast stumps out of the ground without blowing them into tiny pieces. Later, motorized pullers extracted the stumps, which were then transported to the plants by trucks and trains.33


At first the wood naval stores industry had to compete with gum naval stores producers who manufactured a better product. Destructive distillation plants were initially constructed in anticipation of such a fast-approaching and devastating domestic pine forest depletion that the investors building them believed the United States faced a naval stores shortage. However, second-growth slash pine grew faster than expected, enabling the gum naval stores industry to continue, against which the wood naval stores industry early on faced a distinct disadvantage. The destructive distillation process produced only one relatively low grade of rosin and a substance known as pine oil. Not only was there was no market for pine oil, but gum rosin was superior in quality. However, improvements in wood naval stores production following the First World War allowed the industry to successfully compete with gum products. The well-financed wood naval stores plants turned to engineering and chemical and market research to develop superior naval stores of a uniform quality. They studied their consumers' needs and created products aimed specifically at certain market sectors. They were thus able to offer buyers the exact type of turpentine and rosin they required. Wood naval stores makers also provided their customers technical advice to enable them to use the products most effectively and taught them about new products the industry developed. In addition, they carefully advertised their wide variety of new naval stores. The struggling and unorganized gum industry lacked the resources to devote such energy to product development and marketing, and their market standards remained independent of the customers' needs. They classified turpentine not by its chemical or physical properties, the most informative categorization for determining how best to use the

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product, but by how it was produced: Gum Spirits of Turpentine and Steam Distilled Wood Turpentine.  

As the wood naval stores industry gained stronger footing, more plants sprang up across the coastal area of the South. After Yaryan’s wood naval stores facilities went up in Gulfport and Brunswick in 1909 and 1911, the next two plants to be constructed became part of a large wood naval stores-producing operation which remains in existence today. Newport Turpentine and Rosin Company began as Armin A. Schlesinger’s effort to provide his family’s small Milwaukee paper company with a steady and reliable supply of rosin for paper size. In 1913 he completed a plant at Bay Minette, Alabama, to extract rosin from pine stumps. The plant was capable of processing seventy tons of stumps each day. Under a contract with the Bay Minette Land Company, which wanted to rid its cut-over land of stumps in the hope of converting it to farm land, Newport removed the stumps for free. Although Newport benefited from a large supply of stumps, the rosin it first made was too dark and soft for use as quality-grade paper size and its turpentine possessed an odd odor and dried too slowly for use as a paint thinner. Over the next three years, however, Newport researchers succeeded in producing marketable products. With growing success, Schlesinger moved to expand his operation. A new plant, constructed in Pensacola where a deep-water harbor, plentiful supply of area stumps, and three railroads combined to provide an ideal location, was completed in 1916 and had over twice the production capacity of the Bay Minette facility. As Pensacola’s first industry, the plant employed approximately six hundred workers, the majority of them technical and managerial personnel brought from Milwaukee, where they had previous associations with Schlesinger.

Despite its eventual success in claiming a market niche, the wood naval stores industry developed slowly from 1910 to 1930. In 1910, the first full year of operation for the initial Yaryan plant, wood naval stores made up only 0.3 percent of all naval stores production in the United States (fig. 9.15). Ten years later wood naval stores comprised only three percent, an increase of ten times, but still only a small portion of the total market. However with high product quality and low prices, industry observers predicted a surge in the wood naval stores market share within the near future. In 1921 Thomas Gamble explained that “no one doubts that

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Figure 9.15. Wood Turpentine and Wood Rosin Production, 1897-1933

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in coming years that industry [wood naval stores] will play an ever increasing part in supplying the demand for turpentine and rosins as well as the other products of such plants. The standardization of such products and the greater capital, business capacity, and technical skill called into play in the industry as a whole are placing it on a basis of assured permanency and bring ready recognition of the value of its output throughout the world."36 During the 1920s Gamble’s prediction began to come true. The wood naval stores industry’s greater attention to customer need, combined with the periodically low naval stores prices during the 1920s, allowed it to gain market share at the gum naval stores industry’s expense (fig. 8.4). Wood naval stores prices were only loosely based on the rates of gum naval stores set by the Savannah Board of Trade. Instead, individual wood naval stores producers set prices that varied somewhat between manufacturers but were consistently lower than gum naval stores prices. During market downturns, the lower production costs of wood naval stores manufacture enabled the plants to operate profitably and expand where the relatively high operating costs of gum producers lead to net losses in their industry. By 1930 wood turpentine made up 12.1 percent of the spirits market, and wood rosin comprised 18 percent of the rosin’s market. Throughout the 1930s the market gain for wood naval stores would become much greater.37

Newport Company served as a leaders in the wood naval stores industry’s expansion. Demands for naval stores during the First World War kept both company plants working near maximum capacity, but an early 1920s recession hurt sales. In response to the downturn, the Pensacola facility developed extremely pale grades of rosin that could find buyers even in the poor market. With renewed vigor, Newport expanded again in the second half of the 1920s with


37 Martin, “Historical and Analytical Approach,” 21, 185, 193-194; Naval Stores Statistics, 1900-1954, 2; For figures related to the number of wood naval stores establishments see Appendix A.
the purchase of a wood naval stores plant in De Quincy, Louisiana, originally completed in 1922. Like the Pensacola plant, the one in De Quincy had a 150-ton capacity. Then in 1929 Newport helped organize Armstrong-Newport Corporation, which used the wood left over from the chemical extraction process to manufacture fiber insulation board and ceiling tile. After the 1920s other companies moved to Pensacola to operate in conjunction with Newport.38

Although Newport dominated the wood naval stores industry in the 1920s, other companies contributed to the expansion. In 1920 Hercules Powder Company purchased the Yaryan plants in both Gulfport and Brunswick and, one year later, the Continental Turpentine and Rosin Company began operations at a new facility in Laurel, Mississippi. In 1928 Dixie Pine Products Corporation of Hattiesburg, Mississippi, completed its conversion from a lumber mill to a wood naval stores facility. The mill had operated at the site since the turn of the century, but with the exhaustion of the area’s timber supply in 1926, its conversion allowed the company to use the only remaining timber remaining, pine stumps.39

The development of the wood naval stores industry, like Herty’s cup system, shows that despite nineteenth-century efforts by southerners to establish such methods, it was the support of innovators from outside the region that resulted in the initial successes. Southerners attempted to produce naval stores products for wood as early as the 1840s, but it was a professionally-trained chemist, Yaryan, who first designed a viable facility in Michigan and then helped perfect the


extraction method once an Ohio-based businessman backed the construction of a plant in Mississippi. And a Milwaukee family established the Newport company which broadened the industry's market share. Southerners lacked trained scientist and engineers capable of designing such plants and did not possess the financial resources required to properly construct such large and technically sophisticated facilities.

Along with the expanding wood naval stores industry introduced from outside the region, southern gum naval stores producers faced competition from rising foreign manufactures that seriously threatened their export trade. As the world's largest gum naval stores manufacturer, the United States' production greatly surpassed its consumption, requiring foreign markets to absorb over fifty percent of the supply (fig. 9.16). From July 1907 to June 1908, for example, the United States exported slightly more than half of its naval stores production, over eighty percent of it going to Europe (fig. 9.17). European countries received 2,203,672 barrels of rosin valued at $9,013,210 and 16,376,912 gallons of spirits valued at $8,300,679. Just over forty-four percent of spirits exported there went to the United Kingdom and 22.4 percent to Germany. However Germany received more rosin, 40.4 percent, to the U.K.'s 27.8 percent. London was the world's largest importer of naval stores from America, which supplied much of the U.K.'s annual consumption of 75,000 tons of rosin and 20,000 tons of turpentine. Because the U.K. had no domestic naval stores production, all of its supplies had to be imported. It received seventy-eight percent of its rosin imports from the United States, eight percent from France, six percent from Portugal, and four percent from Spain. It purchased ninety-two percent of its turpentine from the United States and six percent from France.40 Belgium and the Netherlands were also

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important importers. Canada received most of the naval stores exports within North America,

![Percentage of United States Rosin Production Exported, 1908-1930](image)

Figure 9.16. Percentage of United States Rosin Production Exported, 1908-1930

and Brazil and Argentina purchased the bulk of supplies sent to South America. Each of these American regions, though, imported less than ten percent of the United States' naval stores output. Asia, Africa, and Oceana, principally Australia, combined accounted for less than five percent of exports.41

Because the industry relied so heavily on exports, the disruption in trade caused by the First World War was severely damaging. European exports were virtually halted, and naval stores deteriorated in their containers at American ports. The United States preparations for war boosted prices temporarily until they fell off again following the armistice. During the 1920s European consumption and exports rose, but never reached their pre-war levels. By the mid 1920s the United States exported just over eleven million gallons of spirits, compared to over sixteen million during the 1907/08 season.42 Growing competition from foreign production

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explained why (fig. 9.18). During the 1920s Spain, Portugal, Greece, and the USSR began production. By the mid-1920s, Spain ranked as the world’s third largest naval stores producer, although it produced only five percent of the United States’ volume. European markets, especially Germany, consumed the bulk of Spain’s 1925 exports. Germany also purchased a

![World Gum Turpentine Production 1925](image)

Figure 9.18. World Gum Turpentine Production, 1925

43 By the 1920s, foreign countries producing naval stores included France, Spain, Portugal, Greece, Germany, Sweden, Finland, Poland, India, Poland, Austria, and Mexico. Priest, Naval Stores.

44 Although during ancient times naval stores were produced in Spain, the modern industry did not begin until the late-1840s. By the early 1860s Spanish producers began using the French cup and gutter system. However, the Spanish industry failed to develop as rapidly as that in France. In 1879 a Franco-Spanish commercial treaty hurt Spanish producers by reducing their tariff on French naval stores. Spain also suffered from a less-developed transportation system, the slow growth rates of its pine trees, and poor resource management which exploited the trees for gum at the expense of their wood. Spain manufactured 1,057,000 gallons of spirits and 53,000 barrels of rosin in 1925. One naval stores company, which operated a plant manufacturing 1,500 tons of paint and varnish, controlled the Spanish industry. That business consumed a large portion of its production. Romaine, “Naval Stores,” 9; W.L.E. Barnett, “Preliminary Report for Naval Stores Commission,” 23 August 1924, Cary Collection, 31-34; Priest, Naval Stores, 16-17.
large portion of Greek naval stores production, which in 1923 amounted to 7,050 tons of gum. Before the First World War nearly all gum collected in Greece was exported in raw form but in response to rising world demand by the late-1910s, it began distilling a portion. Greeks used some of their rosin in soap manufacturing, but most of the products were sold to other countries, the majority of rosin exported to Italy and most of the turpentine to Germany.\textsuperscript{45} The Soviet naval stores industry developed incredibly rapidly in the late 1920s as part of Stalin’s forced industrialization program. Five thousand hectares of Russian forests were used to collect gum in 1926, but by 1932, 830,700 hectares were under production. Russian industries could not consume the vast quantities of naval stores suddenly flowing from the country’s forests and large quantities were consequently exported using American commercial grades.\textsuperscript{46}

Despite the rapid rise of Spanish, Greek, and Soviet production, France developed as the United States’ greatest naval stores competitor and it ranked second in world naval stores production. In the first two decades of the twentieth century France experienced a rapid increase in naval stores exports despite considerable trade interruptions caused by World War I. From

\textsuperscript{45} Priest, Naval Stores, 18-19.

\textsuperscript{46} In 1914 Russia produced only 130 tons of rosin and 1,100 tons of turpentine, both of very low quality. It imported most of its naval stores. But beginning in 1926 with government-forced efforts to develop the industry, naval stores production grew by leaps and bounds. In 1927, production reached 413 tons of rosin and five years later soared to 56,653 tons. The Soviets developed their industry so rapidly that they were unable to create a system tailored to their particular pine species—red pine and scotch pine—and climate. Initially they modeled their system after that of other countries with mature naval stores industries. Each year workers chipped faces about three feet up, the faces extending nearly all the way around the tree except for a two inch strip of bark used to keep the trees alive. Because the cold climate prevented the resin from flowing freely, most gum had to be scrapped off after it hardened. The Russians soon realized they needed their own unique system of gum collecting and thus began extensive experimentation in 1930 at the Forest-Chemical Institute of Leningrad. “Recent Developments in the Naval Stores Industry in the U.S.S.R. (Russia),” Olustee Experiment Station Files, Georgia Agrirama, Tifton, GA, 1-3; K.M. Osoline and N.A. Oustinov, “Turpentine Experimentation in Russia,” Olustee Experiment Station Files, Georgia Agrirama, Tifton, GA, 1; “How Russia Obtains Naval Stores,” Forest Service newsclipping file, Forest History Society, Durham, NC, 1-2.
1900 to 1905, naval stores exports through Bordeaux rose over 2.5 times, from 27,790 metric tons to 71,600. Germany, England, Belgium, Holland, Austria, Italy, and Switzerland imported most of this supply. The war temporarily reversed this rapid growth; by 1918 Bordeaux exported just 17,749 metric tons. However, naval stores production quickly recovered following peace (fig. 9.19) and by 1921, Bordeaux exported 93,732 metric tons of naval stores to nearly all European nations and even to the United States, which bought France's light grade rosin.

Although American naval stores products were reputed to be of higher-grade quality, French producers had the advantage of close proximity to the European consuming market and exporters could make quicker, on-demand deliveries. By 1927, France manufactured twenty percent of the world's naval stores.47

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47 J.F. Butler, "Production and Trade in Naval Stores in France," 20 July 1924, Cary Collection, 17-18; Priest, Naval Stores, 12.

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Figure 9.19. Value of French Turpentine Products, 1900-1923
Although France produced just a third of the U.S. supply, its superior conservation methods were the envy of American observers. Not only did France maintain a vibrant and sustainable industry, but it did so on land that had once been barren sand dunes. At the beginning of the nineteenth century, the Landes area in the southeastern corner of France represented one of the poorest in the country. Centuries earlier, fire and neglect had destroyed the original forest and dunes blew up, encroaching inland between two and a half and five miles for a distance of two hundred kilometers along the coast. The dunes choked streams and villages and killed the remaining vegetation in the area covering 2,500,000 acres. The region's population dropped to 1,600, mostly sickly shepherds who suffered bouts of malaria.

In the early nineteenth century Napoleon began a program to bring back the forest. He had the dunes leveled and planted with tough grass and native pine trees. The maritime pine was well-suited to the area environment. Like the southeastern United States, the Landes region was very flat and sandy with a hard pan subsoil. The winters remained mild and humid with little frost and the summers warm and sunny. Rain fell principally in the late spring and autumn and averages ranged from 29.3 to 47.2 inches. The maritime pine grew rapidly in the area and formed a protective barrier between the ocean and the agricultural land and mixed forest that grew in the better inland soil. The French government continued reclamation efforts so that, by 1865, the forest grew over most of the region. In 1892 the remaining portions of the dunes were planted. By the first decades of the twentieth century, this former barren, sandy wasteland comprised ten percent of the forest area in France, its population had grown to 14,000, and it represented one of the country's most prosperous areas. The turpentine production area covered about 2,900 square miles, roughly the size of four moderate-sized counties in Georgia.\[48\]

Unlike American producers, the French followed a forest use pattern that permitted them both to harvest timber and continuously produce naval stores from the same stands. Tracts were divided into series, each varying in age by five years. Once a series reached twenty-five years of age, some trees were designated for thinning. Those pines chosen to be cut were worked intensively for turpentine for three or four years. Then the exploited trees were cut and sold for lumber. The remaining pines were uniformly spaced 150 to 200 per acre. They had more room to grow, consequently produced large crowns, and thus experienced greater wood growth. They were allowed to grow another fifteen years before producers cupped them for turpentine. At this time operators cut only one face per tree which they worked for five years. The pines then rested for three to five seasons before they were cupped again. By the beginning of the next cupping most of the previous faces had healed. This cycle could continue for up to eighty years. Then once a series was designating for wholesale cutting, the trees were cupped in as many places as the trunk would permit and worked for four to five years before felled.49

Despite operating the most advanced gum naval stores industry in the world, the French took steps to ensure continued progress by establishing a research organization to focus

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49 Also unlike the Americans, the French employed a tax system that encouraged sound forest use. Taxes were kept at relatively low levels and the rate was adjusted every ten years to reflect the forest's changing value. To encourage their uninhibited growth, forests were not taxed at all for the thirty years after planting. The French government also allowed tax deductions for expenses incurred in preparing land for planting trees, improving drainage, and in preliminary thinnings. "Good Naval Stores Practice" (Washington, DC: United States Department of Agriculture, 1927), Cary Collection, 4; Butler, "Production and Trade in Naval Stores in France," Cary Collection, 4-6; "The following brief description of the management of the Government owned Maritime Forests is given," Cary Collection; I.F. Eldredge, "How the French Turpentine System Looked to an American," in Naval Stores: History, Production, Distribution and Consumption, ed. Thomas Gamble (Savannah: Review Publishing and Printing Company, 1921), 169-170; Barnett, "Preliminary Report for Naval Stores Commission," Cary Collection, 23-24.
exclusively on production and consumption technology, a move that predated similar efforts in America by well over a decade. As an outgrowth of the Chemical Laboratory for the Study of Resins at the University of Bordeaux, the Institute du Pin, established in 1909, explored ways of harvesting and handling raw gum and searched for new uses for spirits and rosin as well as for the wood and waste products left after turpentining. An associated agency developed practical applications for the processes developed at the Institute. Private gifts and government financing supported these efforts.\(^{50}\)

American producers and forestry researchers were awed by the accomplishments of the French. Where France had created a highly successful naval stores industry from a once-barren sand region, the American South had accomplished the opposite, transforming a healthy pine forest into a near-worthless wasteland. Moreover, the southern United States possessed more environmental advantages than the Landes region, but was still outpaced. Although the territory and soil of the both regions was similar, soils of the southern U.S. coastal plain were more fertile than those of the southern France. Each tree species, the maritime pine and the longleaf pine, produced similar quantities of gum, but the South enjoyed a longer growing season a climate that allowed a more constant and greater flow of gum, and more plentiful rain caused the gum to contain more spirits. Nevertheless, the French industry surpassed that in the southern United States because the French used superior methods. French turpentiners produced twenty-two percent more gum than southern producers did in their trees’ first year under production and twenty-eight percent more during their second. Moreover, the French did this on a sustainable basis.\(^{51}\)

\(^{50}\) Priest, Naval Stores, 14; Butler, “Production and Trade in Naval Stores in France,” 16-17.

In 1924 the United States Naval Stores Commission found that “there are many things we can learn from France, if we take the pains to do so.” The Commission mentioned not only French production methods but the way the French supported the Institute du Pin to further research, their use of the Rosin and Turpentine Exchange to sell turpentine more economically to the customers, and their establishment of cooperative stills that permitted producers to enjoy the advantages of a state-of-the-art facility without having to carry the total cost individually. French steam distilleries were reportedly very similar in design principles to American facilities under construction at the same time. However refinements in design permitted the French not only to extract a larger percentage of spirits, but to manufacture higher grades of rosin as well. Americans were also intrigued by the French method for paying workers shares of production. Because laborers in the Landes region were paid according to the amount of gum they hauled to the still, they took greater interest in successful production than did American laborers, who were paid a fixed price per face no matter the amount produced or the state of the market. In France, workers shared the risks with the forest owners. To varying degrees, American producers would eventually adopt these French innovations after 1930.

Intense government involvement explains much of the French system’s advancement over the American South’s. Beginning with replanting efforts in the early nineteenth century, the French government had carefully guided the naval stores industry down the path of sustained yield by strictly controlling harvesting techniques. On government-owned land, where the state’s influence was greatest, conservation efforts were more successful. On privately held forest tracts the timber stands grew less dense and gum yields were lower. Private timber owners greatly resented the many government regulations and jealously guarded whatever property rights they


could claim. Unlike in France, the American government’s forestry guidelines and regulation developed only gradually and after 1900. State involvement gained acceptance only after the industry faced the real threat of timber depletion. Although some American naval stores producers grumbled, the benefits of government research and regulation led many to accept ultimately its involvement. The threat of substantial foreign competition also made the argument for government activity persuasive. That the Landes region’s superior timber management reflected intensive government control, not advanced economic development, is reflected in its lack of an efficient transportation system and inferior product grading and marketing system compared to the American South.54

As American turpentine producers struggled to survive in the challenge of international competition and reduced business profitability, their factors’ control over production and marketing intensified. Most of the turpentiners who survived the 1910s failed to expand into other businesses areas, as did the Leonard brothers, and ended the decade significantly indebted to factorage houses. A generally favorable market from 1919 to 1921 allowed some producers to pull themselves out of debt, replenish their operating capital, and extend their operations, but difficulties resumed as prices again dropped in 1924.55

Industry observers estimated that in the first decades of the twentieth century between seventy and ninety percent of turpentiners used factors to finance their operations and market their products, indication that the South’s banking structure remained immature and that naval stores production continued as a relatively risky line of business. Once a factor came to know and trust a producer, he would open an account for the turpentiner and allow him a line of credit


for needed expenses. The producer customarily obtained his loans from the factor with
mortgaged property and agreed to market all turpentine and rosin through him. Factors advanced
operating capital needed to pay workers and sold producers all the supplies and equipment they
needed, the still, and the workers' houses. The amounts borrowed by producers could become
considerable. In the late 1920s a ten-crop operation required roughly $25,000 to finance, and
factors had to supply nearly half these funds. However, factors usually loaned money relatively
freely. Each house feared losing clients to competing firms if they did not agree to finance them.
The factor charged interest on all sums borrowed, in part to cover its own interest expenses.
Factors had some operating capital of their own but needed to borrow a portion, typically about
forty percent, from the same banks that would not loan to turpentiners. By mid-season factors
generally had enough cash on hand from their own advances to repay the bank. Once the naval
stores were produced factors sold the operators' turpentine and rosin and applied all proceeds to
their accounts. For this transaction, the factors charged their clients a 2.5 percent commission, a
rate that had remained unchanged from colonial days.56

Factors usually secured loans to producers with mortgages on land, leases, and
equipment and, to protect their interests, would take control of poorly managed operations. In
1915, for example, the Peninsular Naval Stores Company foreclosed on a St. Johns County,
Florida, turpentine operation. Between 1912 and 1914, the producer had received loans totaling
$19,566.59 by mortgaging his operation. In foreclosing, Peninsular collected 5 mules, 1 horse, 2

56 Factors sold the naval stores products that they controlled to dealers who handled their
distribution to consumers. Dealers bought and stored naval stores products, risking price
fluctuations, fire, theft, and physical deterioration before they were sold to consumers. Most
dealers specialized in either domestic sales or exports. They sold to a variety of customers:
distributors, who handled the secondary wholesale market; brokers; large industrial users; as well
as individual users and retailers. Brower and La Fontissee, “Report of the Investigation on the
Naval Stores Industry,” 5-6; Martin, “Historical and Analytical Interpretation,” 107, 258-259;
Campbell, et al., Naval Stores Industry, 25; Antwerp Naval Stores Company, et al. to W.F.
Hottsman, 20 October 1933, Carry Collection; Maguire, interview with author; Eldridge
interview, 9; Wyman, Florida Naval Stores, 40.
wagons, 1 buggy and harness, 2 saddles, 1 dilapidated turpentine cup boiler, 35 dip barrels, 38 second-hand spirit barrels, 54,000 galvanized cups already attached to trees, 29,000 clay cups also on timber, 12 barrels of crude dip, 11 barrels of cotton battin, commissary stock, and feed.

The greatest value of the mortgaged operation, however, was not its livestock, equipment, and supplies, but the cupped timber's production potential. To protect the operation against fire, prevent any profit loss from an interruption in harvesting, or risk losing the assembled labor force during an idle period, Peninsular moved immediately to place the operation under new management. In a similar action three years later, Consolidated Naval Stores Company foreclosed on another St. Johns County operation, no doubt a casualty of the business slump experienced during the First World War. When factors came into possession of such operations through foreclosures, they commonly went into partnerships with producers, who worked it for them. The factor retained fifty-one percent of the stock and the producer owned forty-nine percent. Producers often had to borrow from the factor to buy his forty-nine percent. In some instances, however, factors sold the operation to someone who could take over the debt.

The factors' overall control of the industry grew in the first part of the twentieth century, not only from individual producers' greater dependence on them, but increased market control. As in the late nineteenth century, factors sought during the first decades of the twentieth century

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57 From this foreclosure, Consolidated collected 9 crops of boxed and cupped timber, some two and mostly three years old, 3 horses, 9 mules, 2 four-horse wagons and harnesses, one buggy and harness, 3 turpentine stills and all fixtures, 1 cooper's shop and tools, 40 shanties, 1 gasoline pump, a commissary building and all stock, 70 turpentine barrels, 1 wagon and harness shed, 5 houses, 1 artesian well, 2 saddles and bridles, 1 horse, and 1 glue kettle.

to stabilize the industry in an effort to perpetuate their business. They periodically withheld advances to producers who intended to bring more faces into production during years of declining prices. This action helped prevent prices from falling further and limited producers to levels that allowed them to meet their financial obligations. Factors also encouraged producers to adopt the new improved methods that had been clearly shown to be more economical and less destructive in the long run. By placing the producers on secure financial footing and prolonging forest use, factors hoped to keep themselves in operation.59

The rise of a huge new factorage house further intensified the factors’ power over producers. In 1902, four Florida and three Georgia factors merged to form the aptly named Consolidated Naval Stores Company, thus creating the largest naval stores trader in the United States, with offices in Savannah, Jacksonville, and Pensacola. Controlled by a Chicago banking firm, Consolidated possessed $1,950,000 of working capital and served over seven hundred operators who in all controlled a total of five million producing acres. By only the company’s second year it handled fifty percent of the United States’ naval stores manufacture. Over the next few years Consolidated established several other companies to serve producers including Consolidated Grocery Company and Florida Export Company. Perhaps its most widely known such enterprise, Chattanooga Pottery Company, profited from government-sponsored research by manufacturing the cup developed by Herty a member of the Bureau of Forestry. Another subsidiary, Consolidated Land Company, bought timber land to ensure continued naval stores resources in the future. By 1922 it owned over 1.5 million acres of longleaf pine. To control the spiraling cost of spirit casks, Consolidated purchased Florida Cooperage Company, giving it the ability to supply its clients with 390,000 casks annually. With the 1907 incorporation of the Florida Pine Company, Consolidated began working some of its pine land itself rather than

leasing it to independent operators.\textsuperscript{60} Over the course of its history, close to forty subsidiaries belonged to Consolidated Naval Stores Company.\textsuperscript{61} As both a horizontally and vertically consolidated conglomerate, the business represented a desire to impose order and efficiency on a notoriously risky and unpredictable trade and the ability of northern finance capital to create such a large business in the South whose native investors lacked such substantial resources.

Producers held mixed feelings about their relationship with Consolidated and other factors. Some believed that the factors were fair, at least more so than northern bankers, whom operators believed would exploit them at any chance. Fellow southerners, producers assumed, would charge them more reasonable interest rates. Other producers believed factors exploited them by charging excessive prices for supplies, equipment, and interest on finance capital. Such turpentiners resented their dependence on the factors and the control over their operations that

\textsuperscript{60} A fierce battle apparently raged among the company heads over whether to use convict laborers in its naval stores production business. In 1908 the move failed amid strong discussion but the board of directors approved leasing the next year. Three vice presidents submitted resignations to the board in response. Robert S. Blount, “Spirits in the Pines” (M.A. thesis, Florida State University, 1992), 83-87, 118; Robert S. Blount, Spirits of Turpentine: A History of Florida Naval Stores, 1528 to 1950 (Tallahassee: Florida Agricultural Museum, 1993), 31; Butler, Treasures of the Longleaf Pines,” 164.

\textsuperscript{61} These businesses included Arcadia Naval Stores Company; Baker, Fentress & Company; Barnett National Bank; Barnett National Bank Securities Corporation; Chattanooga Pottery Company; Citrus Land Company; Clark Meggs Company; Consolidated Automotive Company; Consolidated Create & Lumber Company; Consolidated Financial Corporation; Consolidated Grocery Company; Consolidated Land Company; Consolidated Naval Stores Company; Consolidated Tidewater Pine Company; Consolidated-Tomoka Land Company; Covington Turpentine Company; Deen Turpentine Company; DeLeon Naval Stores Company; Downing Company; J.W. Dutton Company; Florida Cooperage Company; Florida Export Company; Florida Grocery Company; Florida Industrial Company; Florida Pine Company; Forest McCoy Turpentine Company; Hall Naval Stores Company; Herty Turpentine Cup Company; Horseshoe Ranch; Kissimmee Island Cattle Company; Lake Childs Company; Lake Placid Land Company; Lake Wales Naval Stores Company; Naval Stores Investment Company; Pine Wood Naval Stores Company; Punta Gorda Naval Stores Company; Putnam Naval Stores Company; Salem Turpentine Company; Singler, Baldwin & Company; Smith-Edwards-Ewing Company; Tropical Investment Company; Tropical State Bank; and Williams Upchurch Company. Blount, “Spirits in the Pines,” 104-105.
factors could exert if they disapproved of their management.\textsuperscript{62} One producer, drawing an
analogy between the operators relationship with their black workers and the producers’
connection to their factor, explained that “we owned the niggers, and the factors owned us.”\textsuperscript{63}

Although factors dominated financing from 1900 to 1930, there was a gradual increase in
the use of banks. Banks began to appear across the South at the same time that the naval stores
industry was growing more stationary. With the disappearance of virgin pine stands, producers
no longer moved about searching for fresh tracts, but rather remained in one general area and
worked the increasing acres of second growth pines. Using improved methods, they were able to
harvest gum from the same acreage for more years than before. The increased ability of
producers to work in one place for lengthy periods made banks more willing to accept their
operations as security for loans. An estimated ten to fifteen percent of producers turned to banks
for financial help. The same changes that allowed turpentine operations to receive bank loans
opened up credit opportunities for them with wholesale grocery companies, permitting even
further independence from factorage houses. Only a few well established naval stores men
operated on a cash basis and thus required the financial assistance of neither banks nor factors.\textsuperscript{64}

The naval stores industry faced considerable difficulties early in the twentieth century.
Despite a stabilization of timber resources, pine acreage remained relatively scarce and
expensive, especially after timber companies began efforts to conserve their remaining stands in
the 1900s and 1910s. Other production costs, particularly labor, rose during the period, the
greatest jump occurring during the First World War. Competition from the wood naval stores

\textsuperscript{62} Maguire, interview with author; Campbell, et al., \textit{Naval Stores Industry}, 25.

\textsuperscript{63} Gay Goodman Wright, “Turpentining: An Ethnohistorical Study of a Southern

\textsuperscript{64} Martin, “An Historical and Analytical Approach,” 107, 255, 135; William Alonzo
Register, interview, tape recording, Florida State Archives; Campbell, et al., \textit{Naval Stores
Industry}, 25, 26; Wyman, \textit{Florida Naval Stores}, 33.
industry and from foreign gum naval stores production posed another serious threat to producers. After poor performance in its early years, wood naval stores plants proved capable of providing superior products possessing the specific qualities for individual consumers' needs. And foreign gum naval stores producers, especially the French, were able to supply European consumers with superior gum naval stores products while operating on a sustainable basis. Largely as a result of declining business profitability caused by these challenges, American producers found themselves more dependent on factorage houses, which increased their hold on the industry. Although producers faced difficult new circumstances in the early twentieth century, relatively little changed for naval stores industry workers.
Chapter Ten

Persistent Patterns:
Constancy in Labor Practices and Camp Life

The naval stores industry's use of both peonage and convict leasing and the experiences of workers under those labor institutions persisted into the first decades of the twentieth century. For the many laborers whom producers continued to hold in debt bondage, the work routine—except for the substitution of boxing with the cup and gutter system—remained virtually unchanged, as did life in the isolated camps. Prisoners leased to turpentine operations endured even harsher conditions than those held in peonage; their conditions were bleaker, the workload greater, and punishments more severe. For both convicts and peons, the life in the naval stores industry retained considerable continuity with the late nineteenth century and even antebellum years.

With the demand for labor so high in the turpentine region, employers went to great lengths to attract workers; they advanced wages, paid railroad fares, and even hired professional labor recruiters, despite laws against them. Because turpentiners had so much invested in laborers before they even began work, operators insisted that employees remain long enough to justify the expense. And as labor costs rose after the turn of the century, producers grew increasingly concerned about preventing the loss of their outlay when laborers left. Operators sensed an increasing threat to labor stability, believing that high labor prices, especially in the 1910s, could allow a worker to labor just two or three days to support a spree for the rest of the week. Producers also feared that workers might desert their employer for another who offered substantial incentives, and thus render their business almost inoperable. One report held that a black worker secured one advance from a south Georgia employer, then left and received the
same from another hirer. From the two men, he collected a total of four hundred dollars for which he worked three days.  

Evidence suggests that the operators' fears were not totally unfounded. In 1922, Johnston, McNeill & Co., a turpentine operation in Okeechobee, Florida, had operating expenses of $53,026.41. $20,554.72, or nearly forty percent, went toward salaries and wages. The company spent another $851.57 on recruiting and suffered the loss of $1,411.92 in advances to workers who apparently left its employment. The company's loss of advance payments represented over 2.5 percent of production costs, a significant amount in an industry with narrow profit margins. It appears that in all, eighty-one workers quit the company that year, only ten of them settling their accounts before leaving. The other seventy-one left owing an average of $19.89. Some, however, owed considerably more than others. Ten workers, according to the company's financial reports, left with money owed to them, though most of them walked away from less than $1. Only four workers who remained in the company's employment had accounts in the black, two with substantial amounts, $132.36 and $104.61. For the next year it appears that, on average workers grew more indebted, although thirteen had credit with the company.  

In their struggle to secure adequate labor, producers repeatedly violated the industry's gentlemen's agreement not to "steal" each others' workers. For 1912 the four turpentine operations run by the Ten Mile Lumber Company of Ten Mile, Mississippi, recorded an average "recruiting expense" of $110.72 that most likely went toward advances.  

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1 "Wisconsin to Check Fraud on Employers," Newsclipping and Frederick C. Cubberly to H.L. Anderson, 17 August 1906, Frederick C. Cubberly Papers, Department of Special Collections, George A. Smathers Libraries, University of Florida.


3 Elliott Maguire, interview by author, tape recording, St. Augustine, FL, 5 June 1996; Ten Mile Lumber Company ledger, 1912, Dantzler Lumber Company Papers, Special Collections, Mitchell Memorial Library, Mississippi State University; Gay Goodman Wright,
reporter explained that "each well-equipped place has ‘cruiters’ on the road looking up laborers from other camps to bring them in by any means—by allurement, by threat, by arrest. Labor is so precious and so necessary that the getting of it gilds a crime with virtue." Operators even left trade meetings early to have an untethered opportunity to steal neighboring producers’ workers. The weekends offered the best opportunities for recruiting; owners or managers would depart for a recruiting mission on Saturday with a supply of moonshine. While clandestinely entertaining workers of other camps with alcohol, the manager made extravagant claims about the superior wages and working conditions at his camp. It was dangerous to attempt to steal or recruit workers. If caught, the violator could be shot.5

Periods of transition offered recruiters the best opportunity to prey on other producers’ laborers. When turpentine operations relocated, as they periodically did, producers had trouble keeping their labor force intact. Changes in management also attracted heavy recruiting activity. The owner of one St. Johns County, Florida, turpentine business died in August 1914. When a receiver, sent by the deceased man’s factor to oversee the operation, arrived four months later he found that the “laborers were gone from the place and it became necessary for me at considerable expense to engage labor and bring it to the place.”6

Expansion of the naval stores industry into new regions placed a particularly high premium on black labor. In the areas where the naval stores industry grew in the early twentieth

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6 Peninsular Naval Stores Company v Addie Jenkins, St. Johns County Court Cases, St. Augustine, FL.
century, especially in Florida, the black population was not large enough to supply the operators’ labor needs. Forester Asa L. Brower discovered that Florida turpentine production failed to increase as rapidly as it could in the first decade of the twentieth century because “operators were still struggling against the annoying labor condition. . . . Labor was scarce,” he explained, “and many of the operators were unable to effectively work all of the timber they had bled.”

Compounding the producers’ frustration over tight labor was their persistent belief that blacks were unwilling to work. One newspaper article explained that white workers could be counted on to complete a labor contract and work off their debt. “Others, and they are found largely among the negroes,” the article explained, “seek to shirk the work to slip out of the duty; to neglect it and to scrap it, hoping that the creditor-employer will become disgusted and tell them to be gone.” One contemporary economist argued that the black man “will probably continue to operate as a drag on southern progress and will serve to exaggerate the South’s relatively low standing in such matters as per capita wealth, income, and literacy.” Even a muckraking journalist critical of the turpentine industry’s labor atrocities believed that “the negro, as he exists in Florida to-day, is content with merely enough to keep soul and body together, and this he can earn by working one day a week, since wages are relatively so high.

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9 Untitled newspaper article, Correspondence, Department of Justice Central Files, General Records of the Justice Department, Record Group 60, National Archives.

Frequently he works not even this necessary one day a week, but prefers to let his wench work the entire seven.\(^{11}\)

Under such labor conditions and racist perceptions, at the turn of the century the southern states intensified the legislation that supported peonage. In the lower South’s piney woods region, naval stores men joined the Georgia-Florida Sawmill Association in demanding more effective labor legislation, a demand to which the state legislators complied. The centerpieces of compelled labor were false pretenses and vagrancy laws, legislation passed in most southern states during the last quarter of the nineteenth century.\(^{12}\) In classic terms, as defined by Assistant Attorney-General Charles W. Russell, the practice was defined “as causing compulsory service to be rendered by one man to another on the pretext of having him work out the amount of a debt, real or claimed.”\(^{13}\) Beginning with Georgia and Alabama in 1903 and Florida in 1907, southern states passed false pretenses laws making the refusal to work or repay advances prima facie evidence of an intent to defraud. Before this legislation, workers could only be held to their work if their employer could prove they intended to defraud at the time they contracted to work. Producers, however, could not easily establish liability even in sympathetic courts. The new false pretenses laws shifted the burden of proof to the workers. They had to demonstrate that they did not plan to defraud at the time they received cash or merchandise advances with a labor contract.\(^{14}\) For example, turpentine worker Jack Richburg was arrested in

\(^{11}\) Barry, “Slavery in the South To-Day,” 488.


\(^{14}\) Cohen, At Freedom’s Edge, 231; William Cohen “Negro Involuntary Servitude in the South, 1865-1940: A Preliminary Analysis,” The Journal of Southern History 42 (February
1908 under the new Florida law. On December 23, 1907, he had entered into contract with the Downing Park Naval Stores Company to perform turpentine work. Upon agreeing to the contract, he accepted cash and goods valued at seven dollars. When he quite the job before his contract expired, he was arrested for taking the advances with "the intent not to perform such services."15

The other important area of legislation, vagrancy laws, strengthened local law enforcement's ability to arrest anyone not working. From 1903 to 1909 Alabama, Arkansas, Florida, Georgia, Mississippi, North Carolina, Texas, and Virginia adopted strict new vagrancy laws. Florida's 1905 vagrancy law defined the offense so broadly that anyone deviating from the white South's acceptable social standards could be arrested.16 It defined as a vagrant:

roguers and vagabonds, idle or dissolute persons who go about begging, common gamblers, persons who use juggling or unlawful games or plays, common pipers and fiddlers, common drunkards, common night walkers, thieves, pilferers, trader in stolen property, lewd, wanton, and lascivious persons in speech or behaviors, keepers of gambling houses, common railers and brawlers, persons who neglect their calling or employment and misspend what they earn and do not provide for themselves or for the support of their families, persons wandering from place to place able to work and who are without means and who neglect to earn their support and live by pilfering or begging, idle and disorderly persons, including therein those who neglect all lawful business and habitually misspend their time by frequenting houses of ill fame, gaming houses, or tippling shops, persons able to work but are habitually idle and live upon the earnings of their wives or minor children, and all able-bodied male persons over eighteen years of age who are without means of support, and whose parents or guardians are


15 State of Florida vs Jack Richburg, Correspondence, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

unable to support them, and who are not usually in attendance upon some school or educational establishments, but who live in habitual idleness.”17

In 1908, a United States attorney in Alabama complained to the Attorney General that “between the vagrancy law, contract labor law and our new game law, the ignorant farm laborer is practically reduced to a condition of dependence on his employer or landlord, and whether he defrauds him or not he is so harassed by the fear of prosecution under the various drastic statutes that he is often times afraid to leave the service of an employer with whom he would not remain if he were left to act at will.”18

Besides its strengthened legal support, one of the new characteristics of early twentieth-century peonage was the involvement of white workers in the system. In 1911, the Pensacola Journal reported that, at that time, fifty white men were serving sixty days for vagrancy. The article claimed that in ninety percent of the cases the men had been arrested by a Flomation, Alabama, officer, escorted to the state line, and arrested by a deputy sheriff in Florida who was paid a fee for each man he arrested. Recently-arrived Eastern European immigrants, however, perhaps represented the largest percentage of whites ensnared in peonage. Labor recruiting agencies opened in the northern cities and targeted immigrants who desperately needed work, would tolerate low wages, and lacked knowledge of the nature of labor conditions in the piney woods. Many recruiters failed to explain to workers the circumstances of their employment. Some lied when they told them they would be working in a skilled trade when in fact they were sent to perform brutally hard turpentine and railroad construction work. Most agents also neglected to explain that the transportation costs to the South and the advance wages they


18 E. J. Parsons to Charles J. Bonaparte, 7 May 1908, Correspondence, Justice Department Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

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received to buy food from the commissary would start them off in debt. One such New York agent sent an average of three hundred men a month to work in the turpentine camps.  

The experience of Sam Fink, a Jewish immigrant from Staten Island, New York, was typical of workers duped into agreeing to go South. On June 4, 1906, Fink met a labor agent while hunting for a job in New York City. The agent offered to send Fink to Florida where, he was told, he could work for $1.90 a day. Each week, the agent explained, 50¢ would be deducted to cover the $13 traveling expenses. Fink accepted the offer and joined a group of around fifty other immigrant men on a ship headed south. They were not given their labor contracts to sign until aboard the ship, when it was too late to back out. From these documents they learned they were headed for a place called Buffalo Bluff, Florida, probably located a short distance south of Savannah, to work at a sawmill. When the shipped docked in Savannah, however, the work boss who met the men took them to a turpentine camp in the community of Maytown, located 150 miles south of Jacksonville and accessible only by a train which passed twice each day.

Upon reaching the camp their induction into peonage began immediately. They had had little to eat on the trip and, once they arrived at the camp, were shown into the commissary and instructed to buy their food, which would be charged to their accounts. Because the shelves were short of provisions the new laborers were allowed to purchase only one box of crackers for every two men. When they complained of hunger, they were told they could receive no more food until they began to work. They did not start until three days later. Their first work day began early in the morning when a black guard woke them up and drove them ten to twelve miles through the woods to a place where two black guards on horses and two on foot showed them how to chip


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turpentine, forcing them to wade through waist-deep water to reach some trees. When the immigrant men complained about the work and the lack of food, the foreman threaterningly displayed his pistol and whip. Having had enough of the Maytown turpentine camp, the immigrants complained to the boss that their papers called for them to work at the sawmill and lumber business at Buffalo Bluff. The boss granted their request, but charged them the eight dollars each for transportation there.

Their experience at Buffalo Bluff was no better than at Maytown. They had to sign new contracts, charging them once more for the transportation, this time, eighteen dollars. The Jews among the group protested but the Germans signed willingly. The two groups were then separated, the Germans receiving houses in which to sleep while the Jews were given cabins with no beds, pillows, sheets, or blankets. The floor was filthy and falling apart. They nailed some boards together to make a bed. Unable to tolerate conditions at Buffalo Bluff, Fink and three other Jews escaped early one late-June morning, only to be caught while trying to board a train and forced to return. Two days later they ran away again. They made it to the third train station down the line and successfully boarded a passenger car. However, two Buffalo Bluff foremen also got on the train, recognized the immigrants, and demanded that the conductor remove them and have them locked up. Because they had paid their fare, the conductor refused. (It is not clear how the group got the money to purchase their tickets.) They went as far as Bostwick, a town about twenty-five miles south of Jacksonville, where they set off on foot. They had little food and asked some women they met on the street of one town if there was any work available in the area. They were warned not to seek work there. The community had already received orders by telephone to lock up any strange white men who came through. So the group of four kept to the woods, avoided detection, and, after five days and nights of walking, arrived in Jacksonville. The tenacious camp foreman found them there and, at his insistence, the sheriff took them to jail where they grew very sick awaiting their trial. The Jacksonville Jewish
community attempted to help. It succeeded in preventing the sheriff from chaining the workers, but he would not accept the money they offered to pay the men’s debts. The Jewish community continued to support them, bringing them food in jail and paying each one’s hundred-dollar bail. When finally released the immigrants quickly returned to New York.20

Where peonage carried over from the latter decades of the nineteenth century, the early-twentieth-century turpentine laborers’ work routine, despite the replacement of boxing with the cup and gutter system, changed little from the industry’s antebellum and, in some instances, colonial days. When starting a turpentine operation, a woodsman rode through the forest marking the trees that were to be harvested for gum. If the operator planned to use the traditional boxing method in which the worker cut a cavity into the trees’ base, then squads of six to seven workers went to work with axes in December. These laborers cut boxes in the same manner and to the same specifications as slaves before the Civil War. In establishments that used the newly-developed cup and gutter method, workers began the process known as “putting up virgin.” Beginning in December, a group of six or seven workers, a “hanging crew,” each member with a special task, began the job of installing the clay cups and galvanized steel gutters. An ax man shaved the bark from an appropriate area of the pine’s base and another worker smoothed the area with a hatchet. A team of two other workers cut eight-inch incisions for the gutters, with one holding a broad ax against the smooth face while the other hit it with a maul. Still two other workers were responsible for inserting the gutters into these cut grooves and driving in nails from which they suspended the cups. A six-man team could hang from 650 to 1,000 cups a day. For each year after a crop’s initial preparation, workers used the same procedure to raise the cups and gutters by two feet. However, instead of smoothing out the trees’ barky exterior, workers shaved 20 Sam Fink Affidavit, 11 October 1906, Correspondence, Classified Subject Files, Department of Justice Central Files, General Files of the Department of Justice, National Archives; Tegeder, “Prisoners of the Pines,” 125-129.
down the streaked face to prepare an appropriate surface for the equipment. Because raising the cups required less ax work than when first installing them, young boys could perform this task. Most workers quickly learned the squad’s routine and their special function within it. Operators typically did not push their laborers hard in off-season work since it was not done under critical time constraints. Such labor during slow months served to benefit the producers’ and workers’ different interests. During the winter months, employers needed to provide work for laborers to counteract other producers’ enticement efforts. For their part, workers needed the income.21

With the advent of the cup system, a new off-season job was added to raking and burning, boiling cups. After several seasons of use, cups became caked with dirt and dried gum. To clean them, workers collected them from the trees and placed them by the hundreds in large vats of boiling water, where the gum melted and washed off. Cleaning their cups periodically enabled producers to make a higher-grade rosin from the gum. But despite the benefits of the higher grades, the cost of collecting, boiling, and rehanging the cups limited the frequency with which they could be cleaned. Some producers thus boiled their cups only in preparation for harvesting virgin gum.22

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22 Wyman, Florida Naval Stores, 21-23.
As had been the procedure for over a century, between late February and early March chipping began, each worker covering between 1,500 and 2,400 faces a day. In the several decades after 1900, faces rose progressively slower as the hack sizes grew smaller and workers were instructed to cut narrower and more shallow streaks than in previous years. Although the hack blade changed slightly, it differed little in the first half of the twentieth century from its design one hundred years earlier, a blade fastened to a wooden handle with an iron ball on the end to furnish momentum when a worker swung the tool downward, across the face. Workers continued to use pullers once the face grew too high for a hack to reach. The puller design had also changed little.\(^\text{23}\)

Although the exercise of dipping gum from a clay cup differed somewhat from removing it from a box, little else about the job of dipping changed. The task was performed by squads of three or four workers and, because it required so little skill, young boys around twelve years old could perform it. Depending on the trees' productivity, dippers harvested gum every two to four weeks. After removing the dip cup and scooping gum out with a trowel, the workers transferred it to buckets, usually old nail kegs with gutter iron attached to the edge to scrape off the gum. Once a bucket was full, weighing about fifty pounds, it was taken to a dip wagon that followed the squad through the forest. The workers handed their bucket to the driver, often an older man, who emptied it into a barrel. Some producers, however, dispensed with wagons and simply placed empty barrels throughout the forest and collected them once the dippers filled them with gum. According to this routine, a teamster drove through the forest in a drawn wagon, hammered a lid on each filled barrel, and rolled it on skids onto the wagon. Such teamsters often used the...

same draft animals with whom they reportedly formed a bond, caring for them and growing to understand their temperament.24

If a producer used the traditional boxing method, which required the gum to run down the entire length of the face into the box, workers had to remove the scrape, or dried resin, once the dipping season ended in the late fall. This operation was unnecessary on pines outfitted with cups since little gum hardened to their faces. Because the practice of burning the forest persisted, workers continued to rake around the trees. Grass, straw, chips, and branches were cleared from around each tree for a distance of from two to three feet. Workers could rake around four hundred to seven hundred trees a day. In raking and all other tasks, the amount of work expected from laborers depended on forest density more than acreage. More work could be done in woods with thick tree growth than on sparsely timbered tracts where laborers spent considerable time walking from tree to tree. Weather could also affect worker productivity. In 1922, for example, work at one turpentine camp ground to a halt during four weeks of hard rain, which left water standing nearly knee-deep in some areas of the woods.25

The introduction of the cup method did nothing to relieve the challenge producers faced in trying to manage their workers who were spread out over as much as thousands of acres of forest. Producers continued to organize their operations by crops of 10,000 faces, although some


used a size of 10,500. As the first decade of the twentieth century progressed, however, the size of tasks tended to drop in some areas. As turpentiners began moving into second-growth pine forests, where trees commonly grew farther apart than in virgin stands, it became impossible for workers to tend 10,000 pines. Some laborers, consequently, found their task reduced to as few as 5,000 trees, representing a considerable decline in their productivity.

Operators continued to rely on woodsriders to supervise their work force. Although most woodsriders were white, some were black. Black woodsriders had typically begun work in turpentine when they were young—dipping, raking, and helping around the still. As they gained experience they became dippers, teamsters, coopers, and distillers. The very best advanced to woodsider. But no matter the woodsider's race, his principal job was to inspect the quality with which faces were worked and to make sure no trees were missed. On small operations the woodsider tabulated how many trees each worker tended. Many operations, however, were large and employed too many workers for woodsiders to concentrate on both work quality and quantity. It was not uncommon for big operators to employ more than thirty men in the forest. In the early 1920s, for example, one enormous turpentine business near Opal, Florida, was subdivided into eight operations which together employed four hundred black men in the forest and nine white woodsriders to oversee them. Workers who collected gum or scrape were paid by the bucket- or barrel-full, depending on which system of collection they used. For jobs that did not create a measured end product like boxing, chipping, or attaching cups, producers used a tallyman to record each workers' progress. Camp managers assigned each worker a code made up of either numbers or names. When a worker finished his task at one face, he called out his individual code word loudly enough for the tallyman to hear him up to several hundred yards away. The different codes hollered throughout the forest reportedly took on a rhythmic chanting sound. Each tallyman could record the work of no more than ten to twelve hands. The tallyman
needed to be competent, trustworthy, and of good hearing, but age and strength mattered little.

At one camp a ten year old boy was promoted from toting water to keeping the tally.²⁶

Except for such light jobs as dipping and tallying, turpentine remained strenuous work requiring considerable physical strength. Evidence suggests that by the early twentieth century the number of hours turpentine laborers worked dropped to around twenty-five or twenty-six hours a week.²⁷ “That was all a strong man could take or the hard physical labor would break him down,” a former turpentine laborer explained.²⁸ One former producer believed that the “turpentine man was the hardest working there is in the world for the number of hours he works.”²⁹ In the woods, workers had to contend with underbrush and snakes, which made the work more taxing and dangerous. Snakes were plentiful in the pine forest, but the danger of being bitten appears to have been low. As long as workers used the pattern of foot-worn paths to


²⁸ Vail, “Old-Timer Remembers ‘Hard Old Days’ in Woods.”

²⁹ Register, interview.
move between trees and made noise while at their work, snakes kept their distance. In the untouched underbrush, however, snakes and workers might meet. Workers feared the red-headed skink more than snakes. They incorrectly believed the skinks were poisonous and sighting one alone was thought to bring bad luck. While the work remained strenuous and dangerous, it continued as well to be extremely dirty. The men working around the gum got so much of it spilled on their overalls that the cloth became stiff once it dried. When workers undressed at night they were unable to fold their overalls away and instead left them standing in the corner of their cabin.

Not only did labor in the forests remain difficult, but distilling persisted as a primitive craft. Producers continued to distill their gum in copper stills of the same design as those introduced in the 1830s, but in the early twentieth century technological innovations improved the regulation of the process and thus the quality of the finished product. The addition of water to the still at the beginning and during the distilling process continued from the late nineteenth century and enabled producers to extract more spirits and also resulted in both spirits and rosin of a somewhat higher quality than before. Along with the continued practice of adding water, the introduction of a still thermometer helped in regulating temperature. The device, developed by Stephen Neal of Cordele, Georgia, in 1907, took some of the guess-work out of heating the still, gauging the time to add water and timing the release of the rosin. However, older distillers, who had honed their skills in controlling the process by the sound of the boiling gum and the appearance of the liquid that drained from the condensing tube, refused to use it, believing it degraded their craft. Younger distillers, though, found the thermometer invaluable. Even with

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the thermometer, the art of distilling remained a highly sought after skill, and distillers continued to hold the highest status among turpentine workers. They usually lived in one of the best houses in the quarters. Distillers also received a higher wage and, unlike most workers, who were paid by piecework, the distiller received a salary. In many camps the distiller was black and responsible for the still's operation, although the producer and woodsrider frequently checked on his work. At large camps that employed a manager to oversee the entire operation, the manager might supervise the distilling. At one camp the distiller's position was so high, he served as the producer's overall assistant.31

As with distillers, technology changed but did not transform the role of coopers. Although many turpentine producers began buying factory-made spirit barrels, coopers also retained their status as skilled workers. At some operations the distiller served as the cooper, constructing barrels during the winter months when there was no gum to refine. By the early-twentieth century, few coopers' jobs included collecting the wood with which to construct barrels. Instead, producers purchased machine-cut staves in bundles and hoop iron, which came in spools. Despite the use of machine-cut pieces, the cooper's job remained little changed from years earlier. He began constructing a barrel by quickly stacking the staves up around a wooden hoop. Once the staves were in place, the cooper wrapped a cable around the ring of staves and tightened it. Once the staves were squeezed together, the cooper fastened on the hoops, which he created by cutting hoop iron the appropriate length from a coil and riveting each end to form a

ring. He beat the hoops around the staves using a special hammer-like tool, working his way around several times. Some coopers beat out a rhythm as they hammered the hoops on, and a few reportedly even did a dance. As had always been the case, rosin barrels were less well-constructed than turpentine casks. Although the latter were not purchased ready-made, only the most skilled coopers constructed them. Even though a high standard was required for spirit casks, problems with their quality persisted. Some producers supplied their coopers with low-grade glue that failed to seal the cracks between the staves. Problems also occurred when barrels were constructed of incompletely dried staves to which the glue refused to adhere securely. To ensure a properly sealed cask, coopers added three coats of glue. Because leaks were especially common around the casks' heads, coopers had to turn the cask on each end for thirty minutes to permit glue to collect around the edges. No matter how well a cask was glued, however, if it did not dry for a sufficient time, the warm spirits sometimes dissolved the glue, causing the cask to eventually leak. Even the best producers sometimes neglected to allow the glued casks to properly dry.  

Turpentine workers received wages based on the difficulty of the tasks they performed; however, even skilled workers like distillers and coopers earned little. Turpentine wages closely resembled farm wages between 1900 and 1930. Before the outbreak of the First World War, wages paid to both farm and naval stores workers laboring for the same Florida employer averaged around $1 for a twelve to fourteen hour day. Between the outbreak of the World War I and the United States' entry into the war, turpentine wages dipped, just as they did in agriculture jobs. The outbreak of war interrupted trade causing naval stores prices to fall. To compensate, producers lowered wages. The Leonard brothers' turpentine operation in Calhoun County,  


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Florida, for example, dropped its pay by as much as forty percent for chipping and twenty percent for dipping. Even the Leonards' woodsrider had his wage cut from $2 a day to $1.80. Most naval stores workers during these years typically earned less than $1 a day. But wages rose between 1917 and 1920 as the United States entered the war and required naval stores for preparation. However in the 1920s wages once again fell. By 1929 six chippers and dippers working in Washington County, Florida, earned on average around $1 a day, the pre-war wage. The highest paid received $441.98 for the year and the lowest $238.87. In the same county a distiller made considerably more, $75 per month. This rate was about the same as in other areas of the turpentine South, but regional variation did occur. In 1929 wages paid to turpentine laborers in Washington County, for example, were twenty percent lower than in Appling County, Georgia.33

Men, women, and children received different amounts of pay, probably because the men performed the most physically taxing and, thus, the highest paid tasks. On one typical day in 1914, men at the Leonard Florida turpentine operation earned $1 to $1.25, women received 60¢, and children 30¢. Dipping, the job that required the least skill and strength, consequently paid the least. Dippers could expect to earn between 5¢ and 6.66¢ per filled bucket. But because the wage was based on piece work, earnings varied greatly between laborers. At the Leonard

operation, the fastest of six chippers earned $2 in one day in May 1914, although typically he made only between $1.12 and $1.73 a day. One of the slowest workers, by contrast, received as little as 35¢ one day that same month. Chipping, which was a much more difficult and demanding task, paid better than dipping. The Leonards paid 75¢ per each one thousand faces. In one week, one of their chippers earned $11.16. Chippers, who received payment for each chip whether the wound yielded gum or not, had an advantage over dippers in that their pay did not depend in large part on pine gum production, which could vary significantly between crop and season. Chippers were assigned a quota of faces they were to chip each week. Although each work assignment was designed to take five days, especially diligent workers could complete it in three or four days. No matter how many days it took them to complete the task, though, they were paid the same.34

Very few women worked in the turpentine forests. Instead, they remained busy in the quarters and worked at jobs both within and outside the camp. Women took care of the many children in the camp. In Washington County, Florida, for example, families of turpentine women averaged between three and four children. Women also tended their households’ garden and looked after their chickens and pigs, which they bred, killed, cured, and cooked. Evidence suggests that the intensity of this female-dominated domestic food production was related to the wage level in the camp. In Washington County, where pay for turpentine was lower than in other areas of the southeast and provided “the minimum of existence incomes,” the workers appeared to one forester “to do a little more gardening for raising vegetables.”35 Along with raising food,


women also cooked two meals a day, canned, nursed the sick and injured, and boiled the hardened gum out of stiffened overalls.\textsuperscript{36}

Some women found odd jobs around the camp to earn extra income. Working in groups of two or three and accompanied by their small children and older daughters, some women gathered deartongue, a plant native to the southeastern pine forest and used as an aromatic, and dried it on the tin rooftops at the camp. They then sold it by the pound to a buyer who marketed it. Other women worked as domestics for the turpentine operations' white owners and employees. The women selected for these jobs reportedly considered themselves fortunate to have the steady work. Still other women found jobs planting trees and cleaning cups at the season's end. In many cases women were limited to jobs at the camp because of its isolated location. However, if other white families lived nearby, the women could find jobs as domestics in homes outside the camp. At one less remote Florida camp, some women and older children worked in nearby potato fields.\textsuperscript{37}

Marriages at turpentine camps were encouraged but few were legal. Marriages facilitated good camp government and economical use of housing. Therefore, producers pushed single men and women to marry in a "commissary wedding," not unlike those performed in turpentine camps in the late-nineteenth century. The producers or camp managers would decide with a couple that they should marry, assign them a cabin, and open an account for them at the commissary. Husbands and wives generally grew up in either the same camp or in neighboring

\textsuperscript{36} Vail, "Turpentine Business," 326; Wright, "Turpentineing," 109-112; Monroe, interview, 4; Maguire, interview by author; Thomas, \textit{McCranie's Turpentine Still}, C-3.

camps. They usually married young. The camp community did not regard boys as adults until they wed and, until then, their fathers received their pay as part of his household’s income. If a couple had some extra money, a rare occurrence, they might go to the county courthouse and get a marriage license. In 1916, however, a minor scandal erupted over the informality of turpentine camp marriages. A white northern preacher learned of the practice of commissary weddings and brought such intense public attention to bear on it that camp foremen were chided to get marriage licenses for their workers. Many of the couples had been together for decades. The scandal however, was short-lived and the practice of commissary weddings continued.  

Couples and their families lived in clusters of cabins called “the quarters,” which made up part of the camp complex. Camps were most often set in isolated locations so that workers could live near the forest in which they labored and producers could protect their workers from other operators hoping to recruit them away. In many camps the owner, manager, or woods rider lived beside the only road into the camp, usually a two-rut path, to monitor who came and went. Usually quarters contained between twenty-five and forty houses arranged in a variety of patterns. At some camps shanties were scattered about the woods to provide a moderate amount of privacy. Other camps had cabins spaced according to a grid pattern. Still others lacked any organization at all, with houses built wherever the owner happened to choose. Separate quarters were provided for the single men away from the family cabins to prevent disruption caused by single men flirting with married women. Some workers preferred to live alone in the woods.

38 Kennedy, Palmetto Country, 266; Federal Writers’ Project, Florida, 37; Wright, “Turpentining,” 113; Maguire, interview by author; Tegeder, “Prisoners of the Pines,” 183.

The houses, as in the nineteenth century, remained small and primitive, mere shanties. They customarily contained only between 260 and 550 square feet of living space. Workers with important jobs received larger homes. A foreman at one Florida operation lived in a six-room house. If a family grew too large for its assigned cabin, rooms were added or the producer moved them to a somewhat larger dwelling. Evidence suggests that, despite arrangements made for large families, living space remained cramped. At one Florida operation, for example, nearly six people on average lived in each house. The wooden structures, with rare exception, were unpainted and lacked running water and electricity. Despite their modest character, most houses were reportedly neatly kept, the yards swept clean, and vegetables cultivated in backyard gardens.\footnote{Maguire, interview by author; Forney, “Importance of Sites,” 3; Wright, “Turpentining,” 109-110; Baker, “Summerall Turpentine Still,” 7; Kennedy, \textit{Palmetto Country}, 265.}

Zora Neal Hurston explained in her novel \textit{Seraph on the Suwanee} that “teppentine [sic] shacks are not built for beauty. They are temporary shelters. In a few years usually the woods are worked out, and the camp is moved. The houses are torn down and put up again at the new location.”\footnote{Zora Neale Hurston, \textit{Seraph on the Suwanee}, in \textit{Novels and Stories}, The Library of America (New York: Literary Classics of the United States, Inc., 1995), 651.}

Camp living quarters were typically racially segregated. The black workers’ quarters were located at one end of the camp, and the white owners, manager, woodsriders, and their families lived in finer homes at the other end. As a general rule, white children did not play with black children and black and white adults did not socialize. Each race had constant contact with the other, however. White men had close contact with the black workers, whom they managed,
and the white women and children saw black men and women at work about the camp as well as in and around their homes. One white woman recalled that, as a child in a turpentine camp, "I didn't have any fear of the colored families. We didn't socialize with them, but we knew them all. They had gardens and brought fresh vegetables to my mother. We shared with them, too."  

Commissaries continued as the principal suppliers of the basic staples of the turpentine worker's diet: meat, lard, pork and beans, and peas, most of it sold in cans and at inflated prices. Even if a turpentine business failed to turn a profit, producers could usually count on their commissaries to operate in the black. In 1922 one Florida turpentine establishment had an operating deficit of $35,527.48. The commissary, however, showed a profit of $2,230.46. In most moderately-sized operations the commissary opened only for a few hours, sometimes only in the afternoons or on Fridays. Purchases were made either on credit or with scrip paid to workers instead of cash. Some camps were located close enough to communities that workers could trade with town merchants. Workers also supplemented purchased goods with produce raised in their gardens and livestock that they tended. Men supplied the household with game, some hunting with dogs and an old single-barrel shotgun and others using a sack to catch opossum. During the weekdays men might take the opportunity at lunch to fish.

42 Kennedy, Palmetto Country, 265; Monroe, interview, 3-4; Wright, “Turpentining,” 110.

43 Wright, “Turpentining,” 110.

44 Johnston McNeill Company, Report, 1922, Powell Papers; Register, interview; Paisley, “Wade Leonard,” 386; Wright, “Turpentining,” 103; Thomas, McCranie’s Turpentine Still, C-3; T.G. Willis report, 16 February 1931, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
Workers ate their breakfast and lunch in the forest. Every morning they carried their food in half-gallon lard cans and their water in gallon-sized bottles wrapped in a wet sack and tied with baling wire to keep it cool. Arriving around daylight by wagon, or after the 1910s by truck, workers might build a fire and eat breakfast as they waited for light. They usually used these breakfast sites as a “hang up place,” somewhere to leave their coats, lunch buckets, and water bottles. If the area had ants, workers employed a sapling as a “hang up tree.” Before hanging their lunch from the small tree’s branches, they shaved six inches of bark off the trunk, exposing the gummy wood which would trap hungry ants that attempted to raid the lunch. If the breakfast site was inconvenient, workers might make a hang up place closer to the day’s work area. Woodsriders and producers knew that if they needed to find a man in the forest, they need but arrive at the hang up place around lunch time. Lunch items included black eye peas, collard greens, slabs of fat sowbelly, and cornbread or biscuits with cane syrup. Other lunch entrées included canned salmon mixed with rice, tomatoes, and beans as well as a dish called dooby, a mixture of meat, onions, and cornbread. Lunches were usually eaten cold, but in chilly weather the workers might build a fire and heat them.45

Because of the long daily work hours, on weekday evenings there was little time for rowdiness. Families in the close-knit communities would visit and make their own music. On Sundays part of the camp community attended worship services. Some camps contained a church which during the week might serve as a schoolhouse. If a camp lacked a church, religious services were held in one of the cabins. In most camps a worker also served as a preacher. Turpentine workers also filled leisure time by celebrating holidays. At at least one Florida camp the black workers, for an uncertain reason, celebrated May 20 as “Freedom Day” by slaughtering

45 Wright, “Turpentining,” 100-101; Maguire, interview with author.
hogs and having a large barbecue. On weekend nights, which offered the majority of free time, most entertainment centered around the camp juke joint, a house where men and women gathered to dance, drink moonshine, and flirt. Men gambled, some playing skin, a popular card game. Fights frequently broke out at the juke. A common weapon in such altercations was a three-sided triangular file used to sharpen hack blades. It reportedly produced a cut worse than a knife in that the skin could close, leaving the victim bleeding internally. Producers and woodsriders tried to limit the revelry and keep the peace on weekends. Some attempted to control the amount of moonshine that came into the camp. Others required that all activity end at midnight on Sundays so the men would be in fit shape for work the next morning. Some producers, although not all, even recognized blue Mondays after the payday weekend because their workers were frequently too hung over to manage the strenuous labor with the precision necessary for successful operation.46 One very large Georgia operator reported that his workers refused to work on Mondays. "If you made them go to the woods," he explained, "they’d break a hack or go to sleep or spend the whole day fixin’ it. They wouldn’t work."47 Despite the time for drinking, carousing, and gambling, turpentine workers were never free from oversight. As historian Robert N. Lauralt explains, “whatever else the turpentiners did besides work was done within the precinct of work—in sight of the tall pines they bled for a living, beneath the roofs of the


company shanties, under the sharp eye of the woods rider who held a control over their lives difficult to imagine outside of slavery. 48

At perhaps the most notorious turpentine camp, the Cross City, Florida, camp owned by Putnam Lumber Company, entertainment included only a juke joint and gambling, both of which the captain, G. Alston Brown, oversaw. With his workers under unusually intense control, Brown reportedly encouraged and, on some occasions, even forced workers to gamble. On paydays Brown played poker with the workers, some games lasting from noon on Saturdays till Monday mornings at six o’clock. Workers did not enjoy playing with Brown because, no matter what hand they were dealt, Brown took their money. Even when Brown lost he would take the workers’ winnings, telling them he would put it toward their account. If a worker complained, Brown beat him over the head with his pistol. Despite prohibition, alcohol was available at the juke joint. A local moonshiner sold it to Brown, who in turn charged his workers twenty-five cents a drink. Each week the camp consumed between five and eight gallons of whiskey. 49

The monthly payday was typically a special time in turpentine camps when everyone, including the producer and woodsriders, went to the nearby town—the workers riding in the back of a camp wagon or truck, some sitting on chairs. Zora Neal Hurston explained that whereas people in the turpentine belt traveled to towns within a thirteen- to fourteen-mile radius of the area, “few ever dreamed of venturing any farther east or west.” 50 Although the camp’s visit brought much-welcomed business to the town merchants, townspeople feared the black workers,

48 Lauriault, “From Can’t to Can’t,” 311.


50 Hurston, Seraph on the Suwanee, 599.
considering them wild and unruly, and thought of the white woodsriders as outlaws.\textsuperscript{31} One laborer reported that "when we come to town folks would clear the streets."\textsuperscript{32} The frequent arrests of turpentine workers provided small communities with easy revenue since producers and managers willingly bailed their workers out of jail, their labor too valuable to be sacrificed.\textsuperscript{33}

The power of the producer and camp manager over his workers included the laborers' vote. A referendum on the relocation of one Wiregrass Georgia county seat in the 1910s illustrates this point. Lumber and naval stores men who had built up their operations along a railroad line that ran three miles from the county seat wanted the government center transferred to a more accessible railroad town where they already conducted much of their financial business. The timber men planned to use the vote of their large black labor forces to win approval for the new site. Black votes, however, were at a premium and led to the kidnapping of at least one turpentine producer's laborers. After midnight on election eve supporters of the current county seat took the workers to an old mill shed, where they entertained them with canned goods, crackers, and whisky. As soon as the polls opened, the kidnapped laborers obediently voted to keep the old seat just as their abductors instructed them. When their employer discovered the trick and protested that "every one uv them niggers is mine, and I challenge their vote," it was too late. Throughout the voting day other lumber and turpentine men kept a close eye on their workers to prevent a similar occurrence. They brought their laborers in on horse-drawn wagons, treating them to whisky along the way, and guarded them

\textsuperscript{31} Wright, "Turpentining," 123; Maguire, interview by author.

\textsuperscript{32} Wright, "Turpentining," 124.

\textsuperscript{33} Ibid., 123-124; Maguire, interview by author.
once they reached the poll. With the boss at the front, the workers lined up behind him with woodsriders on each side and in the rear, then the group approached the polls and voted according to their employer’s wishes. Nevertheless, the lumber and turpentine men lost the referendum by twenty-seven votes.54

Like producers who sought tight control over laborers, woodsriders believed that they needed to rule the workers completely and harshly in order to gain their respect, maintain order, and extract efficient work.55 One woodsrider explained that “you’ve got to get out with your labor. If I don’t come out here, they don’t work.”56 Another remarked that he “never let one of them know when I was comin’ or where I was.”57 One Georgia overseer reportedly “ruled the roost where he stayed, and if one got out of line he took a black jack or somethin’ and straightened him out.”58 Every morning the overseer at the Jackson Lumber Company’s turpentine operation near the Florida and Alabama boarder entered the quarters and struck those who moved too slowly for his liking with an ax handle. During the work day he punished unsatisfactory work by tying laborers to pine trees and beating them with a buggy whip. The screams of his victims could reportedly be heard through the woods for half a mile.59


56 Quoted in Tegeder, “Prisoners of the Pines,” 163.

57 Quoted in Ibid., 163.

58 Quoted in Ibid., 164.

59 Ibid., 168
one forester found that "life in the turpentine camps is often even tougher and more primitive than in the old time logging camp, yet some of the turpentine operators carry on their establishment in the spirit of the Old South."  

One former Florida camp manager explained that the foreman had to cause fear and instill respect in the workers: "in speaking to him they call him Capm, but among themselves they call him The Man. And believe me, he better be a man from the ground up! If he ever stands for any back-talk or shows a streak of yellow he’s through, and might as well quit. For they lose all respect for him and won’t mind him. Even though they keep up a pretense of respect to his face, they’ll laugh at him behind his back and gang up to make his life miserable. They like to be ruled by an iron hand and no velvet glove." Some managers did not hesitate to use deadly force to intimidate workers. At one eastern Louisiana turpentine operation the camp manager shot one of a group of blacks who had come to the camp only to gamble. Another company boss, Big Joe Watts, had seven notches on his gun by the late 1920s. Each notch represented just the number of white people he had killed, his black victims apparently not worth commemorating. In 1913 nine black turpentine workers were killed in the vicinity of

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61 He also believed himself to be especially talented at managing turpentine workers. "Seems like I always had a knack of handling labor," he explained. "Being born and raised with turpentine niggers I learned their nature. They all liked me because I was fair and firm, and they’d do anything for me. If I quit a job and went to another, ever last nigger on the place would follow me if I told em to." Kennedy, *Palmetto Country*, 265-266.
Blountstown, Florida, by the Apalachicola River. As was typically the case, legal officials paid little attention.62

The manager of a camp, whether it was the producer himself, his foreman, or his woods rider, ruled with near complete authority, in many instances acting as the police, judge, jury, and, occasionally, the executioner. If their laborers were jailed for violence at the juke joint, the trouble and expense of paying the fine and retrieving them from jail on Monday morning created a burden and expense for operators. Many camps were so isolated in the woods, however, that law enforcement officers rarely appeared in times of disturbance, even in cases of murder. Few workers were arrested for killing other blacks. Producers refused to call the sheriff, even for murder cases, because they did not want their workers sitting idly in jail. At one camp, a murder investigation consisted of five or six white workers interviewing all the witnesses and writing up a report based on the information they gathered. They then submitted that report to the coroner’s office where it was filed, ending the matter. The purpose of the investigation was to maintain the peace by providing the minimum response necessary to prevent the law’s involvement. Owners and managers were interested in keeping their operation running with as little interruption as possible. The mere appearance of law officers could also cause a producer to loose many of his workers. Because a large number of the turpentine laborers had been in

62 The next year however, two especially gruesome murders outraged the whole community to the point that the suspects were prosecuted. On October 8, 1914 the body of a naval stores worker was found shot. Three young and well-connected whites were arrested and charged with the murder. Not long afterwards an employee of the turpentine operation where the victim had worked and a material witness in the case went missing. His body was later found with one shot in the back of the head and another in his back. Iron weights had been tied to his body with barb wire, and his body sunk in the deep portion of a nearby creek. Wade Leonard saw that justice moved quickly. He secured one of Florida’s best trial lawyers to assist the state attorney. After a trial that lasted but one day, the three defendants were convicted of second degree murder and received life sentences. Monroe, interview, 6; Elwood R. Maunder, Voices From The South: Recollections of Four Foresters (Santa Cruz, CA: Forest History Society, 1977), 73; Paisley, “Wade Leonard,” 388-389.
trouble with the law, just the sight of a sheriff or his deputies could cause many laborers to leave and start work at another camp. The relatives of a murder victim often preferred to handle the matter in their own way as well. They tended not to trust the authorities. Not only did many workers have criminal records, but they knew from experience that the law would fail to take the matter seriously. To escape the vengeance of his victim’s family and friends, a murderer commonly had to run away. One camp manager explained that “we got rid of two people every time one man was shot.”

The turpentine operation at the town of Fargo, bordering the Okefenokee Swamp in southeastern Georgia, reveals the tough and lawless nature of some of these establishments. Fargo was an old lumber town purchased by a naval stores concern and used as the operating headquarters for seven different turpentine camps spread out in the surrounding forests. With ninety-six crops in the 1920s, it was probably the South’s largest turpentine operation at the time. The company served as its own law enforcement agency over the 210,000 acres it controlled and had agreements with the sheriffs, in whose counties its operation extended, not to come to Fargo unless sent for. Because the company manager tolerated any activity that did not directly interfere with the turpentine operation, an assortment of criminals on the run in Georgia and Florida sought refuge in and around the community, which soon became known as “Bad Man’s Fargo.” The absence of law enforcement attracted bootleggers during the days of prohibition. With nineteen liquor stills hidden in the forest within ten miles of Fargo, the community was the

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63 Tegeder, Prisoners of the Pines,” 166, 240-241; Maunder, Voices from the South, 74-75.

64 Maunder, Voices from the South, 74.
center of Georgia’s moonshine production. The liquor went out in trucks to as far away as Cincinnati.65

Although an unusually extreme case, the near-absolute power exercised by G. Alston Brown at his Cross City, Florida camp provides another illustration of the power camp managers and woodsriders often possessed over their workers. Brown’s guards kept an unrelenting watch over the workers. Some of the guards were other black workers who either earned status as Brown’s pets by showing their loyalty or, in a few cases, were forced to serve against their will. The guards patrolled the camp at night and reported any trouble directly to Brown. They had orders to shoot anyone who attempted to escape and were given considerable incentive to prevent escapes. For every worker who got away under an individual guard’s watch, the escapee’s debt was added to the guard’s. Brown also restricted workers’ contact with the outside world. In the woods each guard, armed with a pistol and a double-barrel shotgun, oversaw between five and seven men. When relatives went in search of their family members, Brown prevented their contact. He read all incoming and outgoing mail and reportedly stopped some letters from reaching their intended receivers.66

The most common form of punishment at Cross City, even for unsatisfactory work, was severe beatings or whippings. Brown, however, occasionally employed even more brutal measures. Some workers he had hanged by one thumb. In extreme instances, workers were brutally murdered. In the first of three known cases, the death appears not to have been intentional. As a policy, laborers had to work even if they were sick. One worker, Washington

65 Ibid., 72.

66 John Bonyne reports, 10 June 1921, 14 November 1921, 3 May 1922; Howard P. Wright report, 9 September 1921, and E.J. Cartier reports, 16 May 1922, 18 May 1922, 23 May 1922, Cubberly Papers.
Menner, was too ill to work. According to the customary practice in such cases, Mose Brown, the captain’s nephew, beat Menner to force him to work. Brown hit him with a stick, knocked him to the ground, then beat him with a pistol grip and kicked him in the face, sides, and stomach. Afterwards, Menner could not get up or talk. He was carried in a wagon back to the camp, where he bled from his ears and remained incoherent until he died after a week or ten days. The rest of the camp was threatened with the same fate if they told of the incident.  

In the second instance, the worker’s murder was unquestionably intentional and calculated. In the summer of 1921 James Powell, a black truck driver for Brown, took some women to another nearby camp for a party. When they arrived, Powell quarreled with the camp’s white boss about a piece of machinery missing from the truck. When Powell returned the next morning to pick up a load of dip, the camp boss attacked him with a large stick. Powell, however, took the stick and used it to beat the boss. Afterwards, Brown locked Powell in the commissary for over a day. On a Monday night the beaten camp boss, the county judge, who was the boss’s brother-in-law, and another man tied Powell’s hands, put him in their car and drove off. Two days later cattle drivers found the bloody remains of Powell’s legs, arms, and clothing in an area away from the road. To prevent the attracted buzzards from making off with the remains, one cattleman tied them to a tree with wire. When told of Powell’s fate, the local sheriff showed no interest. Only after he was contacted by the governor—who had been notified of the incident by letter—did he come to investigate. Upon inspecting the remains, which included clothing identifying the victim as a turpentine worker, the sheriff placed them in a bag and buried them.

67 John Bonyne reports, 3 May 1922, 5 May 1922, 23 May 1922, and Ben Doyle sworn statement, 17 May 1922, Cubberly Papers.

In yet another grizzly incident, Brown and a group of men marched turpentine worker Mose Nellem out to a secluded field. Brown carried a shotgun and rope and kicked Nellem on the way there. It is unclear what actually happened to Nellem, but one witness reported that the men crossed a bridge into a field, stayed an hour, and returned without Nellem. The next morning Brown had the field plowed to erase any evidence of the previous evening’s activities.69

Women at the Brown camp were in an especially vulnerable situation. Women Brown hired to perform domestic services were subjected to the same reduced pay and claims of debt as the male turpentine workers. Some women arrived to visit their husbands only to find that Brown refused to let them leave and put them to work cooking and washing for the other workers. Many of these ensnared women faced sexual abuse from the men at the camp. One woman, who had come to the camp to visit her daughter, refused Brown’s advances; he had her severely beaten. On at least one occasion Mose Brown beat a woman with his pistol and raped her. Other women were forced into prostitution with the camp workers. As a regular practice, male workers could engage in sexual relations with any woman in the camp, whether she was single or married. Those who resisted were beaten until they cooperated. In the cases of married women, their husbands were held prisoner in the stockade for the evening of the encounter. To regulate the prostitution, Brown devised a system of “cross time slips.” Male workers paid him between one and five dollars. In many cases the fee was charged to their commissary account. Brown in turn gave them a cross time slip which they presented to their woman of choice. After

69 John Bonyne report, 3 May 1922, Cubberly Papers.
the encounter, the woman turned the slip in to Brown and received less than half of the original price paid for the service.\textsuperscript{70}

Brown also subjected camp women to severe punishments. One woman received a beating for accidentally dropping water on Brown’s dog and a whipping for telling another that she wished Brown was dead. Brown also kicked and whipped a cook and wash woman for unknown reasons.\textsuperscript{71} Another woman, Lillie Johnson, Brown’s unwilling sixteen-year-old mistress with whom he fathered a child, received an appallingly brutal beating in the fall of 1920 after he suspected her of seeing another man.\textsuperscript{72} Brown had raped her when she was twelve and continued a sexual relationship until the beating. While her mother watched, Brown had his men drag Lillie into the woods, strip her to the waist, and administer one hundred lashes with a strap. Then, under Brown’s orders, her hair was cut off to her scalp. That night her mother tended her wounds and for the next three weeks Brown forced her to stay in his house.\textsuperscript{73}

Many southern blacks acknowledged the difficult existence of turpentine workers, most of whom experienced nowhere near the agony as those laboring for Brown. Zora Neal Hurston describes the north Florida turpentine region as containing only “scratchy plantings” of corn, cane potatoes, tobacco, and small patches of cotton, “the people being mostly occupied in the

\textsuperscript{70} John Bonyne reports, 3 May 1922, 10 June 1921, 14 November 1921, and M.J. Cronin and John Bonyne report, 8 May 1922, Cubberly Papers; Moore, “Prisoner of Riverside,” 16-17.

\textsuperscript{71} John Bonyne report, 3 May 1922, Cubberly Papers.

\textsuperscript{72} Her sister, Vina Lee Wright, also had a child by Brown. Brown had raped her when she was thirteen and continued repeatedly to molest and beat her.

\textsuperscript{73} M.J. Cronin and John Bonyne report, 5 May 1922 and John Bonyne report, 15 July 1922, Cubberly Papers.
production of turpentine and lumber.” Life, she explained, revolved around the still and mill, “then too there was ignorance and poverty, and the every-present hook worm.”74 One former turpentine worker himself admitted that many laborers in the camps were ignorant, uninformed, and incapable of managing their own affairs, but added that the camps brutality, lack of schools, and economic exploitation and paternalism—all conditions created by white producers—made them this way.75

For its part, the white community generally agreed that black turpentine workers were different from other African-Americans, but disagreed as to whether turpentine workers were “good” blacks or “bad.” The wife of one producer explained that “a turpentine Negro was . . . different from all other Negroes.”76 Many had been born and raised in the isolated camps and knew little of the world beyond the forest. They had little education and generally lacked skills in anything except turpentine production. When whites encountered workers on their monthly trips to town, they appeared ignorant, crude, and indolent, despite showing the customary respect toward whites77 One white man explained in 1910 that despite their shortcomings, black

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74 Hurston, *Seraph on the Suwanee*, 599.


76 Thomas, *McCranie’s Turpentine Still*.

turpentine laborers were hard workers. "The negro of the pineries," he reported, "is careless, often brutal, always happy-go-lucky, but the men who employ him say that he works well with right management; in fact, is the best labor that can be had for the place, and that the business would not know what to do without him. He surely fits the scene and one would be sorry to miss him from it." Writing in the early 1920s, a naval stores man argued that turpentine workers were the same as other blacks, who he believed were harmless when under a white man’s control. He did not believe that "a turpentine negro is any worse than others of his race under similar conditions. The country at large has somehow gotten the idea that the turpentine negro is worse than other kinds of negroes. This impression is an erroneous one, and one which in justice to the turpentine negro, should be corrected." A 1926 minstrel song described turpentine workers as satisfied with the steady work that kept them fed and allowed them to enjoy the outdoors. It also implied that they were concerned with forest fires as a potential threat to their livelihood.

De Woods of Pine

An old dark-y sing-in’ in de woods of pine A work-in de trees for turpentine, My luch hit grows with the Pine-y Wood And while pines grow my luck stays good, Food in de kitch-en and de times ain’t hard When a man works out in God’s front yard.

Chorus:
Pay day’s com-in’ while de pine trees grow, Hits de sur-est thing dat a a man can know De wolf am a com-ing right in de door, When de old Pine-y Wood ain’t here no more.

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78 Winthrop Packard, Florida Trails: As Seen From Jacksonville to Key West and From November to April Inclusive (Boston: Small, Maynard and Company, Publishers, 1910), 281.

79 Pridgen, “Turpentining in the South Atlantic Country,” 104.
List-en hon-ey if you want to farm Don’t let de Pine-y Wood come to harm Dey’s al-ways workin for de far-mer hard Like great big soldier men a stand-in’ guard Keepin’ way drought de frost de bugs Oh hap-py am de farm de Pine-y Woods hugs.

Chorus

When you hear de wind a hum-min in de pine Hit makes a tune dat sounds mighty fine De big pine trees are a makin dat sound A talkin’ to dere ba-bies close to de ground Little pine babies growin’ down be-low Got-ta help dem babies if dey’s go-in’ to grow.

Chorus

When you hear de big old pine trees start to moan Dere’s fire in de woods dat Makes dem groan De lit-tle fire kills de lit-tle ba-by trees De grass and birds, but no ticks nor fleas Big fires kill de big trees too, We got-ta stop de fires, what-ev-er we do.

Chorus

Other whites believed that black turpentiners were indeed lazy and dangerous. One Georgia producer complained that he was “short of labor but that is the trouble with all of the turpentine people in this part of the state.” John Casson, the president of one of the most powerful naval stores factorage houses in the South, agreed that turpentine workers were lazy, but identified this laziness as a phenomenon of the early 1920s. Casson maintained that “Sambo is not as strong, vigorous or healthy as he was thirty to forty years ago. Disease has made inroads into his constitution and he cannot give the service now as then even should he so desire. Today the producer pays exceedingly high wages for very poor work, the result being that it takes from two and one-half men to do one man’s work and the expense of operating the average


81 W.M. Sharpe to Yeoman, 7 January 1907, Wilbur M. Sharpe Papers, South Caroliniana Library, University of South Carolina.

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turpentine farm is ten times more than in the period mentioned." In 1905 Florida explained that its rising crime rate resulted in part from "the rapid growth of the turpentine and lumber industries in Florida" which had "caused an influx of a floating population that follow this class of work." Because many whites shared the view that turpentine blacks were dangerous, not all communities allowed operations in their vicinity. In the early 1900s, for example, the Taylor brothers sold their turpentine business in South Lake County, Florida, and moved about fifteen miles northward to the community of Mascotte to start a new operation. However, Mascotte, which had no black residents and certainly did not want to add the likes of turpentine workers to their population, refused to allow the Taylors to bring their workers with them. Instead, the Taylors established their new operation a few miles to the east.

A comparison of American and French turpentine workers reveals the harshness of the southern turpentine workers' existence. Not only did French turpentine workers appear not to have suffered such intense prejudice, they experienced a very different work situation and apparently fared considerably better than their American counterparts in the first decade of the twentieth century. One major difference was the size of the average French operator's labor force, which tended to be considerably smaller than the dozens of families who typically labored for each American producer. In fact many French producers worked their own trees with no

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84 William T. Kennedy, History of Lake County, Florida, Lake County Historical Society, Tavares, FL, 108.
help. In the late 1910s, there were around 15,000 turpentine wood lot owners in the Landes region, but only around ten thousand laborers. Although French chippers worked hard at similar tasks to those of American workers, their pace appears to have been less intense. French chippers typically worked around eight thousand to nine thousand faces a week, compared to ten thousand for U.S. workers. Perhaps the greatest difference between American and French naval stores workers was their manner of compensation, which allowed the French considerably more autonomy. Where American workers received pay based on the number of individual tasks they performed, French laborers worked the turpentine forest on shares. Workers typically received half the value of the gum they collected and carried to the still. Some producers, however, capped the potential amount a worker could receive if the barrel exceeded a certain value. In the late 1910s this limit was around $11.58. Also, at certain operations the depreciation of the cups and gutters was deducted from the workers' half of the value. Regardless of the restrictions and charges, by working on shares, laborers had added incentive to produce greater quantities when prices rose. This reaction helped prevent prices from reaching extremely high levels because, as the supply increased, the value declined.85

Not only work, but the life experiences of French turpentine laborers differed from those in the American South. Unlike American turpentine workers whose energy was focused almost solely on gum collection and processing, most French laborers also worked as small farmers. In many cases their small farms consisted of a vegetable garden, a few grape vines, and a forage crop. In all their work these farmers/turpentine laborers were assisted by their families. French turpentine workers also appear to have lived more comfortably than their American counterparts.

French laborers lived in small villages with a schoolhouse, imposing Catholic church, sawmill, store, cafes, and inns. Their houses were constructed of stone, brick, or cement, and roofed with tile. In many cases a turpentine distillery was located nearby. Unlike American turpentine operations, in which the quarters and still would have been constructed at the same time, usually in a sparsely populated area, the French stills were constructed near previously settled villages, some centuries old.\(^\text{86}\)

One of the greatest factors that created better circumstances for French turpentine workers over American laborers was the former's labor organization. French workers established small regional syndicates which together formed the Federation of Syndicates of Gum Gatherers of the Southwest. The active organization in 1906 launched a significantly disruptive strike which forced producers to agree to their terms. Workers were guaranteed half the price of gum, less six francs to compensate the forest owner or lessee for transportation costs and depreciation on the cups and gutters. Also, according to the deal, turpentine barrels were to have a volume of 340 liters and the sale price was to be based on average market price. Allotment of pines to workers by the owner or lessee was to be made by the first of each year and had to receive the approval of the Governing Board of the Union. Laborers agreed to perform the chipping and dipping according to the producers' instructions, however they did have the right to make at least six to seven dippings, depending on the pine's yield. They also agreed to work only the trees designated by the producers. By the late 1910s producers had organized

themselves to cope not only with their workers' demands, but with the naval stores buyers who exercised considerable control over the market.  

Although union organizers met with some success within the southern lumber industry, turpentine workers were never unionized. In 1910 supporters of the Industrial Workers of the World organized the Brotherhood of Timber Workers. Its membership rapidly reached a high of thirty thousand, most of the members from the western reaches of the pine belt, and its liberal race policy resulted in high participation rates of black workers. Turpentine workers failed to join other timber industry workers in organizing for four reasons. First, within the highly racially stratified industry there was a general lack of willingness among black and white workers to cooperate; in most cases the white employees refused to join with the black majority of the workforce. The frequent movement of the workers prevented the establishment of a stable labor base from which to recruit union members. Thirdly, workers were so entirely dependent on the operators for everything—housing, food, and medical care—that striking would have seriously jeopardize their entire livelihoods. Finally, there was little sympathy in the South for labor organization or strikes and opposition to activity by timber industry workers developed early with the 1906 organization of the Southern Lumber Operators Association. All four of these factors affected the lumber industry as well. But because the naval stores industry felt their influence the greatest, its workers were wholly prevented from organizing while lumber workers only saw their unionizing activity partially restricted.


Just as American turpentine workers live an existence unlike that of their counterparts in France and other southern blacks, turpentine producers also worked and lived differently than other whites in the region did. Turpentine operators and woodsriders were considered by many southern whites as tough pioneer types. Not only did they have to maintain order in their camps, a potentially dangerous duty, but, like their laborers, they lived in the isolated forest and moved frequently. They lost regular contact with the outside world and, although they lived at a better standard than their workers, the turpentine producers’ existence was not very high by the larger white community’s standards. Their diet differed relatively little from their laborers’, and their houses, which admittedly contained more room than anyone else’s in the camp, represented rather primitive construction. The only church to attend was often one for the workers and there was no school for producers’ children. School age children either had to attend a small, poorly funded school, learn from a tutor, or attend school away from home. Frequent camp moves challenged the access to and stability of their education. The son of one manager began school when he was six years old in a small one-room log school house. Four years later the family moved to another camp one county away where the boy had to enter the new area’s little school.\footnote{Pridgen, “Turpentining in the South Atlantic Country,” 104; Kennedy, \textit{Palmetto Country}, 265; Ashmore, “Looking Back: The Woodsrider,” 13-14, 16, 24.}

Wives of producers and woodsriders faced many challenges in such isolated locations. The experience of Ida Willis illustrates the difficulties of white women in turpentine camps. Mrs. Williams met her husband R. Allen Willis in the early 1910s through his sisters, with whom she attended Columbia College in South Carolina. Willis was a young turpentinier, just two years in the business. He worked an 11,000-acre operation twenty miles up the New River from Carrabelle, Florida, a small community on the Gulf and south, southwest of Tallahassee. When
they married Ida joined Allen at this location. Upon Ida’s arrival at the camp in June 1915, the curious stares of the black workers, who rarely if ever left the area and wanted to see the owner’s new wife, unnerved her. Moreover, the camp’s isolation and primitive nature immediately left her troubled. The only other human habitations in the area were other turpentine camps, but even they were a fair distance away. The journey to Carrabelle, the nearest town, required a three hour boat trip. However, because the boat was old and broke down frequently, it was an unreliable means of transportation. The trip could also be made by horse if the rider did not mind swimming with the horse across the river. Ida’s house sat next to the river. It had no running water, but had an outhouse in the yard. Once Ida settled in to her new home, she looked forward to purchasing her china and silver with money given to her by her parents for that purpose. The camp’s operating capital ran short, however, and her husband needed the money to pay the workers.

Ida’s days were spent embroidering tablecloths and napkins, cleaning the house with the help of a washerwoman, and preparing meals for herself and her husband. The couple’s day began early. Allan rode into the woods on horseback to see that the men began work by daylight. He returned for his lunch at around one o’clock and took a nap before heading back to the woods. The Willis’ meals consisted of a monotonous staple of cabbage, venison, pork and beans, and poultry. A boat with supplies came once a week from Appalachicola. Ida often bought something extra for the meals from it. Despite their isolation, however, the Willises received mail every other day.

Ida saw little of the laborers. As was typical of turpentine camp layouts, the workers’ quarters were located far away from the owner’s house. Nevertheless, she feared the laborers,

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90 Fifteen years later she was finally able to buy her wedding presents.
many of whom were ex-convicts. In fact just before she arrived, one had attempted to kill Allen. She slept with a pistol when her husband was away. She also claimed that the workers stole from her twice, once taking a spoon and on another occasion her college annual. Although there was virtually no law enforcement in the isolated area, Allen and the distiller had no trouble maintaining order.

After less than two years, Ida left the camp. By the time her first child was born in 1917 she had moved to Greenwood, Florida, near the border of southeastern Alabama, where her husband became a farmer, then a store clerk, and finally a bank president. He had left the turpentine business, not out of respect for Ida’s feelings, but because price decreases had forced him out.91

Along with turpentine producers, woodsriders, and wage laborers, leased convicts shared the lonely rural piney woods environment, but endured working and living conditions of the most difficult variety. Like peonage, convict leasing targeted blacks. Thinking back to this period, a former convict supervisor recalled that “if a white man went to prison during the days of convict leasing, he had to be pretty bad. But a nigger was sent up for anything and sometimes for nothing.”92 The same factors that strengthened peonage around the turn of the century—a tight labor market and the belief that blacks would not work unless compelled—made convict leasing a vigorous practice. During the first two decades of the twentieth century, the leasing price for Florida convicts rose substantially, reflecting the intense demand for their labor. Once every four years Florida leased its convicts to the highest bidder, who in turn subleased them at a profit. In 1902 the Florida Naval Stores and Commission Company leased all of Florida’s convicts for


$150 a piece for a total of four years. Four years later another bidder paid $207.70. The next subleaser, the Florida Pine Company, won the bid in 1910, leasing between 1,400 and 1,800 the state’s convicts for $323.84 each for four years, more than double the cost eight years earlier. Despite the rise in leasing costs, profits from subleasing remained substantial, ranging from $100,000 to $130,000 annually. Income for the state was even greater. In the four years the Florida Pine Company held the lease, Florida received $1,293,252.20 for its convicts. During Florida’s convict lease system’s first thirty-two years, the state received $2,722,620.14. Until 1902 the proceeds went in the state treasury’s general fund. After that the state dispersed the net proceeds to the individual counties based proportionally on their average property value. In 1903, for example, Florida’s counties received a total of $156,687.78.

As in the late nineteenth century, convict leasing could solve many of a producer’s labor difficulties. A 1910 report on Florida convicts explained that convicts were employed “in the most remote places and their labor used where free labor is hard to get or control.” One reporter explained that “the convict is a very desirable workman. He can be counted on for six days a week from dawn till dark, and that is more than can be said of any but a very few negroes, most of whom obey their own sweet, wayward, indifferent will.” Convict leasing was especially popular among turpentine producers. In Georgia, where convicts were leased to a variety of businesses, it was believed their concentration was highest in the southern counties,

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95 Barry, “Slavery in the South To-Day,” 486.
the location of most turpentine and lumber camps. In Florida, turpentiners were the principal lessees of convicts. The use of convicts in Florida turpentine operations grew from twenty-seven percent of the state prison population in 1899 to over ninety percent in 1910. In 1903 and 1904, about three hundred state prisoners worked in phosphate mining and approximately eight hundred in turpentining. In 1907 and 1908, there was an even greater divergence, nearly 160 worked in phosphate and 1,736 in both turpentine and other lumber operations, but mostly in turpentine. Those businesses that worked the convicts found leasing very lucrative. In 1912 the average profit for a naval stores operation working convicts was reportedly $25,000.96 The 1909-1910 Florida Commission of Agriculture report explained that “as Florida produces perhaps more than half of the naval stores products of the United States, and prices prevailing being high, we are able to secure the highest prices for the labor of our prisoners of any section of the country.”97

An analysis of the convict population in Florida, where leasing was most common among turpentine producers, reveals its demographic patterns and demonstrates that it changed little from that of the late nineteenth century. At the beginning of 1903 Florida had 1,031 convicts. Over the course of the year, the states added 463 to the population and lost 372 as a result of discharge (79 percent), parole (11 percent), death (5 percent), or escape (5 percent). Most of the


prisoners added to the convict population were Florida natives (41 percent), but a substantial number were from other states: South Carolina (11 percent), North Carolina (5.7 percent), Alabama (5.5 percent), and other states and countries (35 percent). Of the convicts, 83 percent were black men, 13 percent white men, and 4 percent black women. Most of the prisoners sentenced in 1903 were between the ages of seventeen and thirty and had been convicted of either murder, theft, or assault. Figures from 1907 and 1908 reveal that these statistics changed little during the early twentieth century.98

A sample of Florida turpentine camps that employed state convict laborers in 1913 reveals that the typical camp held between thirty and fifty convicts, the majority of them black men. Some camps contained no white convicts and the ones with the largest number of whites held only ten percent. Only one black woman was held in a camp. However, the number of convicts at any one camp could vary widely through the year. In 1914 the population of the Waller Turpentine Company camp, for example, fluctuated between sixty and thirty-four convicts. At the Belmore Naval Stores Company camp as many as forty-five convicts and as few as thirty-four worked that same year. These camps averaged one guard for every five convicts and one bloodhound per every twelve convicts. Each camp had one captain.99

In the mid-1910s, the number of county convicts worked at individual turpentine camps varied widely. Some operations employed as few as seven and others as many as fifty-five, although the typical camp appears to have worked over forty. Some contained only whites and


99 Provision Registers for Waller and DeLeon turpentine camps, 1914, Convict Lease Program Subject Files, 1889-1916, Board of Commissioners of State Institutions, Florida State Archives; F.J. Titeaub to W.A. McRae, 30 September 1913, R.R. Tomline to W.A. McRae, 31 October 1913, T.D. Titeaub to W.A. McRae, 1 November 1913, and T.D. Titeaub to W.A. McRae, 1 November 1913, Board of Commissioners of State Institutions, Florida State Archives.
others only black convicts, however many worked both races, with whites representing a minority of the prisoners. Only in exceptional cases were incarcerated black women found in turpentine camps. The great majority of convicts came from either the county in which they labored or from neighboring counties.  

According to Florida state regulations, they were not to be away from the camp before or after dark. However wardens frequently kept prisoners out much longer. Convicts worked long hours in the turpentine forest, longer than wage-earning laborers. They left the camp at sun up and returned at sun down. In an effort to have convicts at work by daylight, guards tended to march them out of the camp well before dawn. The farther the prisoners had to go to get to their work, the earlier they rose. Prisoners also returned late to the camp if the warden wanted them to work until sundown. Convicts went to and from the camp and the forest on foot, some at a quick walk, others on the run. A mounted guard set the pace, and other guards brought up the rear with drawn guns. Not all convicts could withstand the quick march, especially after a long, hard day’s work, and many collapsed. Some guards allowed these stragglers to follow in the rear at their own pace, while other guards meted out brutal punishment for falling behind. The guards stayed with the convicts as they labored. The convicts were divided into squads and spread out through the forest. When one inspector visited a turpentine camp in 1913 he only saw some of the prisoners because the others were so scattered in the woods he could not reach them. To prevent escape of convicts who worked spread out through the woods, it was best for the guards to be mounted. With probably two guards and maybe some hounds watching over them, the squads each performed different jobs, either specializing in dipping, chipping, scraping, or boxing.

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100 Inspectors’ reports, September 1913 to February 1914, Convict Lease Program Subject Files, 1889-1916, Board of Commissioners of State Institutions.
Work was coordinated so that each squad completed its work to accommodate the other groups.  

Like antebellum slave masters and free labor employers after the Civil War, turpentine convict camp operators continued to organize work using the task system. Tasks were designed for workers to complete them by working all day long from Monday to either Friday or Saturday morning. Any extra time was for rest. For over a century the task system was used as an incentive to encourage rapid work. Most convicts reportedly preferred this system to gang labor, where they worked all day every day with no hope of extra time off no matter how hard they labored. To complete their job during the week, convicts worked extremely hard. Some convict camps expected convicts to reach production levels as much as fifty percent above that of free workers. But some convicts found their tasks more burdensome than others. Prisoners serving shorter sentences, thirty days for example, reportedly were worked harder than those serving for several years. Because a camp only had men with short sentences for a limited time, it lost nothing by working them to exhaustion for the duration of their sentence. Richard Barry observed that “a convict serving a sentence of several years would be well taken care of, his body being as valuable a chattel as that of a horse. . . .”  

Teenage boys also experienced special


103 Barry, “Slavery in the South To-Day,” 487.
hardships in meeting their assigned tasks. Despite their small size, boys were expected to dip as much gum as grown men, fifty-two buckets each day. A thirteen-year-old boy at one camp could only manage thirty buckets a day and consequently received daily beatings with a leather strap for failing to meet his task.\textsuperscript{104} Even for grown men, the labor at a turpentine camp was incredibly burdensome compared to even the other strenuous areas of production that employed convict labor. In 1901 a group of desperate convicts, apparently just leased to a naval stores operation, wrote the Florida governor explaining that “we the undersigned, convicts at Mr. Buttgenbacks’ Floral City camp, beg to state, that we would like to remain at the phosphate mines in preference to going to the turpentine farms. Some of the men here have worked at both places, and they are all unanimous in stating, that they prefer the mines.”\textsuperscript{105}

Like turpentine camps that employed wage labor, convict camps tended to be found in isolated locations. Of Florida’s twenty-eight camps employing convicts in 1903, the least remote was two miles away from the nearest town and the most was fifteen miles from a community. One Florida convict camp visited by reporter Marc Goodnow in 1915 was probably typical. The camp held around forty convicts and sat near a railroad track. It consisted of a cluster of whitewashed, rough board buildings surrounded by a high stockade of similar construction. Two roughly fashioned raised platforms at opposite corners of the stockade served as guard posts. The yard possessed no trees, grass, or shade, only hot white sand, and scattered stumps. During particularly wet seasons, such barren yards could quickly turn into muddy quagmires. The bunkhouse, the most prominent building on the site, was long and low and filled with individual


\textsuperscript{105} John B. Kertzinger et al. to Governor Jennings, 20 May 1901, Board of Commissioners of State Institutions.
iron beds which supported, what Goodnow observed to be, filthy mattresses. Goodnow does not make clear the construction of this bedding, but the most commonly used materials of the time consisted of cheap ticking stuffed with straw. Such mattresses harbored bed bugs and wore out quickly, since their ticking split and the straw bunched up. The bunkhouse Goodnow visited had no ceiling or finished walls. The room smelled strongly of disinfectant, which the captain insisted was used everyday after the floor was scrubbed in the morning. Wall decorations were limited to the Ten Commandments, several illustrated pictures, and a list of the state prison authority’s rules and regulations. Next to the only door into the bunk house stood a protective cage built of heavy timber and furnished with a chair and heating stove where a guard kept a nightly watch. A partition separated the sleeping quarters from the dinning room. At meals convicts ate at zinc-covered tables while sitting on boxes and broken chairs. They ate with only spoons; knives and forks could too easily be used as weapons. The kitchen was housed in a separate building. During the food’s preparation two huge hogs and six to seven dogs wandered in and out on the dirt floor through the kitchen’s open door. Other camps appear to have also had problems with unsanitary kitchens. The camp Goodnow visited appears to have met the state standards, but not all camps did. Others had severe problems with cleanliness, ventilation, and adequate space in the bunkhouse and in dinning rooms.

Convicts subsisted on a monotonous diet that differed little from that of free turpentine workers and dated well back to the previous century. Registers of provisions issued to convicts in 1914 reveal that biscuits and cornbread made up the staples of convicts’ diets. Prisoners also

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106 Mancini, One Dies, Get Another, 65; Goodnow “Turpentine: Impressions of the Convict Camps of Florida,” 104-106; J.D. Ferrell to W.A. MacRae, 29 March 1913 and 30 June 1913, Commissioner of Agriculture to Florida Naval Stores and Com. Company, 5 April 1902, and N.A. Blitch to N.B. Broward, 5 April 1906, Board of Commissioners of State Institutions.
received regular servings of rice, beans, molasses, and coffee. Irregular servings of meat, whether it be ham, sausage, salt pork, or fresh beef or pork, were also issued to prisoners. Some months they might receive only one serving of meat every day and on some days none at all. However, there were slight variations between camps. At one, for example, convicts received peas and sweet potatoes where another camp did not provide these. The latter, however, did serve ham and fresh pork more often than the former. According to convicts at the camp Goodnow visited, breakfast consisted of three biscuits and a piece of meat; lunch—which they ate in the woods—was made up of biscuits or cornbread and meat; and supper—which was taken at the camp—consisted of biscuits, meat, and beans. Pork remained the typical meat. However, at some camps in the early twentieth century, convicts complained of being fed very poor grades of pork and also not receiving enough food for breakfast. Some convicts supplemented their regular menu with raccoons and possums which they caught in the woods.107

There was seasonal variation in convict diet, with more varieties of vegetables available during the summer months. At one camp, Irish potatoes, squash, and green beans appeared on convicts’ plates in June. That same month at another camp convicts consumed melons, green corn, green peas, okra, squash, and fresh tomatoes. Many of these fresh vegetables were grown in camp gardens. Diets also changed for major holidays, the addition of fresh meat being the greatest deviation from standard fare. In 1913, for example, the thirty-one convicts at a Santa Rosa County, Florida, turpentine camp celebrated July 4 with a big barbecue and picnic, presumably with fresh pork. For the same holiday, convicts at the DeLeon camp received fresh beef and those at the Waller camp received both fresh beef and fresh pork. For Christmas the

107 Commissioner of Agriculture to Florida Naval Stores and Com. Company, 5 April 1902 and N.A. Blitch to N.A. Broward, 5 April 1906, Board of Commissioners of State Institutions; Goodnow, “Turpentine: Impressions of the Convict Camps of Florida,” 105-106.
same year convicts at the DeLeon Camp enjoyed pickles, fresh beef and pork, bread, and Irish potatoes along with their usual fare.\textsuperscript{108} Although their diet appears to have been adequate, convicts suffered health problems associated with turpentine work and life at the camp. The relentless hard labor with heavy, wooden-handled tools caused sore and blistered hands.\textsuperscript{109} In July and August the regular rain in Florida brought on ague, chills, fever, and pneumonia. Daily rain caused the countryside to flood, forcing workers to trudge through waist-high water in some places. “Dats de time it gits yo,” one convict explained. “Mah Gawd, man, hit’s sho’ awful, standin’ in watah an’ runnin’ all day long in the wet grass up to yo’ waist...”\textsuperscript{110} Failure of camps to provide adequate footwear in the wet environment appears to have been a persistent problem. At one camp in 1906 a prisoner cut his foot and preferred to work with it wrapped in a cloth than confined in an ill-fitting boot. Convicts at another camp were forced to work barefoot when their shoes wore out and the camp manager delayed acquiring new ones. In 1907 it was reported that at one turpentine camp no convict possessed a whole pair of shoes. There, the men had cut feet from working among the sharp saw palmetto. Such exposed cuts became infected from continued exposure to the forest and, in some instances, caused blood poisoning.\textsuperscript{111} Goodnow noticed that

\textsuperscript{108} F.J. Titeaub to W.A. McRae, 10 April 1913, J.D. Ferrell to W.A. McRae, 28 March 1913, F.J. Titeaub to W.A. McRae, 13 May 1913, J.D. Ferrell to W.A. McRae, 28 May 1913, R.R. Tomlin to W.A. McRae, 31 July 1913, and De Leon Naval Stores Company and Waller Turpentine Company, convict provision registers, 1914, Board of Commissioners of State Institutions.

\textsuperscript{109} J.D. Howe to W.A. McRae, 30 August 1913, Board of Commissioners of State Institutions.


\textsuperscript{111} N.A. Blitch to N.B. Broward, 5 April 1906, Board of Commissioners of State Institutions; Barry, “Slavery in the South To-Day,” 487.
the convicts’ feet at the camp he visited were “swollen and misshapen.” “They were spread out, broken down, cut, gouged, blistered and scratched,” he reported, “and the nails of many of their toes were gone.” One convict explained that when men, who were not used to the work, first got to camp, their feet swelled so much that once in the stockade they went barefoot because their shoes no longer fit. Syphilis was also a major problem among convicts. In 1910 the governor of Florida estimated that seventy-five percent of black convicts suffered from various stages of the disease.112

Historian Jeff Drobney finds that according to official reports the annual death rate for Florida convicts was just below five percent. Diseases—especially lung infections and intestinal problems—and inadequate medical treatment along with being shot while attempting to escape were the most common causes. At the camp visited by Goodnow, seven convicts died in one year from disease. According to state regulations, convict camps were supposed to receive medical care from a doctor although the request was not always granted. One Orange County, Florida prisoner, for example, died of inadequate medical attention to sores on his feet. Sentenced to labor in a turpentine operation in 1906, in a few months his feet became so diseased he could not walk to and from work. On March 22 a doctor examined his sores and prescribed a disinfectant wash which apparently had no effect. Over the next week his feet grew worse and a emitted a foul odor. He was thus moved to a building outside the stockade, where he lay unattended and very ill with his feet wrapped in pus-soaked rags. He died at the end of the month. In an example of how the Progressive reform measures could sometimes be enforced, the captain and two guards were indicted for manslaughter because they failed to provide the convict

112 Goodnow, “Turpentine: Impression of the Convict Camps of Florida,” 105-106; N.A. Blitch to N.B. Broward, 5 April 1906, Board of Commissioners of State Institutions.
with necessary food, care, nursing, medicine, and treatment. Found guilty by the county court, the captain was fined him $2,500.\textsuperscript{113}

Incompetent guards, such as the ones charged in Orange County, appear to have presented a persistent problem at convict camps throughout the period, despite state efforts to recruit better personnel. The number of guards employed by a county convict camp roughly reflected the number of convicts held, but the typical camp employed between seven and eight guards. With low pay and requirements that the guards live at the isolated camps, the job attracted only those who could find no other employment. And although captains might have proved overall more experienced and reliable, many of them were shown to be inadequate as well, despite relatively good salaries. In 1905 camp wardens made approximately $150 a month, or between $1,200 and $1,800 annually. In a few cases they could make as much as $2,500. Guards, by comparison, made only $25 a month, but if they owned their own horse they could receive as much as $35. In many cases guards were very young men, often no more than nineteen years old.\textsuperscript{114} Goodnow described the guards he observed as “husky young men, mounted upon horses and wearing large black slouch hats, with long barreled pistols protruding from their hip pockets.”\textsuperscript{115} While on duty guarding the stockade, Goodnow explained, the


\textsuperscript{115} Goodnow, “Turpentine: Impression of the Convict Camps of Florida,” 103.
guards, armed with long-barreled pistols, lazily smoked cigarettes. At another camp guards spent the night telling dirty jokes in loud voices, keeping the convicts awake. The night guard had written “smutty poetry” and pasted it on the wall for all to read.116

Prison inspectors complained about both incompetent guards and hot-tempered wardens.117 In 1902 the Florida Commission of Agriculture explained that “where guards and captains are disciplined you find good conduct, good work, cheerful prisoners, and few complaints from prisoners.”118 However much of the trouble at camps, state officials believed, resulted from guards and captains who failed to conduct themselves properly. For example, guards commonly set their guns down on the guard stand and entertained visitors while supposedly on watch. Captains commonly proved hot-tempered in dealing with convicts and provided insufficient management for the guards. The problem seems to have been so pervasive that when inspectors who encountered a camp where “the captain controls his guards and prisoners well” considered it noteworthy. Because the captain was an employee, hired by the actual lessee to manage the camp, the state encouraged lessees to keep a close eye on their facilities, observe the guards and captain in the execution of their duties, and occasionally discuss camp conditions with the prisoners. Nevertheless, many lessees apparently neglected their responsibility.119


118 Commissioner of Agriculture to Florida Naval Stores and Com. Company, 5 April 1902, Board of Commissioners of State Institutions.

119 Ibid.
Camp discipline, administered largely by incompetent guards, rested squarely on a system of punishment that centered on the strap. A whipping boss usually administered the licks. He ideally used the strap in moderation and carefully recorded each whipping for state records. And some wardens appear to have held to this philosophy. The captain in charge of the camp visited by Goodnow claimed that "'tisn't necessary to handle the men roughly except when they get incorrigible or commit some act that requires punishment. . . . Yes, we use a strap; but not very much. I don't have much trouble." Others had different ideas. The Florida Commissioner of Agriculture report for 1903 and 1904 explained that new convicts, especially those from larger towns, required considerable punishment. "They have never learned the lesson of obedience, are indisposed to labor and are more insolent," the report stated. "For a time they disturb the temper of those who are working smoothly. Nothing but corporal punishment, sometimes repeated and more severe, will have any effect on them. Some prisoners could bear severe punishments and never show the effects, while others with light punishment, will bear the marks plainly." Despite the acknowledged heavy use of the strap, the report maintained that "it is seldom a prisoner receives more severe punishments than is merited." Each convict camp was required to keep a monthly prison punishment record to be submitted to the Board of Commissioner of State Institutions and the Commissioner of Agriculture in Tallahassee. For each punishment, camps were to provide the prisoner's number, name, and the date on which the punishable offense occurred. They were also to note the number of licks the prisoner received, whether the convict's skin was lacerated from the beating, whether it was that individual

\[120\] Ibid., Drobney, Lumbermen and Log Sawyers, 171.

\[121\] Goodnow, "Turpentine: Impression of the Convict Camps of Florida," 106.

convict's first or second offense, who performed the whipping, and who recommended it. The punishment reports submitted to the state of Florida reveal that approximately ten percent of the convicts were whipped each month an average of nine licks. The number of licks, however, depended on the convict's offense and varied among camps.123

An analysis of three different turpentine camps' punishment reports from 1914 illustrates the types of offenses captains found punishable in the early twentieth century and the severity of the whipping for each offense. Because different camps had different standards and different ways of categorizing offenses, it is necessary to look at each camp separately. At the Lemon Bay Turpentine Company camp in Sarasota County, Florida (then Manatee County), the most common punishable offense was for “bad work.” Fifty-nine percent of all whippings were administered for this violation and an average of 7.5 licks were given. “Laziness,” 21 percent, and “missing task,” 12 percent, represented the next most common offenses, both resulting in an average of 7.8 licks. Convicts also received beatings for “fighting,” “refusing to work,” “sassing,” “bunching timber,” and “disobedience,” each transgression receiving 8 to 10 licks. Escaping, obviously a more serious offense, brought 15 licks. At the Noma Naval Stores Company camp in Holmes County, 50.5 percent of punishments were for “not working,” 18.7 percent for “bad work,” and 15.3 percent for “impudence.” Each of these offenses carried an average price of 7.6, 6.8, and 8.7 licks respectively. Other convicts were punished for “disobedience,” “breaking tools,” and pretending to be sick. The penalty for these ranged between 6 and 8 licks. The apparently more grave offense of “slipping out mail” carried a

penalty of 10 licks. At the Waller Turpentine Company camp most whippings, 61.6 percent, were for "not working." Workers there received an average of 5.2 licks for malingering.

Gambling made up 11.6 percent of offenses and brought an average of 8 licks. Other offenses included "sassing guard," "idleness," "disobedience," "bad conduct," "fighting," "cursing," and even "selling hat."124

Although each camp demonstrated somewhat different punishment policies, closer analysis reveals common patterns. Although poor work precipitated the great majority of discipline, this infraction was among the most lightly punished. Disruptive behavior, whether classified as "sassing," "disobedience," or "impudence," was also not tolerated. But although punishment for these violations occurred far less frequently than for work-related offenses, convicts received more licks for them. Fighting was a common, if not pervasive, problem among all camps. Gambling was permitted in some camps, but others, such as the Waller Turpentine Company camp, considered it a moderately serious offense. Lacerations were surprisingly reported to have occurred only three time out of the total of 251 punishments for 1914 at all three camps, a rate just over one percent and so low that it calls into question the accuracy of the punishment reports with respects to the severity of whipping.125

Despite the punishment reports' goal of regulating and limiting whippings, excessive punishments appear to have remained far from uncommon. At a camp in Manatee County, Florida, the inspector found that convicts received beatings too frequently and of too severe a nature. The convicts, consequently, appeared to be in poor condition. The inspector recommend


125 Ibid.
that either the captain or the whipping boss be removed. At another camp in an Orange County when the inspector had the convicts strip for observation, he found that seven of the forty-five convicts in the camp showed signs of the strap. Two possessed extremely large scars. The inspector provided the excuse that the prisoners had received a beating when the strap which was supposed to be soft, had been used after it was left in a pool of water overnight, had dried hard, and had not been rubbed back into shape. The inspector believed that in addition to the strap’s lack of conditioning, it was too heavy and he insisted the captain get another one. At some camps, convicts reportedly received random beatings for no offense and at others they were beaten so severely they could not work.126

Aside from beatings with a strap, spontaneous and brutal forms of punishment occurred as guards attempted to force convicts to work at a quicker pace in the forest. One convict, for example, experienced difficulty carrying his dip bucket in his sore, raw hand, but could not work rapidly enough while carrying it on his arm. A guard threatened him with death unless he worked to standard and, when he failed, the guard shot and killed him. The guard claimed he acted in self-defense, but he was not believed by the camp manager and subsequently discharged and black listed. In another incident, three convicts persisted in dipping inadequately after receiving warnings from the captain. Two submitted to punishment, but the third drew his hack and threatened the captain. The captain responded by striking him on the head with a tree limb. In yet another instance a convict fell from exhaustion on the march back to camp. The other convicts found him too heavy to carry. Ordering the other convicts on, the guard tied the exhausted prisoner to his saddle and dragged him for three miles along the road. The convict

126 N.A. Blitch to N.B. Broward, 6 March 1906 and 5 April 1906, Board of Commissioners of State Institutions; Barry, “Slavery in the South To-Day,” 486; Carper, “Convict Lease System in Florida,” 290.

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died the next morning. Evidence suggests that such brutality occurred more frequently at camps employing county convicts. In his 1903 and 1904 report, the Florida Commissioner of Agriculture explained that seventy-five percent of the reports of cruel and inhumane treatment originated in the county convict camps.127

Convicts often tried to escape from turpentine camps, and their relatively high success rate did nothing to discourage others. Because prisoners were not shackled while they worked and labored in woods which obstructed the guards' view of the activity, prisoners could, with relatively little difficulty, clear the range of the guards' rifles. One deterrent from escape reportedly was the prisoners' fear of the bloodhounds. When an escape occurred, bloodhounds—trained to track convicts during mock escapes attempts—began searching for the escapee's trail while mounted guards followed. On average, county camps kept four dogs for tracking escapees but that number too varied considerably. One camp kept none and another maintained eleven. If the camp guards and bloodhounds failed to capture a criminal within a few hours of escape, the likelihood of ever finding him dropped to less than thirty percent. In 1913, for example, two of the eighteen convicts leased by a Washington County turpentine operation successfully escaped. The lessee had them moved to the camp before the stockade was completed, allowing the two to slip out of the camp after making it through the roof of the bunkhouse. Later that year a convict at Wakulla County turpentine operation escaped while working in the forest. He dodged shots fired at him by guards, survived a four-mile chase through the woods, and finally crossed the St. Marks River by boat. At yet another camp two years later, nine convicts broke out of the back of the stockade while a partially-deaf guard tended to other camp duties. The convicts were on the

127 J.D. Ferrell to Park Trammell, 30 April 1913, Board of Commissioners of State Institutions; Barry, "Slavery in the South To-Day," 487; Eighth Biennial Report of the Commissioner of Florida, 1903-1904, 308.
run for three hours before their absence was detected. The camp hounds picked up their scent, but were unable to catch up to them. 128

Despite efforts, Florida's recapture rate was only about fifty percent. In 1903, for example, most escapees (58 percent) were recaptured. In 1912, there were 96 escapees among the 1421 state convicts. Of these, 47 were captured. In some cases prisoners were able to slip away only to be captured a short time later. Some escapees were caught within a matter of days, but remaining on the run for half or a whole year was more common. One convict even eluded authorities for four years before recaptured. Others were prevented from making successful escapes with deadly force. When one convict attempted to run from the work squad in 1906, he was ordered to stop then shot in the abdomen and arm. He died five days later at the state convict hospital in Ocala. 129

Most escapees had been convicted of theft, although some were sentenced for murder. The majority were in their teens and twenties. Although whites made up 13 percent of the prisoner population, they represented only 7.5 percent of escapees. This skewed racial representation may be explained by the white prisoners' much greater ability to obtain pardons compared to blacks. Whites received the greatest number of pardons (55 percent) despite making


up only a small minority of prisoners. A convict was reportedly more likely to try escape during
his first three to four months in the camp. The hard work and tough living conditions made them
sullen and entertain thoughts of getting away. But after a few months they grew more
accustomed to convict life and resigned themselves to their new state.

Despite the long hours of hard work and the less-than-ideal living conditions, convicts at
some camps found time for recreation. Despite state rules forbidding card playing and profane
language, Florida convicts amused themselves with games of poker, dirty jokes, dancing, and
singing. During Goodnow’s camp visit, he witnessed convicts singing and telling jokes in the
dining room. While he was there, the convicts entertained him with an original skit, “The Old
Plantation.” The main character, old Uncle Eph, donned fake whiskers, a cane, corncob pipe,
and straw hat, and returned to his home plantation after forty years absence to see “de mammy
and the chillun,” the latter he refereed to as “big hunks o’ midnight.” A young black man played
Mammy Liza with a bandanna tied around his head and falling over his shoulders. As part of the
skit, Uncle Eph sang “Pickin Cotton” while seven prisoners danced. After the skit another group
of convicts sang “plantation and camp-meeting songs and hymns.” The convicts, according to
Goodnow, ran through the routine often and had made money by performing for visitors the
previous Christmas. One early afternoon Goodnow also witnessed a camp baseball game. Under
the watchful eye of armed guards, the convicts played a six-inning game. “It was crude, of
course, but full of life,” Goodnow explained, “each side bantering and joking with the other over
an error or a ‘strike-out.’” The catcher and the first baseman used gloves fashioned of hemp
sacking stuffed with straw. The other men used their bare hands.\textsuperscript{130}

\textsuperscript{130} Eighth Biennial Report of the Commissioner of Florida, 1903-1904, 330, 347-350;
Goodnow, “Turpentine: Impression of the Convict Camps of Florida,” 105-106; Drobney,
During the first decades of the twentieth century, relatively little changed in the lives of turpentine workers. Debt peonage remained an important labor practice and, except for the job of hanging cups which replaced boxing, the work routine of turpentine laborers continued virtually unaltered from the late nineteenth century and even the antebellum period. The labor force remained predominantly black and was supervised by white woodsriders who ruled over it, seldom relying on outside law enforcement. Camps remained rough and isolated places where workers lived in clusters of small shanties. Unbridled revelry at the juke joint and an occasional trip to the nearest town broke the monotony but, for convicts, the work demand was greater and conditions at the camps even bleaker than those of wage laborers. Despite small physical improvements in camp buildings and a limited rise in diet quality and variation, brutality and abuses continued. The difficult lives of workers compelled to labor under either the peonage or convict lease systems continued through much of the early twentieth century despite the efforts of Progressive reformers who attacked both institutions during the period.
Chapter Eleven

Forced Labor Attacked:
Reformers Target Peonage and Convict Leasing

In the first decades of the twentieth century, a series of attacks on the systems of forced labor that supported the naval stores industry succeeded in ending convict leasing and seriously threatened peonage. At the same time that states tightened labor laws to strengthen debt servitude, the United States Department of Justice began investigations of suspected producers for violation of the Thirteenth Amendment. The press coverage of the investigation focused national attention on the widespread use of peonage and spurred public outcry that drove the institution underground. With the same zeal, reformers also attacked convict leasing. Although not as widely practiced by the naval stores industry as peonage, convict leasing proved less capable of withstanding organized opposition.

Just as southern states began strengthening their labor legislation and incorporating whites in the grip of peonage, the United States Justice Department began efforts to end the system of forced labor, charging it was unconstitutional under the Thirteenth Amendment. At the turn of the century, Fred Cubberly, the Department's Commissioner for the northern district of Florida, noticed a large number of arrests under the state's "false provision law" of 1891. At the request of employers, local officials had charged workers with obtaining goods and money and refusing to deliver the labor promised under their contract. None of these cases ever went to trial; instead compromises were worked out under which the laborer agreed to return and work off his debt and the cost of his arrest. Cubberly also learned that some employers enforced the law without help from officials, making their own arrests and holding their own courts.
In February 1901, Cubberly witnessed this extralegal action firsthand at a turpentine distillery in Meredith, Florida, in Levy County. While speaking with the owner, a Mr. Meldon, another naval stores operator, J.O. Elvington from Otter Creek—about eleven miles southwest of Meredith—who had just arrived by train, asked whether a white man named Higgins, his wife, and six year old daughter had come to the area the day before. Higgins, who was indebted to Elvington for forty dollars, had come from South Carolina to Elvington’s Florida operation to work as his cooper. When he arrived, however, he had to dip turpentine instead, and he and his family had to live in a shelter that formerly housed horses and mules. He had tried to work off the debt but the longer he stayed the more indebted he became. Meldon informed Elvington that they had arrived, he had employed the man to run his operation, and they were in a nearby house. Within a few minutes there was loud talking, screaming, and profanity, and the family ran from the house with Elvington, apparently armed with a pistol, chasing them. While Mrs. Higgins pleaded for their freedom, Elvington cursed them, ordered them to gather their daughter, and begin the fifteen mile journey back to his operation on foot. Meldon loaned them a team of horses which Elvington permitted only the girl and her mother, who was ill, to ride, and they all set off for Otter Creek. Back in his Bronson, Florida, office, Cubberly studied the issue and approached the U.S. Attorney of the Northern District with the suggestion that a test case be tried under the federal peonage statute of 1867, which outlawed all debt slavery. With the attorney’s approval Elvington was indicted. After Secret Service operatives located missing witnesses in 1905, Elvington plead guilty to the peonage charge and received a one thousand-dollar fine.1

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Soon after observing the incident with Elvington and Higgins in Meredith, Cubberly witnessed an even more egregious example of peonage. While waiting for a train in Gainesville, he saw three armed men in the waiting room on their way to Bronson, Florida, in search of escaped workers. A few days later a naval stores producer named J.R. Dean contacted him about the illegal arrest of some laborers at his camp, coincidentally by the same men Cubberly had met at the train depot. According to Dean, a prominent Tifton, Georgia, citizen, Samuel M. Clyatt, served warrants for the arrests of five black workers—who had left his employment and gone to work at Dean’s camp near Rosewood, Florida—charging them with gambling. When Clyatt arrived in Levy County he turned his Georgia warrants over to a Florida deputy, who reportedly did not read them. The deputy dutifully arrested the four men whom Clyatt pointed out. Clyatt eventually released two of them but retained the others, Mose Ridley and Will Gordon. To Dean’s protest, Clyatt responded that the men owed him money and that he was taking them back to Georgia to serve as examples to others who might try to leave. After Clyatt rejected Deen’s offer to pay what the men owed him, Clyatt forced one of Dean’s team drivers to take him and his men, along with Gordon and Ridley in leg chains, to the railroad. The men then went directly back to Georgia, with no court proceedings in Florida.

Cubberly quickly set to work. He arrested the deputy. After gathering the facts from him, Cubberly summoned Clyatt as a witness and had him arrested when he returned to Florida. Cubberly faced considerable obstacles in building his case, however. Despite efforts by the Secret Service, the two victims, Gordon and Ridley, were never found. Also, the case created considerable interest in the South, and by the time of the trial, $90,000 had been raised for Clyatt’s defense, $5,000 of which was raised in a single night by the Georgia-Florida Sawmill Association. Nevertheless, Clyatt became the first person tried and convicted for violating statutes outlawing peonage. Local papers, by inaccurately reporting that most of the jurors were black, argued that the trial was unfair. In March 1905, the Supreme Court overthrew the Clyatt
conviction, arguing that the defendant’s intentions were clear, but that the government had failed to establish Gordon and Ridley’s indebtedness before their abduction. At the same time it upheld the federal peonage statute and ordered that Clyatt be retried. The Justice Department, however, was unable to secure the necessary witnesses to make its case. Clyatt went free; Gordon and Ridley were never heard from again.²

Cubberly was not alone in his fight against peonage. As immigrants who escaped the institution in the South made their way back to New York, reports about the brutality in the southeastern turpentine camps spread through the ethnic communities. By 1906, Russian Jews, Hungarians, Italians, Greeks, as well as some native New Yorkers contacted Mary Grace Quackenbos about male family members held against their will in southern lumber and turpentine camps. An economically independent, reform-minded woman with legal training, Quackenbos ran the People’s Law Firm in Manhattan, which helped immigrants adopt to life in the United States. With a three hundred dollar grant from S.S. McClure, publisher of McClure’s Magazine, and additional funds from the Jewish Aid Society, she assumed her maiden name, Winterton, and traveled through Florida posing as a reporter. She reported her shocking findings to the Department of Justice and received its support for an investigation.

As a result of her pressure, F.J. O’Hara, a partner in the lumber and naval stores business at Buffalo Bluff and Maytown from which Fink and his college escaped, along with some of O’Hare’s supervisors, were tried for peonage. The trial took place in Jacksonville, headquarters of the Turpentine Operators Association, home office of the United Grocery Company, which

² Authorities had made an attempt in 1899 to enforce the peonage law only to have a judge dismiss the indictment. Afterwards, no further action was taken until the Clyatt case. Frederick C. Cubberly’s description of Clyatt Case, 17 August 1906, Frederick C. Cubberly to Russell, 18 December 1906, and Alexander F. Irvine to Roosevelt, 1 December 1906, Cubberly Papers; Carper, “Slavery Revisited,” 87-88; “Peonage in the South,” The Independent 55 (9 July 1903): 1618; Michael D. Tegeder, “Prisoners of the Pines: Debt Peonage in the Southern Turpentine Industry, 1900-1930” (Ph.D. diss., University of Florida, 1996), 90-99.
supplied turpentine camp commissaries, and home of the Florida Times-Union, a major
newspaper sympathetic to producers. All three institutions opposed the peonage investigations
and created an environment that made conviction difficult. Moreover, the defense attorney in the
case was W.M. Toomer, president of the Turpentine Operators Association, and the jury
foreman, C.B. Rogers, served as president of United Grocery Company. After a nine-day trial
the jury took just seventeen minutes to find all parties innocent.³

Other peonage cases in the piney woods South ended with similar results. Not only were
local juries unsympathetic to the plight of workers held in peonage, but, as the U.S. Attorney
General was informed, “it is extremely difficult to get evidence in cases of this kind. The guilty
parties are white men, and, in nearly every instance, the persons held in peonage are negroes.”⁴
In many instances the local prosecutors were slow to act on peonage complaints. One anti­
peonage activist, who clipped newspaper articles dealing with peonage and sent them to the
Justice Department, complained in October 1906 that the department continued to refer him to
the district attorneys where the abuses occurred. These officials, he argued, were as likely to act
on the peonage cases as the labor lords themselves since “these attorneys are motivated by
southern people ruled by democratic office-holders and reign—some of these sheriffs hold office
for twenty-five years—until they have enough to live comfortably the rest of their days.”⁵

³ Jerrell H. Shofner, “Mary Grace Quackenbos, A Visitor Florida Did Not Want,” The
Florida Historical Quarterly 58 (January 1980): 275-279; “Verdict of Acquittal Ends First of the
Peonage Cases,” Jacksonville, Florida Times-Union, 25 December 1906.

⁴ John M. Chevey to United States Attorney General, 21 April 1906, Correspondence,
Classified Subject Files, Department of Justice Central Files, General Records of the Department
of Justice, Record Group 60, National Archives.

⁵ Professor Livingston to Lock, 14 October 1906, Correspondence, Classified Subject
Files, Department of Justice Central Files, General Records of the Department of Justice, Record
Group 60, National Archives.
The Justice Department began having better success with its prosecutions once sounder cases appeared. One victory came in the 1907 trial of the Graham brothers. In the spring of that year, a black man named James McCants and his wife Rosa left the Grahams’ Flomation, Alabama, turpentine camp and moved ten miles south into Escambia County, Florida, where James began work for a Mr. Mayer. On the afternoon of May 17 the Graham brothers and their driver arrived at Mayer’s camp. The Grahams refused to accept Mayer’s offer to pay McCant’s debt and forced him back to their operation. When the brothers returned later for Rosa, an argument broke out, shots were fired, and the Grahams’ retreated. When the McCants swore out a warrant against the Grahams, the husband and wife received death threats, prompting them both to go into hiding until the trial began. In November 1907, both brothers were convicted of peonage in Pensacola, one sentenced to the state penitentiary and the other to the county jail.6

Although the attack on peonage was certainly fueled by the same reformist zeal that initiated attacks on child labor, illiteracy, and convict labor, it was also probably a response to the increase in the practice of forced labor.7 Given the labor climate, it is not surprising that instances of peonage rose after 1900. William Cohen maintains that the fact that opposition to the practice came at the same time that racism was on the rise indicates that peonage was becoming more widespread. “Had peonage and other forms of involuntary servitude been constant across the decades,” he explains, “it would be far more likely that white southern opposition would have surfaced earlier, rather than in 1903, when racism was at floodtide.”8 But because the practice tended to be well-hidden and involved the informal use of law enforcement,


no documentation with which to quantify its frequency exists. Assistant Attorney General Charles Russell admitted in 1908 that the government had no idea how many workers were held in peonage. He explained that “how many cases are in existence is the same kind of a question as though the crime were pension fraud, or counterfeiting, or public land fraud, or fraud on the revenue. Where we have found several cases we may conclude that there are, or have been, or are likely to be, others; but this is speculation.” In fact, the Justice Department most certainly prosecuted only a tiny portion of the peonage violations. Most workers were unable to complain to Department officials and, when they did hear of possible violations, attorneys often lacked sufficient evidence to prosecute because of threats, intimidation, and disappearance of witnesses.

In the early twentieth century, the national press published exposés on peonage and the difficulty of trying the cases, outraging Progressive northern readers who then supported intensified attacks on the system. Reporters went to great lengths to expose the evil. One went undercover as a worker but became exhausted from the hard manual labor and returned home. In July 1903, The Independent, a nationally-read magazine, informed readers that “we find the South relapsing into a state of virtual slavery, in which the negro and the poor white man find their condition worse than that of the average slave of ante-bellum days.” Such writers appealed to desires for law and order by explaining that the institution flew in the face of the Thirteenth and Fifteenth Amendments, and that both producers and corrupt authorities employed extralegal measures in their attempts to return escaped workers. In an appeal reminiscent of


11 Alexander Irvine to Frederick C. Cubberly, 13 April 1907, Cubberly Papers.

12 “Peonage in the South,” 1617.
abolitionists' claims of a slaveholders' conspiracy, readers were informed that tyrannical labor lords ignored the federal laws against peonage, viewing it as an infringement on their rights. Reporters also explained how a small but powerful interest group—turpentine producers—exerted undue power to have its way.13

Five months after the one in *The Independent*, another article told of how twenty-six indictments for peonage had been returned by a federal grand jury against seven of Georgia's most prominent citizens, three of them members of the McCree family of Valdosta. One of the McCrees, Edward, plead guilty to thirteen charges and was fined one thousand dollars. The article implied that, as a wealthy and powerful man who owned 37,000 acres in south Georgia and served as a member of the state legislature, Edward McCree had received a light sentence.14 The article described how the Turpentine Operators Association raised thousands of dollars with which to defend the forced labor practices. It also appealed to the Progressive era's concern for family by explaining how the families lived in the camps and that if a worker ran away, his wife and children were detained. In one case, the piece added, an employer withheld "young children from both father and mother for the purpose of forcing the payment of a debt."15 In case such stories failed to draw sympathy because the victims were black, writers recounted such stories as one of "a whole family of white persons, including young children, forced at the muzzle of a gun to leave their home and return to the swamp labor camp of the father's former employer some miles distant, there to remain until a small indebtedness due the employer was worked out by the father at wages which the employer arbitrarily fixed."16

13 Ibid., 1616-1618.


15 "Peonage in the South," 1617.

16 Ibid., 1618.
Another, more shocking article, appeared in *Cosmopolitan* in 1907. Entitled “Slavery in the South To-Day,” the article by Richard Barry jolted readers by claiming that northern businessmen, not southerners, were the root of the evil and that “whites are better and more dependable workers, and therefore in the enslavement process are preferred prey.” Barry assured readers that he did not use the term figuratively but rather described “the actual physical slavery that keeps men worse than animals.” In fact, he argued, this early-twentieth century “slavery” was far worse that the antebellum version. “Where in negro slavery,” he explained, “there was often sentiment, a marked exchange of affection between master and slave, there is nothing in this new form except the basest and most cold-blooded calculation joined with an indifference to human life which transcends anything that has gone before it.” Barry candidly admitted that the peonage employers had erred when, in their arrogance, they strayed across the racial divide and targeted whites. As long as only blacks fell victim to producers’ greed, few whites cared, but when members of their own race, even if most were recent immigrants, became caught in the system, whites demanded action. In 1911, readers of *The American Magazine* were likewise informed that “under the guise of a contract for labor many negroes and, indeed, some white men have been held—and illegally held—in a form of peonage not essentially different from slavery.”

Reports of peonage in popular magazines never failed to emphasize the abomination of whites held in “slavery.” Richard Barry argued that the recent inclusion of whites resulted from

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18 Ibid., 481-482.

19 Ibid., 483; Tegeder, “Prisoners of the Pines,” 104.

a dearth of adequate labor for the new businesses entering the area. He maintained that black workers were too few and lazy and that whites could not be attracted to the region because they could not endure the climate. Desperate employers, according to his interpretation, therefore resorted to keeping whites in debt peonage to support their fortunes.21 The authors themselves drew a distinction between how whites and blacks fell into debt bondage. Black workers were usually described as getting themselves into peonage because of their innate tendencies to be lazy, steal, and suffer from what reporter Herbert Ward called a “borrowing mania.” Whites, in contrast, became victims of peonage despite their diligence and hard work, because the corrupt system trapped them. Ward’s account of Bob English from Coffee County, Georgia, proved typical. He described English as a poor white man who rented a small farm on which he grew cotton. In the spring of 1903, his landlord’s son started a fire in a honey tree to smoke out the bees. After the fire smoldered for a number of days, the landlord ordered English to extinguish it. English, busy with his cotton crop and as a cash renter under no obligation to do his landlord’s bidding, forgot. A small fire started and burned some of the owner’s turpentine trees, causing fifty dollars worth of damage. The landlord had English and his two grown boys arrested and charged with criminal negligence. For their release they agreed to work for the owner to repay the damage. “Thus Bob signed himself and his two boys into slavery.” After three months of work during which they received scant rations, they had only worked off $3.28, by the owner’s accounting. The three peons broke out of the stockade where they were kept and walked five nights until they reached the Florida state line eighty miles away. The landlord was indicted for peonage.22

21 Barry, “Slavery in the South To-Day,” 484.

22 Similar stories appeared describing like situations in other piney woods industries. In September 1907, for example, The Independent told the story of Mike Trudies, a twenty-four year old Hungarian peasant who immigrated to New York and was duped by a labor agent into accepting a job at an Orlando-area sawmill, which was advertised as paying $1.50 a day but turned out to be a $1 a day job in a remote timber camp. Workers there were subjected to long
Like northerners, southern blacks supported the peonage investigations and aided the fight. Peonage victim, Jack Richburg, wrote the U.S. Attorney General explaining his plight and requesting the Justice Department's assistance. In late summer of 1908, Richburg reported, he escaped from the Taylor Company turpentine operation near Perry, Florida. He made his way as far as the next county, where he was arrested and carried back to Perry. There he stayed in jail for six days before his new employer came, bailed him out, and apparently took him back with him. The new employer attempted to pay Richburg's debt, only to be told by the camp's manager that "he did not want the money but he wanted the damn negro." If not for his new employer's willingness to put up the bail, for which Richburg was enormously grateful, he would have been forced back to the turpentine camp or put on the county chain gang while he awaited a court appearance. Richburg called on the Attorney General "as a legal advisor of the government for protection," to conduct a comprehensive investigation in the area, and to assure him that there were many cases in the area like his that could result in prosecutions.\(^\text{23}\) In April 1909, a group of black petitioners from Polk County, Florida--located in the center of the peninsula--also asked the Attorney General to investigate "the way colored people are mistreated and Odious Impositions and Severe punishment Imposed on the Colored Race and also Some White People." They felt sure that the county officials were taking action outlawed by the Constitution and added that the county's jail and convict camps were full of African-American people who could

\footnotesize{days of backbreaking work and inadequate shelter. Mike and other workers attempted to escape only to be tracked with blood hounds, captured, forced to return to camp at a quick march, and then beaten. Abuses at the camp continued until the boss was tried for peonage in November 1906 and convicted. “The Life Story of a Hungarian Peon,” The Independent 63 (5 September 1907): 559-563; Herbert D. Ward, “peonage in America,” Cosmopolitan Magazine 39 (August 1905): 427.}

\(\text{23 Jack Richburg to United States Attorney General, 10 September 1908, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.}\)
provide evidence. The petitioners offered to assist in any investigation.\textsuperscript{24} It is unclear what became of the group’s offer.

Even a few white southerners attacked the institution of peonage. In 1905, \textit{The Independent} charged that “the best people of the South are opposed to the peonage system and condemn it in unmeasured terms. Many employers are opposed to it, but have been compelled to lean toward it in self defense, the local courts as a rule not protecting the laborer, and in some instances the officials receiving compensation from one employer for annoying and harassing other employers.”\textsuperscript{25} In the Florida state legislature, a Representative Reese led opposition to that state’s 1907 contract labor bill arguing, as the Tallahassee \textit{Morning Sun} explained, that “the measure is unconstitutional and would give the unscrupulous employer an opportunity to intimidate and bind an employee to servitude against his will, which practically amounts to peonage, or imprison for debt.”\textsuperscript{26} Not even all those involved in the naval stores industry supported peonage. One turpentine man believed that, although peonage legislation was originally intended to serve the honest purpose of protecting the employer’s advances, in practice the legislation had become a curse. Writing with twenty years of hindsight, he argued that the laws had left employers with such a feeling of legal protection that they had made more generous advances than earlier, resulting in huge debts among the workers that could never be paid off.

Turpentine producers who were desperate for labor, however, would sometimes pay the debt to

\textsuperscript{24} O.C. Buey, et al. to United States Attorney General, 22 April 1909, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

\textsuperscript{25} “Peonage in the South,” 1618.

\textsuperscript{26} Few legislators listened to Reese’s argument. The measure passed by a vote of forty-four to eight. “‘Pernicious Measure’ Passed in House,” Tallahassee, \textit{Florida Morning Sun}, 7 May 1907; Mary Grace Quackenbos to United States Attorney General, 18 May 1907, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
gain the laborers' services, thus greatly increasing their production costs.27 The turpentine's explanation of why he opposed peonage testified to the wide variety of motives that led southerners to oppose the practice. Some white critics focused on the institution's inclusion of their own race. The Attorney General learned from one southerner that "peonage is a species of slavery that is endangering the liberties of the people. At first only colored men were subjected to it—but now it operates without regard to race or color."28 Other whites opposed the practice because of the harm it caused its victims. They sometimes helped provide legal assistance for blacks who where trapped in peonage. In 1907, a convict camp guard was arrested and placed under $100 bond after Ed Williams, a black turpentine worker, declared before a judge that the guard had brutally beaten him for failing to perform his assigned work. The word of a black worker against a white guard probably would not have stood, except that Williams was "supported in his case by a number of humane people who believed his story."29 The next year a white man wrote a letter to the Justice Department on behalf of a Sam Taylor, a turpentine worker who owed his employer a debt. The operator held Sam's wife Jamie in peonage at Albrin, Florida.30

Some critiques of peonage, both from within and outside the region, blamed the rise of the practice on certain classes of southerners. The New South business class appears to have


28 E.W. Reeves to United States Attorney General, 6 June 1907, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

29 "Convict Camp Guard is Charged With Assault," Tampa, Florida Tribune, 28 June 1907.

30 Neil Sinclair to Department of Justice, 20 May 1908, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

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been a favorite target. Herbert D. Ward began his 1905 *Cosmopolitan* piece by arguing that “peonage is neither a race nor a negro problem any more than astigmatism [sic] is. It is purely a labor question.” And it was a product of the post-war South. The planters and their descendants, he maintained, had not created debt peonage. Rather men who practiced peonage descended “from the very slave-driver, or from the white brute whose degenerate poverty put him on a par with the colored freemen, and who hated the negro as one hates a rival. He it was who by chicanery, cheating the negro, and oppressing him, gradually acquired possessions and so wielded an almost baronial local power. The South is full of such slimy upstarts whose influence and wealth are the great menaces of the South’s prosperity.” Writing in the same publication two years later, Richard Barry agreed that peonage was the product of “this ambitious new blood [that] has ousted the ancient aristocracy that once gave Florida the distinction of age and chivalry. Ready to the hand were great forests in which slept turpentine and lumber, and deep mines from which could be disgorged great wealth in phosphate.” He also blamed northern capitalists, the railroad and lumber trusts, for imposing peonage on the region in their attempt to exploit both black and white southerners. Still other critics blamed the lower classes. Writing from St. Petersburg, Florida, in 1912, a minister placed blame for the system on the heads of “good-for-nothing, ignorant Florida ‘Crackers’” whom he witnessed arresting over a dozen white and black men who had traveled from the north seeking employment.

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31 Ward, “Peonage in America,” 423.

32 Ibid., 425.

33 Barry, “Slavery in the South To-Day,” 484.

34 Ibid., 482-483; Rev. Leon Ray Livingston to United States Attorney General, 6 March 1912, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

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Although some southerners did in fact oppose peonage, the loudest voices that arose from the region either denied its existence or supported its practice, especially after 1906. That year the conviction of five officials of the Jackson Lumber Company, which manufactured naval stores among its other timber products, shook the southern pine belt. It was the largest business of its kind in the United States, and its general manager was well-connected, wealthy, and held in high regard in his community. Months later, in early 1907, three other events outraged the Florida political and business power structure. Recently appointed U.S. Attorney General Charles J. Bonaparte announced his intention to continue his department’s attack on peonage. Mary Grace Quackenbos was appointed Assistant U.S. Attorney to help in prosecuting peonage cases. And Richard Barry’s exposé of peonage, focusing on Florida, appeared in Cosmopolitan and another version in the New York Evening Journal.

In the wake of high-profile convictions and renewed investigations, Florida business and political leaders denied that peonage existed in the state and began a campaign to discredit the federal officials who had brought the charges. The Turpentine Operators Association, United Grocery Company, the Georgia-Florida Sawmill Association, and newspapers across Florida, especially the Jacksonville Florida Times Union, began a campaign to convince the public that peonage investigations amounted to nothing more than unfounded accusations and commotion stirred up by trouble-making outsiders who threatened the area’s labor system.\[35\] At a 1907 meeting of the Florida Board of Trade, one participant complained that “if this practice [of investigating] is to continue, if this principal is to prevail, no man’s liberty is safe.”\[36\] A newspaper article complained that lazy and conniving blacks would accept advances from an

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\[35\] Charles Russell to United States Attorney General, 24 November 1906, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives; Shofner, “Mary Grace Quakenbos,” 277-278.

\[36\] “Ask Congress for Peonage Investigation,” Jacksonville, Florida Times Union, 21 February 1907.
employer and then attempt to work so poorly that the boss would release him. Under the cloud
of the peonage investigations, the paper complained, if their plan fails “the debtor-workman of
the negro race runs hot-foot to the nearest United States court and calls out; ‘peonage.’”

Florida’s political establishment rushed to address the peonage accusations. U.S.
Congressman Frank Clark of Florida came to his state’s defense in Washington. Clark denounced
the Attorney General on the House floor and in February 1907 drafted a resolution requesting
that the House investigate the peonage investigations and that the Attorney General disclose how
much money his department had spent on the Florida cases. Clark also wanted the Justice
Department to explain Quackenbos’ connection to the Department—what official position she
held, what salary she drew, and what her official duties were. He further demanded an
explanation for why the Department used special attorneys to prosecute peonage cases instead of
the regularly appointed U.S. Attorneys in Florida’s two judicial districts. Shortly thereafter the
Florida legislature passed a resolution condemning Richard Barry and his publisher, William
Randolph Hearst for articles in Cosmopolitan and the New York Evening Post. Then in April
the Florida Times Union thanked both Clark and the Florida legislature for their defense of the
state and assured its readers that the Barry articles amounted to nothing more than “false,
malicious, and defamatory libel.”

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37 Untitled peonage article, Correspondence, Classified Subject Files, Department of
Justice Central Files, General Records of the Department of Justice, Record Group 60, National
Archives.

38 Shofner, “Mary Grace Quackenbos,” 277, 279; Representative Clark, House
Resolution No. 886 Submission, 25 February 1907, Correspondence, Classified Subject Files,
Department of Justice Central Files, General Records of the Department of Justice, Record
Group 60, National Archives.

39 “Strong Resolutions Adopted Condemning Barry and Hearst,” Jacksonville, Florida
Times-Union, 4 April 1907.
On January 6, 1908, Clark submitted yet another resolution to the House Judiciary Committee to form a House Committee on Peonage, which he believed would dispel any further accusations. The resolution called for the Speaker of the House to appoint a committee of five to investigate the peonage allegations, the activities of Quakenbos, and the Justice Department's manner of prosecuting the cases.\textsuperscript{40} The resolution charged that national media reports of peonage at turpentine operations, railroad camps, and lumber camps had frightened away prospective settlers to the region. Clark also complained that the Justice Department ignored the U.S. District Attorneys already in the region. Furthermore, he argued that "numbers of innocent men have been indicted upon the testimony of prejudiced witnesses, and put to great expense in defending themselves against charges that prove upon trial in open court to be entirely groundless." Despite such serious allegations the committee apparently rejected the resolution.

Later that month, the Tampa Chamber of Commerce complained to the U.S. Secretary of State that recent magazine articles were filled with "the basest untruths" which misrepresented "the good people of the South." Floridians especially, he claimed, had suffered from the "injustice" of Quackenbos long investigations and "'trumped-up charges'" brought by "such disinterested sleuths." One of the most scurrilous slanders reportedly made in the media came from a "Negro woman . . . who declares that white girls are worked side by side with negro convicts in our turpentine farms."\textsuperscript{41}

In 1911, the U.S. Supreme Court dealt the peonage system and its defenders a serious but by no means fatal blow when it ruled in favor of Alabama peon Alonzo Bailey. In 1908, Bailey, 

\textsuperscript{40} Representative Clark, House Resolution No. 115 Submission, 6 January 1908, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

\textsuperscript{41} C. Fred Thompson to Elihu Root, 28 January 1908, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
a black farm laborer, contracted to work for Riverside Company of Montgomery, Alabama. He received a fifteen-dollar advance, which he agreed to pay back at $1.25 a month for a year of service. After only one month, however, he left the farm without paying his debt. Once captured Bailey received no hearing and the only witness against him was his employer, but he was found guilty under Alabama’s false pretenses law, which presumed he intended to defraud his employer from the beginning. He was sentenced to 136 days hard labor and ordered back to work for Riverside, where legal charges and court fees were added to his debt to be worked off. On appeal to the Alabama Supreme Court he lost. But the U.S. Supreme Court overturned the state decision, arguing that the law’s presumption of guilt violated the federal Peonage Act of 1867 and the Thirteenth Amendment. The court also found that a state could only impose involuntary labor sentences as punishment for a crime. No man could command another to labor for the payment of debt.42

Although the Bailey case declared unconstitutional one of the important legal underpinnings that supported the peonage system, the practice persisted in the South. A collection of new state laws and the failure of local law enforcement to uphold the ruling conspired to perpetuate debt servitude. In the same year its prima facie law was overturned, Alabama replaced it with one that continued to uphold peonage but returned the burden of proof to the employer. The next year South Carolina took similar action, and North Carolina’s Supreme Court ruled against the false pretenses clause but found nothing wrong with the rest of that state’s peonage statute. Georgia’s high court let its statute stand, prima facie clause and all, noting that the Bailey decision did not apply to them because Georgia had no law restricting rebuttal testimony in such cases. In 1913, Florida also passed legislation that omitted false pretenses, but in 1919, the legislature enacted another statute that reinstated it. Until 1944, when

the U.S. Supreme Court once again ruled against false pretenses, both Georgia's and Florida's laws remained in force. But whether a state had a prima facie peonage statute or not, its enforcement at the local level enabled the practice to continue unchanged. The fact that Georgia and Florida, the two most important turpentine-producing states, retained the clause made it much easier for officials in those states to maintain debt servitude.43

The perpetuation of peonage following the 1911 Supreme Court ruling also rested in part on producers' heightened efforts to control workers as the southern labor market grew tighter with the outbreak of the First World War. The end of the flow of European immigrants into the United States created a labor shortage in the North, which forced employers to recruit black southerners. Northern black newspapers encouraged southern African-Americans to leave the repressive South for the relatively freer North.44 In a report on 1918 naval stores production, the U.S. Department of Agriculture's Bureau of Chemistry found that "most of the producers had experienced so much trouble in securing and holding labor, and getting the work done only partly, and poorly at that, that many of them were inclined to underestimate their total production."45 The Turpentine Operators Association, the Georgia-Florida Sawmill Association, boards of trade, and civic and political leaders urged local governments to require northern labor agents to pay costly license fees to operate in the Southeast. They also encouraged officials to harass and threaten both the agents and black workers who attempted to leave.46


45 "Turpentine and Rosin Production Reported for Season of 1918," 1918, Austin Cary Memorial Forestry Collection, Department of Special Collections, George A. Smathers Libraries, University of Florida, 2.

Despite intimidation efforts, such a large number of blacks moved that the resulting demographic shift caused problems in both northern and southern communities. Prominent black southerners offered assistance in remedying the crisis in the region. R.R. Robinson, a black leader in Jacksonville, held meetings with other blacks, white employers, and even the governor, explaining that improved working conditions and better wages, not repressive labor laws, would keep blacks from leaving Florida. To aid in black resettlement and make the most efficient use of labor for the war effort, the U.S. Department of Labor created the Division of Negro Economics and sent agents to the states to ease the difficulties. The Department appointed W.A. Armwood, a prominent member of Tampa’s black community, as its agent in Florida. Armwood spoke to groups of both races around the state about the need for cooperation, hard work, and production for the war. But to many white Floridians, the black federal agent hearkened back to the perceived atrocities of Reconstruction. When Armwood refused to discourage black workers from joining unions, the Turpentine Operators Association and the Georgia-Florida Sawmill Association came to see him as an enemy agent who encouraged African-Americans to leave their camps and mills. These producers subsequently lobbied the Department of Labor to dismantle the Division, a goal they achieved through the efforts of an influential northern-owned lumber company representative.47

Once the war ended, the strong pull of black workers northward subsided but tight labor conditions persisted—as did the practice of peonage as a remedy. Some turpentiners, like Frank Rose of South Georgia, were forced out of the business in the 1920s because labor was so hard to find.48 Those who remained in the business continued to use debt to force workers to remain

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48 Wright, Old South, New South, 207; Becky Vail, “Old Timer Remembers ‘Hard Old Days’ in Woods,” Newsclipping file, Lowndes County Historical Society, Valdosta, GA.
with them. In 1921, one turpentine man complained that "now it costs, in accounts that have to be paid, recruiting expenses, and transportation, probably two hundred dollars per head for each head of family he brings in, and sometimes in addition to this a lawsuit and a heavy court fine for violation of a 'Labor Law.'"49 In 1923, three partners in a Calhoun County operation, two of them county commissioners, were charged with keeping workers in debt and using a whip and sweat box to enforce their control.50 In 1929, Oscar Bailey, a black worker at a turpentine operation in Appling County, Georgia, escaped and made his way as far as the adjacent county, where his employer tracked him and had the sheriff arrest and lock him up without a warrant. The next day the sheriff returned Bailey to Appling County and jailed him in the county seat of Baxley. To hide the obvious peonage violation, four days later the employer had his brother and silent partner swear out two warrants against Bailey for misdemeanor liquor possession. Soon afterward the producer paid the Appling sheriff for costs and forced Bailey back to work in the woods. Reportedly, as in Oscar Bailey's case, it was still common for "the turpentine men who work many negroes in this vicinity [to] have a way of taking out some kind of warrant in addition to their warrant for debt and holding them in jail trying to force a settlement of debt or of forcing the laborer to go back to work."51 In another case an operation in southeastern Georgia's Long County was said to hold three hundred men in peonage in 1930. Workers were forced to purchase all their food through the company at twice the normal price despite the availability of local produce vendors eager to sell in the quarters.52

49 Pridgen, "Turpentining in the South Atlantic Country," 103.


51 H.J. Lawrence to United States Department of Justice, 1 July 1929, Correspondence, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

52 Letter to United States Department of Justice, 16 December 1930, Correspondence, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
It is difficult to gauge how widespread such practices of peonage were in the 1920s. Complaints were fewer than in the first two decades of the century and a higher level of black migration indicates that workers were freer to move as they chose. William Cohen maintains that the trend in lynching can serve as an indicator of peonage’s extensiveness. Because intensive racism underlay each, he argues, it can be assumed that as lynching declined so did the occurrence of peonage. Investigators in the isolated naval stores areas, however, reported peonage remained widespread. A drop in cases brought by the Justice Department may indicate its care in selecting cases rather than a decline in the practice. At one turpentine operation near Hotopaw in Osceola County, south of Orlando, two workers attempted to escape and one was shot to death. The Justice Department refused to act, claiming it lacked enough evidence for conviction. As was not uncommon in such cases, the local authorities took no action on the murder.53 In late 1930, the Justice Department also refused to investigate the poor treatment of the Union Turpentine Company workers in south Georgia because “it does not appear from the facts stated that the persons in question are being held on account of a debt, and as this is an essential element of the peonage law, the same must be present to afford a basis for Federal Action.”54

That the most egregious peonage case occurred in the early 1920s lends strong support to the argument that the practice continued after the flurry of investigations and trials of the century’s first two decades. The case centered around W. Alston Brown, manager of the Putnam Lumber Company’s turpentine camp at Cross City, Florida, about forty-five miles west of


54 Nugent Dodds to Frank Brown, 30 December 1930, Correspondence, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
Gainesville. The region and the turpentine operation there developed simultaneously. Around 1920 the area surrounding the company's 300,000 acres became Dixie County, splitting off from Lafayette County, and Cross City, an unincorporated community of only a few hundred residents, mostly black, and accessible only by railroad, became the county seat. Brown in fact served as one of the county commissioners. He had begun his employment in the turpentine business as a crew boss when northern-owned timber firms moved into the area just before the turn of the century. Within two decades he was working for Putnam Lumber Company, a business whose reputation for treating laborers unfairly Brown developed to new heights.55

Brown's notoriously brutal camp at Cross City, Florida, relied on systematic violence and intimidation to hold all the company's workers in debt peonage. Brown sent labor agents to Savannah, Jacksonville, and other southern cities and convinced workers to come to Cross City by the promise of good wages. Once in Brown's clutches, however, they were forced to labor all day long every day, even on Sundays and holidays, rain or shine, sick or well. Brown maintained absolute control over his camp. At night all the workers were locked behind a high barbed wire fence. Everything they needed had to be purchased from the camp store owned by Brown. Brown forbade them to leave, claiming all the workers owed him money, usually between twenty and three hundred dollars. But the debts for which Brown kept his employees as prisoners were fabrications. Brown took money from each worker's weekly pay and also skimmed money from the cash laborers gave him to pay off their alleged debts. Workers who successfully slipped out of the camp stockade were tracked down by Brown and forcibly returned, often with the aid of Dixie County law enforcement officials. One of Brown's standard tactics was to have the runaway workers convicted of a crime and fined. Brown paid the fine, making the worker obligated to him for labor to work off the amount. Brown secured the desired legal rulings by

forcing workers to testify falsely. On many occasions he brought the captured workers before the judge, sometimes in the evening at his home, and instructed the judge of the crime and the sentence. Brown typically had his escaped workers charged with assault and battery in the event that a conviction for violation of labor contract did not hold. Because Brown also worked convicts, he sometimes had workers put on the county chain gang and work for him in that capacity. Except for different clothing, it mattered little whether one worked for Brown as a convict or peon.56

In 1921, Fred Cubberly discovered the widespread peonage practiced at the Brown camp, and the Bureau of Investigation began an extensive inquiry during June of that year. Putnam Lumber Company denied any knowledge of the atrocities at Cross City. It knew that Brown’s camp never lacked for labor while others had problems, but apparently company officials never bothered to inquire as long as production continued efficiently. As the investigation began the general manager of Putnam Lumber Company in Jacksonville terminated Brown and instructed the company’s representative at Cross City to prevent any undesirable visitors, especially Brown, from entering the camp. The manager claimed to have fired Brown for “business reasons,” which probably surrounded Brown’s theft of money generated by the juke joint.57

Although the company cooperated with federal efforts, local officials worked to impede the investigation. The county judge not only evaded an agent, but delayed handing over copies of records. Even more damaging to the case, Dixie County law enforcement officials intimidated witnesses, who consequently proved far less than fully cooperative in the investigation. One

56 John Bonyne Reports, 14 November 1921, 3 May 1922, 3 June 1922, E.J. Cartier Reports, 16 May 1922, 18 May 1822, 23 May 1922, Howard P. Wright Report, 9 September 1921, and Howard P. Wright to Frederick C. Cubberly, 26 May 1922, Cubberly Papers; Moore, “Prisoner of Riverside,” 16.

evening in early July 1922, for example, a car of three witnesses returning from Gainesville broke down two miles outside of Cross City. The sheriff arrived and asked each man his name and if he had been to Gainesville to give evidence against Brown. All three denied that they had and no other action was taken, but the incident greatly frightened the men and they reported it to government agents. Three nights later a deputy appeared at the home of one witness. Frightened, the worker ran out the back door and the deputy shot at him five times. The witness was unharmed but the incident understandably intimidated all the camp workers.38

Brown, for his part, denied the charges against him, claiming that he maintained a strong labor force because of his kindness toward workers whom, he claimed, actually begged to work for him. He blamed the investigation on competing employers in the Cross City area who feared that their laborers would leave and come to work for him. The grand jury apparently accepted Brown's explanation. Despite the generally consistent testimony of over forty witnesses who bravely testified against Brown in the face of threats, the grand jury refused to indict him.39

A few years later another more successful case developed from peonage charges at Mood Davis's turpentine camps, one in Calhoun County and the other in Bay County, Florida. At these camps, laborers found it impossible to work themselves out of debt. Davis threatened that if they left he would force them to return and beat them. In an act of desperation, four men, two of them accompanied by their wives, escaped. After leaving the women at a relative's house, the four men continued through the forest. Davis's search patrol discovered the women, who were then held in custody in the community of Wechalakah where the runaway men were soon found. After one member of the search patrol threatened to take them up on a bridge and shoot them, Davis ordered one escapee to whip the other three. With a pistol shoved in his side, the runaway


worker was forced to deliver such savage licks that he tore the skin off of the others' backs. All four were then returned to their camps and threatened with death if they attempted to leave again. Within days, however, Justice Department investigators descended on the Davis operations and collected evidence that eventually resulted in peonage charges against Davis. The four runaways and eight other witnesses were kept in protective custody in Pensacola. Their ordeal resulted in the conviction of Davis. But despite such successes, the peonage investigations failed to end the institution. Instead, by the late 1920s, producers began practicing debt servitude with greater caution in an effort to disguise the labor system's reality.60

Although peonage and convict labor each represented an entirely different method of forced labor, in places lines between the two systems blurred. At some camps convicts and peons worked together and occasionally lived together. Some peons were threatened with the chain gang if they misbehaved. If paid workers complained or tried to escape from their employer, the latter could have them charged for a petty crime, pay their fine, and thus gain legal rights to their labor while they worked off the debt. In some counties where the turpentine operators were especially powerful, they could have their workers arrested on trumped up charges and, once they were convicted and sentenced, lease them as convict labor. When given a choice, peonage was the logical preference over the latter option. Peonage at least allowed the worker to remain with family and friends and permitted him relatively more autonomy at work and in the quarters. Peonage and convict leasing were also linked in that both depended on the collusion of local officials and large employers. When in the first part of the twentieth century, Florida passed an act making it a misdemeanor to accept money or goods for labor and fail to perform the work, the violation carried a $500 fine. Thus, workers charged with violating labor contracts faced stiff fines, as well as court costs which were far too high for them to pay and

would lead them further into indebtedness with their employer or into a convict work camp. In 1907, for example, twenty-percent of the Florida convicts working on county farms or turpentine camps had been sentenced for violating labor contracts. By 1913 the blending of peonage and convict leasing continued only in the three states—Alabama, Florida, and Georgia—where leasing persisted and naval stores represented a major industry.\textsuperscript{61}

At the same time that peonage came under national attention and attack, convict leasing attracted widespread outrage. The authors of exposés focused on the same issues they used against peonage. Richard Barry informed the readers of \textit{Cosmopolitan} that the leasing system rested on political corruption. In Florida, for example, all the state’s 1,200 convicts were leased to one man in 1906. No other bidder came forward because all understood that state politics ensured that they had no chance. Readers also learned that Floridians in the neighborhoods of turpentine camps were outraged at the tales of cruelty that came out of nearby camps.\textsuperscript{62} As with peonage, one of the most shocking facets of convict leasing for many reformers was that, as one put it, “many hundreds of white men, women + children (minor boys) are at present working out under the most revolting conditions imaginable.”\textsuperscript{63} Progressives were outraged to learn of the experience of one nineteen-year-old white man arrested while walking down a highway and


\textsuperscript{63} Reverend Leon Ray Livingston to United States Attorney General, 1 May 1912, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
convicted of vagrancy. Leased to a state senator to work off a six-month sentence at his turpentine camp, the white man endured almost daily beatings and whippings because he could not do as much work as the experienced black hands with whom he served. In 1903, the readers of The Independent discovered the plight of black children ensnared in the convict lease system. In one instance, two young black boys were sent to a camp for seven months after being convicted of stealing a watermelon. In another case a black girl languished in a camp from late spring to the early winter for her inability to pay a bogus fee charged for an overnight stay in Valdosta. She was released only after her mother located her and paid fifteen dollars for her release.64

To convey the cruelty of the convict lease system, writers used analogies to other, more commonly-recognized atrocities. In a 1907 pamphlet, reformer Clarissa Olds Keeler explained that, in the southern portion of Georgia where turpentine operators were most prevalent, “there are the stockades, the blood-hounds, the whipping post and every adjunct of the slave trade.”65 She went on to claim that in Florida “stories told of the ill-treatment of convicts working on railroad construction, and at turpentine culture in pine forests, would compare favorably with the torture practiced during the Spanish Inquisition.”66 An expose of peonage and convict labor in Georgia argued that leasing was “a system which is in some respects a worse disgrace than Lynching, because it is created and protected by law.”67 In an effort to induce guilt in reform-minded readers, Marc Goodnow asked them to recognize that “when you cut or burn your finger and run to the medicine cabinet for a bottle of spirits of turpentine, you seldom stop to think of


65 Keeler, Crime of Crimes, 11.

66 Ibid., 13.

67 “Peonage in Georgia,” 3080-3081.
the way in which this medicine is gathered; how much more of pain it involves than the pain which you seek to allay by its use; what bodily and mental travail; what cost in human life; what degradation of a great and beautiful state merely for the sake of a few paltry dollars—the continuation, in fact, of a slavery even blacker in its sin than before the war.

In response to wide public criticism, Florida, in the early 1900s, enacted new standards for convict treatment. Regulations required employers to provide insulated and ventilated bunk houses rather than the crude shacks they had been using. Prisoners were to sleep in individual beds instead of sleeping together on long platforms and the night chain was to be replaced by a guard. A building was to be set aside for use as a hospital and a physician was to be called to tend the sick. Also, lessees were to maintain an office for transacting business between their company and the state. Some regulations focused on sanitation. Each convict was required to wear a state prison uniform at all times and to have two suits of cloths, one hat, and one pair of boots. They were also to receive night-shirts and bedding. They were required to have a bath once a week, and a sanitary system had to be installed in their bunkhouse. Employers were to provide separate rooms for sleeping and eating, both to be swept clean each morning. Once a

68 Goodnow also asked his readers to “just look through the glass walls of that small vial of turpentine in your medicine cabinet and recall the story of the liquid particles. See those hundreds of ebony faces, burnished by the seat of fever and disease; the striped bodies wet to the waist with dead and stagnant waters half-running at their tasks from the rising of the sun till the falling of night; the swollen misshapen clubs that once were feet and that probably will never again rest within a shoe that fits the prone black figure writhing under the biting lash of a leather thong! See them dance and sing, more like puppets than human beings! Above all, watch the half-dozen, blood-hungry hounds beating and baying through the pine woods in Sunday morning pursuit!” But even when expressing sympathy for black men, who comprised the greatest segment of the convict population, Goodnow, as other Progressive reporters, expressed the racist sentiments of his day. For example, in describing the concluding moments of a horrifying scene in which a black convict was forced to run through the forest in order that camp blood hounds could practice tracking, he explains that “with an agility surprising to see in a body seemingly spent from long pursuits, the black arms shot up, the legs came up under the thick trunk, and the Negro in one giant, primitive spring, had landed six or seven feet up the stock of a virgin pine—straddling it as a gorilla would a grapevine—and ‘shinned’ on up to a place well beyond the reach of the dogs.” Marc N. Goodnow, “Turpentine: Impressions of the Convict Camps of Florida,” The Survey 34 (1 May 1915): 103, 107-108.
week the dining room floor was to be scrubbed. The state required closer scrutiny and restriction of convict activity as well. Convicts were to be accompanied by guards whenever they left the stockade and they required the warden’s permission to speak to anyone from outside the camp. No gambling was permitted of any kind. Florida also wanted detailed records kept on the treatment of convicts. Lessees were to keep a daily record of food issued to convicts. All information regarding a prisoner’s death was to be sent to the state. Only a designated person was to administer punishments and a report of punishments was to be kept each month. The state too regulated certain areas of camp management. During the hottest time of the year, June 15 to September 16, convicts were to be given at least one and a half hours at noon for rest and lunch. Before a lessee removed a captain, he had to receive the supervisor’s consent and the supervisor had to be notified before the transfer of convicts from one camp to another. Finally, these rules had to be posted in a visible place at the camp.69

In response to criticisms of poor morality within camps, Florida required that a minister preach to convicts once a month. In most cases their sermons, prison administrators believed, reinforced camp discipline and improved moral. But “occasionally we have noted where a minister has unwittingly made use of expressions at the camps that were not calculated to aid discipline. So many of our prisoners being of the negro race, they are ready to catch at every straw of sympathy dropped by a visitor or minister and to use the same as meaning that they are to be much pitied on account of being placed in prison by the cold, harsh requirements of law.”70

The state also provided $375 to buy reading material, especially a Bible, for each camp.71

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70 Tenth Biennial Report of the Commissioner of Agriculture of the State of Florida for the Period Beginning January 1, 1907, and Ending December 31, 1908 (Tallahassee, FL: Union Label, 1909), 422.
In addition, Florida made efforts to oversee the quality of guards at camps. Not only was turnover high, but, as the Commissioner of Agriculture explained in 1907, “with some exceptions, those who will follow as a business the work of guarding convicts are not of that class who have much ambition in life.” Before, lessees maintained no record of guards, and an unfit guard could be discharged from one camp and find employment at another without his new employer’s knowledge of his background. With the introduction of a new guard application and record system, the Commissioner of Agriculture’s office in Tallahassee could check the background of all camp guards. In another safeguard against unsatisfactory camp personal, the state required that former guards have a letter from their previous employer stating their qualifications before they could be hired by another. State regulations also prohibited hiring as a guard anyone “addicted to any kinds of stimulants,” had relatives in the state prison system, or had been discharged for unseemly conduct. In an effort to attract more competent guards, the state also demanded that they be paid from $18 to $25, plus room and board, per month. Florida’s efforts to secure more qualified guards, however, apparently met with little success.\(^7\)

In the first decade of the twentieth century Florida also imposed regulations to reduce the chances of convict escape. State legislation required lessees to employ one guard for every five prisoners, to ensure that at least one of the guards was mounted for every twenty-five prisoners, and to keep two trained bloodhounds. In the event that a convict did escape, Florida formulated procedures to facilitate capture. Lessees were to keep a photograph and description of each convict. If one escaped, his picture and description were to be sent to the local sheriff and police

\(^7\) Ibid., 423.

and the lessee was to post a $100-reward for his capture. In 1906, Florida also had a book of photographs and descriptions made of all escapees over the previous ten years.\textsuperscript{73}

In the 1910s, the state offered still more reforms. In 1910, the state required that female convicts be kept separate from the men. Before this time they had been housed in the same camps as the men, where both male convicts and guards sexually abused them. Pregnancy was not an uncommon result. In 1911, the state purchased 15,652 acres in Bradford County in the northern peninsula to be used as a prison farm, and after 1914 the state sent to it all female convicts as well as male convicts unfit for hard labor under the lease system.

Florida also improved its inspection system to ensure these new requirements were met. In 1899, Florida employed its first supervisor of state convicts, whose job was to enforce regulations set by the Board of State Institutions. At the Commissioner of Agriculture’s suggestion, in 1902, precautions were taken to avoid using prisoners’ names in reports to prevent the prisoner from suffering retribution. By 1910, Florida had four investigators who inspected all the camps monthly and submitted reports to the Commissioner of Agriculture. They tried to ensure that prisoners were not tortured and that they received adequate food, shelter, and clothing. The supervisors had the authority to send sick or injured convicts to the state convict hospital.\textsuperscript{74}

It appears that the state convicts’ condition received far greater scrutiny than that of those leased out by individual counties. At best counties maintained a minimal involvement in their convicts’ oversight. Gadsden County, for example, funded a guard at one naval stores camp


\textsuperscript{74} Drobney, “Where Palm and Pine Are Blowing,” 421-423, 431-432; Drobney, Lumbermen and Log Sawyers, 159-160; Commissioner of Agriculture to Florida Naval Stores and Com. Company, 5 April 1902, Convict Lease Program Subject Files, 1889-1916, Board of Commissioners of State Institutions, Florida State Archives.
that leased its convicts and, in Osceola County, one of the county commissioners paid a monthly inspection visit to the turpentine camp that leased its convicts. In the 1900s, Florida requested that the Clerks of Circuit Court report to the state how many convicts their counties leased, for whom the convicts worked, and the monthly price paid for use of the convicts. But unless a county created its own system of inspection, no one looked out for the prisoner's welfare.75

A comparison of state and county camp inspection reports reveals that when Florida did begin oversight of county convicts, they received far less attention than those leased by the state. The state had information on the general condition of camps leasing its convicts and, if there were problems, what they were. Camps employing state convicts still received a rating of “good” if there was a problem with no pillows or night shirts and “fair” if the cells needed cleaning. If there was no problem it was noted. At some camps, however, inspectors found a multitude of problems. At the Daniel brothers, camp there was no mounted guard in the woods, the guards were incompetent, the captain unstable, and three women were apparently being abused. Another camp had an unsanitary kitchen, no hospital, and a captain with a hot temper who punished the convicts severely. County camps apparently received far less scrutiny. They were usually listed as being in “good condition” or “good shape” with no details added. One inspector did note receipt of a complaint of severe punishment but claimed he found no evidence to support it. The lax oversight of county convicts supports historian Matthew Mancini argument that state regulations were not always enforced and actually served the system’s defenders more than the convicts by supplying the appearance of greater change than actually occurred.76

75 Mitchel to Jennings, May 18, 1903, John M. Lee to M.S. Jennings, 18 May 1903, C.M. Knott to N.B. Broward, 18 August 1905, Walter F. Hancock to M.A. Brown, 11 August 1905, John C. Calhoun to M.A. Brower, 11 August 1905, and John M. Lee to M.S. Jennings, 20 May 1903, Convict Lease Program Subject Files, 1889-1916, Board of Commissioners of State Institutions; Barry, “Slavery in the South To-Day,” 486.

76 Commissioner of Agriculture to Florida Naval Stores and Com. Company, 5 April 1902, N.A. Blitch to N.B. Broward, 5 April 1906, T.J. Titeaub to W.A. McRae, 1 November
Where some reformers pushed for improvements to the convict lease system, other Progressives called for the practice to be replaced by state chain gangs and prison farms. The reform opposition to the convict lease did not imply a belief that convicts should not work hard. Progressives typically believed that the region's economic sluggishness could be corrected with better infrastructure and offered little challenge to southern race or class relationships. Most, like the writer of a Florida newspaper piece who wanted "to see the convict lease system abolished" because it was "a disgrace to the state and age," felt the convicts should labor for the direct benefit of the state. Some suggested that convicts work at a state farm, the proceeds going to hire expert labor to build good roads. Other progressives wanted convicts themselves to work on state roads. The plan satisfied Progressives in two ways; it offered not only improved transportation infrastructure but allowed for well-ordered social control by placing the convicts under the direct supervision of the state where their work and treatment could best be monitored.

The movement toward a program of state chain gangs began in North Carolina and was soon followed in Florida at the urgency of the Florida Good Roads Association. Alex Lichtenstein explains that "the substitution of the public chain gang for the private convict lease did not bring

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77 Drobney, "Where Palm and Pine are Blowing," 431.

78 "The Everglades and State Convicts," attached to Leon Ray Livingston to United States Attorney General, 6 March 1912, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives; James C. Cobb, Industrialization and Southern Society, 1877-1984 (Chicago: The Dorsey Press, 1984), 30.

about the demise of these antimodern tendencies in the region but rather reconciled them with the advent of modernity.”

The increasing expense of leasing convicts also helped erode the practice. Matthew Mancini has shown that the end of the lease system in Georgia coincided with a reduction in its profitability. When the state permitted subleasing, market demand drove up the price of convict leasing. Where producers could work a convict for $225.52 a year in 1904, by 1907 the cost had nearly tripled to $670, an amount not much different from a free worker’s wage. That year, the Panic of 1907 made convict leasing especially unprofitable. As market prices sank, producers found they were stuck with unneeded work crews whose fee they had already paid and who continued to require food, clothing, and the oversight of hired guards. Once cheap, convict labor had now become an economic burden. Finally, in 1908, Georgia’s General Assembly’s Convict Investigating Committee recommended an end to leasing. The governor and legislature agreed and with the expiration of the last contracts in 1909 the practice ended in that state.

Nearly a decade later Florida began similar action. By this time, many Floridians had joined the national outcry against leasing in their state. Newspaper editors, civic leaders, the Florida Humane Society, and national muckraking periodicals focused on the abuses of leasing. In 1917, Florida, which wanted to build good roads to boost tourism, sent three hundred convicts to the state roads department. With the completion of a new penitentiary at Raiford, Florida,

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81 Mancini, One Dies, Get Another, 224-227.

82 Southern criticism of convict leasing was not new. In 1884, one year before he left his native South for exile in New York, George Washington Cable condemned convict leasing, explaining that convicts received long sentences for minor crimes as a means of providing forced labor to certain southern businesses. His broader message, however, was that prisoners should not have to pay for themselves. George W. Cable, “The Convict Lease System in the Southern States,” The Century Magazine 27 (February 1884): 583-594; Drobney, Lumbermen and Log Sawyers, 173; Shofner, “Forced Labor,” 19.
ended its leasing program and sent its convicts to work on its roads under the highway department’s jurisdiction. Matthew Mancicni explains that such a change represented a reallocation of forced convict labor from the private to the public sector. But even after Florida dismantled state convict leasing, county prisoners continued to labor in privately-owned work camps, including those producing turpentine.83

In 1923, national publicity surrounding the death of a young North Dakota man in a Florida county convict timber camp helped to finally bring an end to the system. In the fall of 1921, twenty-one year old Martin Tabert left the Munich, North Dakota farm, where he lived with his parents, to see the country. His strategy of working part-time while moving from place to place succeeded until he arrived in Florida and found he could not sell his labor in a market that preferred cheap forced black labor. Out of money, he hoboed his way across the Florida panhandle on a train until, on December 15, 1921, he reached Leon County where a deputy sheriff arrested him. A jury found him guilty of vagrancy and fined him twenty-five dollars. Unable to pay, he received a sentence of ninety days and like all Leon County convicts, was turned over to the Putnam Lumber Company, which leased the county’s prisoners for twenty dollars each per month. Tabert’s family sent him the money for the fine, but because he had already left the county jail for the work camp, the sheriff returned the letter.

Two months later, the Putnam Lumber Company sent his family a letter saying Martin had died February 1. Only after the Tabert’s attorney and a North Dakota state attorney investigated the incident and witnesses came forward did the whole story unfold. Martin, like other convicts at the Putnam camp, rose at four o’clock in the morning and boarded a flatcar,

which they rode for fifteen miles through swamps. When the car stopped, they had to walk another several miles, sometimes through hip-deep swamp water. Martin’s feet swelled, and the swamp water caused an infection which his ill-fitting, tight shoes made worse. His request for a larger pair of shoes was ignored. By late January, Martin was very ill. He suffered from headaches and occasional fever and had developed swollen areas in his groin so severe that one inflammation had to be lanced. When he grew too weak to keep up with the demanding work, Tabert received regular beatings. On one occasion, in front of eighty-five to ninety convicts, he was beaten forty-five to fifty times with a four-foot long whip made of three-ply leather and weighing seven and a half pounds. By then Martin ate very little. He wasted down to 125 pounds and his back was covered with cuts and scabs. Blind with fever by late-January, he lay in a stinking bed with his own froth coating his pillow. The doctor only saw him a few times before he finally died. Martin was buried in a runaway convicts old cloths in an unmarked grave in Perry, Florida, of which no one could seem to remember the location. Putnam Lumber Company reported that his death was due to malaria and Martin’s refusal to take his medicine.

At the North Dakota legislature’s request, the Florida legislature began an investigation of the incident that eventually lead to a trial. Testimony revealed that the Leon County sheriff used his office to supply convict labor for Putnam Lumber Company. In the seven months before the sheriff’s deal with Putnam, he had arrested only twenty men for vagrancy. In the same period after the deal, 154 men were arrested on the same charge. With no defense attorney present, the sheriff typically instructed the suspect to plead guilty at a sham trial which sometimes occurred late at night in front of drunken officials. At the trial that resulted from the Florida legislature’s investigation, the camp’s whipping boss was found guilty of second degree murder and sentenced to twenty years. However, he was acquitted on a technicality at a new trial ordered by the
Florida Supreme Court. For its part, Putnam Lumber Company settled with the Tabert family for twenty thousand dollars and received public absolution of blame.84

Although the Florida legislature's Investigating Committee focused most of its efforts on uncovering the facts of the Tabert case, its efforts also revealed evidence of abused and overworked convicts laboring in turpentine camps owned by state senator T.J. Knabb. The wife of a local postmaster informed state investigators that guards had killed nine convicts at the camp as well as a woman and her daughter. The most sensational story to come out of the Knabb inquiry was that of Washington, D.C., native Paul Revere White, who ended up in Knabb's camp after an arrest for vagrancy. Because White could not perform the expected turpentine work, he was kicked, beaten, and whipped almost daily. By the time the state convict supervisor removed him from the camp, the skin was rubbed off his hands, deep ulcers had developed on his legs, at least one of his ribs was broken, and he had narrowly escaped freezing to death while trying to sleep in eighteen-degree temperatures with no covering.85

The Tabert case and evidence of convict abuse at other camps forced the issue of county convict leasing to the forefront in Florida.86 National publications detailed the tragedy of Tabert's demise and the efforts by crooked county officials and the Putnam Lumber Co. to conceal camp abuses. The Literary Digest covered the affair in a piece carrying the eye-catching title of "A Victim of Convict Slavery."87 The article noted that the citizens of Florida had believed that convict leasing had ended in 1919, when the state abolished the hiring out of its


86 Drobney, "Where Palm and Pine are Blowing," 434.

87 "Victim of Convict 'Slavery,'" 40-46.
prisoners. The piece explained that the leasing of county convicts had continued, despite efforts by the governor, because the people of Florida had no knowledge of the practice. It also reminded readers that Putnam Lumber Company, the company at the center of the Tabert case, was owned and operated out of Wisconsin, and that Florida newspapers were calling for justice in the case. As newspapers and organizations across the country campaigned for the system's end, the Florida legislature agreed that it should be abolished and, in April 1923, voted to end county convict leasing. In less than a month, it approved another bill ending corporal punishment in the prison system. The governor signed both acts. Newspapers across Florida echoed the Pensacola News' self-congratulatory refrain that "the name of Florida has been cleared from the charge of willfully being party to this crime against humanity, through the action of the Legislature in the abolition of peonage and the flogging of convicts."89

Despite such erroneous claims about the demise of peonage, the practice of convict leasing did in fact end. After two decades of reform efforts, the hiring out of convicts succumbed to public pressure, the growing expense of leasing, and the demand for chain gang work on state projects. Although closely associated with the practice of convict leasing, peonage survived an even more substantial attack. As southern states strengthened peonage legislation with false pretense and vagrancy laws and employers started drawing whites into the system, the Department of Justice began investigations and trials of employers for violating the Thirteenth Amendment. However, despite intense national interest and the practice's apparent wide-spread use, only a relatively small number of producers were tried for peonage and fewer still convicted. Although the fear of prosecution drove the practice out of full public view, peonage continued into the 1940s.


89 "Florida 'Comes Clean,'" 36.
Chapter Twelve

Government Aid to the Rescue: Federal Assistance Supports the Naval Stores Industry

Where federal involvement in the first decades of the twentieth century proved a mixed blessing for operators, helping them improve production techniques but at the same time attacking their labor practices, during the 1930s and 1940s help shifted decidedly in the producers' favor. Over these decades, government assistance for the naval stores industry increased over what it had been earlier in the century, both in terms of research and direct financial support, and interference with labor relations subsided. The aid became so great, in fact, that it temporarily sustained the struggling business as it teetered on the edge of collapse. Previous government efforts to reverse forest depletion began to pay off by the early 1930s, and, with it, federally-funded research intensified. The government studies led to significant advancements in harvesting, refining, and marketing. Most important, federal economic assistance programs substantially subsidized gum naval stores production, enabling the weak industry to weather the ravages of the Great Depression. But as turpentine producers enjoyed heightened government support, they sought to deprive their laborers of similar aid in the form of New Deal worker benefits.

The southern forests' failure to regenerate remained a concern in the early 1930s. A survey at the time estimated that of the fifty-two million acres in the naval stores belt, fourteen million acres lay as cutover waste, over thirty-five million acres had only second-growth trees of various growth stages and sizes, and virgin pine growth covered only three million acres. The largest portion of this new growth was young and not of sufficient size to use. Nevertheless, desperate land owners attempted to squeeze any profit they could from the saplings. By 1935,
fifty-six percent of all turpentine trees were smaller than seven inches in diameter, prompting one forester to complain that the naval stores industry continued at the expense of its future well-being. What it needed, he argued, was a scientific plan to preserve the timber and thus sustain the industry. Another forest industry observer complained that in Florida "the forest had been treated as a mine." The time was not distant, he warned, when Florida would require its diminishing stands for its own needs. If timber owners did not encourage and protect second growth trees, Florida would become a timber-importing state. The saplings that were emerging, however, offered a chance for reforestation. In the early 1930s, thirteen thousand ten thousand-cup crops of turpentine were produced on thirteen million of the thirty-five million acres of second growth forest. If fully stocked with trees, protected from fire, and worked conservatively, it was estimated, the existing second-growth stands could in a few years support seventy thousand crops. And if the fourteen million acres of cutover waste area were replanted and protected, in forty-years they would add an additional twenty-eight thousand crops.¹ If producers took these measures, a factor concluded, "there would appear then to be no danger of a future shortage in Naval Stores."²

In the 1930s and 1940s, reforestation efforts did indeed quicken as success with rapidly growing second growth forests demonstrated that the turpentine industry, if it wisely used its resources, could survive on such stands. Several factors contributed to the southern forest's resurrection. First, many cutover acres proved inadequately fertile to serve as farmland and


remained available for reseeding. Second, despite some continuation of regular burning, the practice diminished as foresters’ persistent sermons against it began to win converts. Finally, there was also a reduction in the use of small timber as the gospel of conservation began to take hold. The first plantings of any significance began, in 1924, by timber owners in southeast Georgia. They and the landowners who followed their example in the late 1920s transferred slash pine seedlings lifted from low-lying areas where the young trees had volunteered. By the 1930s, federal, state, and private nurseries grew pines for restocking. Trees were best planted during their dormant season from December 1 to March 15 and at spaces of around ten feet by ten feet or twelve feet by twelve feet, when the ground contained moisture. Once the pine branches began to touch each other after ten to fifteen years, the stands were thinned. Between 1935 and 1936 foresters and landowners planted six million seedlings, mostly slash pine, in Florida. The project cost land owners around $1.50 per acre. The Civilian Conservation Corps, which, in 1936, operated twenty-four camps and employed 4,776 workers in Florida, assisted in planting the stock. Administered by the U.S. Forest Service, much of the CCC’s reforestation efforts took place in four national parks that together contained over one million acres.

Reforestation also began in Mississippi during the 1930s, but made its greatest strides there after 1940 when the state legislature revised the state tax code to encourage the growth and protection of young trees.³

³ By the late 1930s the growth of the southern pulpwood industry led to expanded efforts to replant cutover forest land. By this time pulpwood production had surpassed the naval stores industry in capital investment, value added to products, and payrolls. It was organized on the idea of growing timber as a crop, a unique distinction at the time. The industry’s appetite for both slash and loblolly pine led landowners to plant their land in these species rather than longleafs. Some believed that with the rise of the pulpwood industry, the seemingly-stabilized naval stores industry, and the region’s remaining sawmills, timber industries might offer a new and sustainable economic base to replace the cotton economy which appeared to be fighting a certain death during the 1930s. “These days the South is talking and thinking of itself in new economic terms,” University of Georgia forestry professor P.L. Buttrick argued in 1939. “It is saying that cotton is at long last an uncrowned king, to be retired on a pension by the AAA, and it is preparing to crown king pine from whom all blessings are to flow, chiefly in the form of paper pulp products.” In the late 1930s a Tift County, Georgia turpentine operator had good
By the early 1930s, Florida producers harvested eighty percent of their product from second-growth trees and twenty percent from old growth. Of all the stands used, longleaf represented sixty percent and slash forty percent. But because most of the old-growth pines were longleaf and the second growth was primarily slash, turpentine producers more and more turned to the latter. To their delight they found favorable results. Experiments conducted in the first half of the 1930s indicated that slash pine actually yielded twenty-five percent more gum than longleaf. Studies found that chipping affected the trunks of slash pine more than it did longleaf and led to greater resin duct formation above the face, which resulted in greater gum production. Unlike longleaf, slash pine did not put forth the largest amount of gum the first day after chipping, but extended the flow more evenly across the seven-day interval between chippings, yielding its greatest portion on the second day. Because the streaks on slash pine oozed gum longer than those on longleafs, their optimal chipping interval was longer, requiring fewer chippings and thus lowering labor costs. And because slash pine gum ran more freely than longleaf, a lower portion of its yield was in the form of scrape. Since scrape contained less

spirits and produced a lower quality of rosin than soft gum, its lower percentage of the harvest made the slash pine a more lucrative species to work.4

By the late 1930s relieved industry observers believed that the current rate of reforestation could sustain the gum naval stores industry. The pine forest remained only a fraction of its original size, but what remained appeared to be stabilizing. Florida, for example, in 1939 possessed only a fourth of its original supply of marketable lumber, including young growth, but pine land still covered roughly twenty-five percent of Florida's 58,560 square miles. Over 5.4 million acres were under the protection of the forest conservation agencies.5 Yet despite such a reduction the industry continued. One naval stores researcher remarked in 1938, that "during the past several decades one of the oldest and most picturesque of American industries has waited with rather hopeless appreciation for its raw material to give out. But at last a new day has dawned for this unique industry."6 Some problems remained, however. One forester admitted that the new forests were not of the same quality as the older ones; their stands usually being thin. Most supported half the number of trees they potentially could and some grew no more than thirty percent.7


5 Florida Writers’ Project, Florida, 31-32; Blount, Spirits of Turpentine, 24-25.


7 Buttrick, “Hopes and Dangers,” 2.
Because during the 1930s and 1940s turpentiners began turning to second-growth stands that covered previously-worked acres, the naval stores industry began a new trend; ending its characteristic mobility, it anchored itself in the areas where it had dominated in the early years of the century. The bulk of production continued to come from south Georgia and north Florida, the two areas claiming eighty percent of the United States’ annual production. Despite the challenges posed by deforestation, the region contained the best soil and climate for turpentine forests, the greatest concentration of equipment and trained workers, and the most convenient and available access to distribution through factorage houses. Georgia, having retaken the position as top producer from Florida during the 1920s, manufactured around fifty-seven percent of turpentine and rosin made in the U.S. Florida produced around twenty-six percent of the national naval stores production, somewhat less than twenty percent of the world production, and employed 14,000 men, most of them black. Alabama manufactured the third largest quantity, just over ten percent, far less than Georgia or Florida. Other southern states—South Carolina, Mississippi, Louisiana, Texas, and even North Carolina—made only small quantities, a combined total of just over six percent. Tar production persisted in scattered areas of the Southeast: eastern North and South Carolina, south Alabama and Mississippi, south Louisiana, and east Texas. By the second World War, however, its manufacture, arguably the oldest form of manufacturing in America, ended.8

The pattern of naval stores trade activity at southern ports reflected the end of the industry’s regional migration. Through the 1930s, the same ports that became well-established in the handling of naval stores in the early twentieth century remained the principal exporters. As

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Georgia was the largest naval stores producer, its ports handled the bulk of the product’s trade. Savannah remained the greatest naval stores port, although it had briefly surrendered its position to Jacksonville between 1905 and 1923. Not only was Savannah closest to the largest naval stores-producing area, but it also enjoyed an excellent regional transportation system that included five railroad lines that linked it to the interior forests. The city boasted a number of large distilleries capable of processing substantial quantities of crude gum and six factors to service producers. Finally, the presence in the city of the Savannah Board of Trade, which continued to oversee the U.S. naval stores market, strengthened the ports’ hold on the business. Although it never approached Savannah’s importance in the naval stores trade, Brunswick became an important outlet for turpentine and rosin produced in extreme southeastern Georgia. Having risen to prominence as a naval stores market around 1890, the Brunswick port, which was serviced by several railroads and steamship lines, enjoyed a steady business in naval stores, most of it exported directly to Europe. Although its market was closed to all but one dealer, Downing Company, the port offered a large rosin yard and two turpentine storage tanks. It was also the home of the Hercules Powder Company’s steam distillation plant, the largest such facility in the world.9

Jacksonville, the United States’ second-most important naval stores port and the largest handler of products in Florida, offered as wide a range of services as Savannah but, by the 1930s, served a less active area of production than it had earlier in the century. Adequate railroad

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9 By 1950 the Savannah Board of Trade’s job of setting prices and collecting and reporting statistics was assumed by the Department of Agriculture. As the major steamship lines established direct connections with southern ports, New York played less of a role in naval stores export activity. Some products, however, continued to arrive in New York via coastwise trade for reexport and in that respect New York remained important in naval stores purchasing activities for all over the world. Campbell, et al., Naval Stores Industry, 14-15, 18; Richard C. Davis, ed. Encyclopedia of American Forest and Conservation History (New York: Macmillan Publishing Company, 1983), s.v. “naval stores;” For figures related to turpentine production by state see Appendix A.
service and especially an excellent road system linked the Jacksonville port to producers in the northeastern portion of the panhandle and peninsula. By the early 1930s, seventy-five percent of Florida’s production reached market by truck. The St. Johns River also serviced the port, but the amount of naval stores arriving by water was much less than in previous years. With several steam distillation plants, Jacksonville could easily process the delivered raw gum, and its many factorage houses and dealers could see to the sale and distribution of the refined product. The Jacksonville naval stores yard, the largest in the world and owned by the city, covered over fifty acres on the St. Johns River and offered storage room for 250,000 barrels of rosin and over 130,000 of turpentine. A covered turpentine shed eight hundred feet long and one hundred feet wide could shield seventy-five thousand barrels of turpentine from the sun. Four steel storage tanks were capable of holding another twenty thousand barrels. Storage space at nearby Commodore Point offered room for an additional thirty-six thousand barrels. Jacksonville’s docks could accommodate at one time five large ocean-going vessels with thirty-foot drafts. By the early 1930s, naval stores was Jacksonville’s most important export, followed by lumber and cotton.¹⁰

Although it ranked fourth in volume behind Savannah, Jacksonville, and Brunswick, Pensacola continued to handle naval stores produced in Alabama and Florida’s western panhandle. The city enjoyed good railroad connections with most important interior towns from which naval stores could be collected for shipping. However, the port had a closed market with only one factor and one dealer handling sales and distribution. Although its gum exports

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¹⁰ A loosely woven wire cage which conducted lightning away from the flammable turpentine casks covered the sheds. By the 1930s, twelve electric trucks provided quick transfer of turpentine and rosin to the docks, replacing the old labor-intensive method of rolling the barrels. Campbell, et al., Naval Stores Industry, 15-16, 51; A. Stuart Campbell and Alvin Cassel, The Foreign Trade of Florida (Gainseville, FL: Bureau of Economic and Business Research, College of Business Administration, University of Florida, 1935), 73-74, 51, 82; Federal Writers’ Project, Florida, 189.
remained relatively small, the location and operation of the Newport wood naval stores plant in Pensacola added greatly to the port’s export value. With a facility covering forty acres, the plant could store up to 300,000 gallons of turpentine and 290,000 gallons of pine oil. Along with Pensacola, Panama City handled a small quantity of naval stores produced around the western area of Florida and Mobile, and New Orleans exported the tiny amount manufactured in southwestern Alabama, Mississippi, and Louisiana.11

By the early 1930s, a sophisticated quality-control system involving both federal and state inspectors improved the handling and grading of the rosin and turpentine that flowed through the ports and thus helped strengthen trade. At the state level, inspectors, none of whom could be financially connected with the industry and all of whom worked under an appointed supervisor, used the USDA grading system. Once the gum arrived at market, inspectors weighed and graded it by visual inspection. They then determined both the grade of gum and the yield of turpentine and rosin that various grades would produce once distilled. The inspectors determined yield by the percentage of chips, bark, trash, dirt, sand, and water present in the gum, usually as the barrels were emptied into large vats. If the gum was not dumped, inspectors pushed a pole to the bottom of the barrel and pulled it out to inspect the amount of foreign matter that adhered to the stick. Once the grade was determined, factors assigned its price. Although most inspectors worked at the market, some graded products at the stills. Supervising inspectors regularly visited each naval stores yard in their states, examining the stock, sampling the barrels, and examining the books. The owner of the product paid the inspectors’ fees, 6¢ per barrel of rosin and 9¢ per barrel of turpentine. The supervisor received .5¢ for each barrel of naval stores inspected in his

11 It appears that small naval stores handlers charged a greater percentage of the value to market it. Larger naval stores ports like Savannah, Jacksonville, and Brunswick charged 4.75 percent to 7.5 percent in marketing fees where producers shipping through Pensacola and Mobile paid 10 and 12 percent respectively to market naval stores. Campbell, et al., Naval Stores Industry, 17-18, 51; Campbell and Cassel, Foreign Trade of Florida, 73. 82.
state, the fee shared equally by the buyer and seller. In compliance with the 1923 U.S. Naval Stores Act, which prohibited the domestic and foreign trade of adulterated or mislabeled rosin and turpentine, federal inspectors performed the same procedures as their counterparts at the state level. Because most naval stores products left the south, nearly all received two inspections.¹²

Those producers caught violating the inspection laws faced stiff penalties. Anyone attempting to market adulterated naval stores had the product confiscated and sold to the highest bidder, half the proceeds going to the informant and the other half to the state. The inspector received none of the reward. Attempting to produce, sell, or ship uninspected naval stores could bring a five-hundred-dollar fine and/or three months imprisonment. For altering the inspector’s grade or false markings by the inspector, the guilty party could receive a five-hundred-dollar fine and/or six months imprisonment. Fraudulently packing naval stores or grading by anyone other than a licensed inspector carried a one-hundred-dollar fine and/or three months imprisonment.¹³

Not only did government inspection and enforcement strengthen quality standards, during the 1930s naval stores research intensified with federal support. The Naval Stores Research Division of the Department of Agriculture’s Bureau of Agriculture and Industrial Chemistry stepped up research into production, grading, and new uses. Whereas the Forestry Service focused attention on broad issues affecting woodland and forest products industries across the country, the Naval Stores Research Division concentrated exclusively on improving the turpentine industry. Its agents working for the division demonstrated pioneering methods and new still equipment in the field. The Division also distributed helpful literature to producers

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¹³ Campbell et al., Naval Stores Industry, 83-84.
through the mail and offered individual assistance upon request. It also collected statistics on naval stores production, both stock on hand at the stills and ports and that held by dealers and the consuming industries. The Division's ability to assist producers intensified with the opening of the Naval Stores Experiment Station, built in the Olustee National Forest in Florida on ten acres donated by the Forest Service and with $40,000 appropriated by Congress. The Olustee forest contained a equal mix of longleaf and slash pines and was accessible to producers from the most productive naval stores regions in Georgia and Florida. It thus offered convenient research opportunities on both of the most common species used in turpentining. When the station opened in 1932, it consisted of a fire still, auxiliary buildings, and a physical plant building that housed chemicals and processing equipment. Three years later a chemical laboratory was added. As the world's first naval stores research station, the Olustee facility worked in cooperation with the Bureau of Forestry's naval stores research laboratory in Washington, which studied the composition and properties of pine gum and better ways to prepare, use, handle, and transport naval stores. By the late 1930s, the Naval Stores Division operated on a budget of nearly $80,000, split evenly between experiments on improved production practices and studies of chemical composition and use. In 1943, the Division headquarters was moved from Washington, DC, to New Orleans, and eight years later, to Olustee. From 1953 until its termination in 1973, research at Olustee continued under the Agriculture Research Service.

14 Competition for the station's location was stiff with ten communities in Georgia and Florida offering free sites and facilities; For figures related to naval stores consumption see Appendix A.

15 The naval stores industry benefited indirectly from the Southern Forest Experiment Station, established in 1921 with its base in New Orleans and substations in Ashville, North Carolina, McNeill, Mississippi, and Starke, Florida. Its studies of fire damage, wood growth, soil conservation, and the effects of animal grazing on forest restitution assisted all forest products industries. Campbell, et al., Naval Stores Industry, 76,79-80; Sandra Jo Forney, "The Importance of Sites Related to the Naval Stores Industry in Florida," (paper presented at the annual Florida Anthropological Society meeting, Daytona Beach, Florida, 1985), 6-7. "Locate Naval Stores Station in Osceola Forest of Florida," Turpentine newsclipping file, Forest History Society, Durham, NC; G.E. Hilbert, "Twenty Years of Research by the Naval Stores Station,"
Government studies produced considerable advances in turpentining techniques. One improvement was a better understanding of burning practices. Burning away underbrush exposed seedlings to frost in cooler months, excessive heat in warmer ones, and rapid drying of the soil. Given this understanding, conscientious producers had begun intensive fire suppression efforts. For example, one operator in the early 1930s built his own seventy-foot high fire tower which he had manned from eight in the morning to five in the afternoon. Because the tower had no telephone, the watchman had to climb down and ride a mile on horseback to headquarters to report the fire. To fight blazes, the same producer employed an old army surplus jeep with a water tank mounted on its back. By the 1930s, progressive producers had joined efforts with Forest Service to suppress fire in their forests. In 1939, around 125 Florida operators protected approximately one million acres of turpentine forest, about a fourth of the state’s total protected lands. As a result of their efforts, less than three percent of these lands were burned over as compared to fifty-five percent of the unprotected areas.16

Research conducted in the 1930s and 1940s demonstrated that the issue of burning was actually more complex than originally believed. Researchers agreed with earlier experts who found that even small, low-burning fires could damage trees, especially if they swept through the forest in the late spring and summer. Severe fires were capable of consuming a tree’s entire

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crown and so badly scorching its trunk that it soon died. Fire also caused partial deforestation, reduced the rate of wood growth, and even devoured a large portion of the soil nitrogen to a depth of forty-five inches, thus reducing its fertility. But by the 1940s, after over a decade of diligent fire suppression, researchers realized that an accidentally-set blaze in an area free of fire for several years might be even more damaging than frequent burns. With fire suppressed, debris built up to deep levels on the forest floor, providing enough fuel to turn any unintentional fire into a roaring and extremely destructive conflagration. In 1934, for example, the effect of a forest fire which burned through 15,000 acres in southeast Georgia varied greatly between previously-burned and unburned plots. In areas where light, frequent burning had been permitted, none of the turpentine slash and longleaf died and only a few of the round second-growth pines perished. In another part, protected from fire for fifteen years, fifty percent of the turpentine trees and eighty percent of the young second-growth pines died. Studies also showed that whereas fire could damage pines in different ways, it also improved growing conditions. Although fire consumed soil nitrogen, it added nutrients through ash that leached into the ground with rain. Moreover, the removal of forest floor debris exposed soil to the direct rays of the sun, increasing its temperature. Rises in soil temperature increased a pine's ability to absorb water and thus raised gum production. Moreover, the absence of dead plant material and low-growing vegetation increased the chances that pine seeds would reach the soil where they could sprout. Once the seedlings emerged, fires lowered the threat of brown spot needle disease and reduced competition from grass.17

Thus foresters, by the mid-1940s, recommended carefully controlled burning over none at all. Producers could manage the intensity and spread of fire by plowing fire lanes and burning between sundown and eight in the morning, when the wind was less likely to shift to a new direction. It was also best to burn during the winter months and following rain and to confine the fire to smaller, more easily-controlled areas. For stands intended for new production, producers enjoyed optimal results of burning just before the installation of cups. Operators were also to follow a rotation pattern so that plots were burned every three to five years raking around the trees before each firing.\(^{18}\)

Because free range cattle and other livestock herders were responsible for much of the burning in the southern forest, researchers tried to coordinate forest and range research. As late as 1950, livestock herders considered it their right to practiced free-range grazing year-round with very little supplemental feeding and minimal control over the number of cattle or the season in which they used a given area or the number of cattle feeding there. Very little planning went into their forest burning practices either. Foresters showed that herders were harming their own interests with their haphazard burning. Studies found that the South’s best forage lands were indeed in the southern pine belt, but that between July and early March grazing was poor and could not be improved by burning. Researchers also showed that burning commonly killed an area’s Bermuda grass, which offered the best grazing, and left only weeds and wiregrass, the latter two required from seven and a half to thirty acres to sustain one cow for the five-month grazing period. Such findings contributed to the decline of free-range grazing in the piney woods.\(^{19}\)

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Government researchers also thoroughly examined factors affecting gum yield.

Scientists already had a general understanding that crown size influenced yield, but new research revealed that this quality became more important in the third and subsequent years of harvesting. Trees possessing less than forty percent crown greatly decreased their gum production in their later years. Experiments also showed that rapidly-growing trees with large crowns had the least decline in yields from year to year and that second-growth trees tended to make more than old-growth of the same diameter because they usually possessed more foliage. Researchers also found that temperature influenced gum yield. If temperatures dropped below forty-five degrees, little or no gum flowed. When temperatures rose to around fifty-two degrees, both slash and longleaf pine required nearly six days to yield ninety percent of their yield for the week. But with average temperatures hovering around eighty-two degrees, as they usually did in the turpentine belt during the summer, longleaf produced its weekly yield in the first forty-eight hours after chipping and slash pines in the first ninety-six hours. Thus, it was profitable to chip more frequently during the warmer summer months than in the spring and fall in order to encourage a perpetual gum flow. Researchers assured producers that the heavy summer chipping schedule would not harm the tree. They also showed that intense turpentining did indeed provide a twenty-five percent larger yield in the first year than conservative turpentining, but in all subsequent years the trees gum production experienced drastic declines. Likewise, an advanced streak made approximately thirty days before the chipping season brought good early season yields, but after the first eight weeks yields declined in proportion to the early rise. Experiments also showed that backfaces produced approximately fourteen percent less gum than the front face.

Through their efforts, forestry researchers were able to make more precise conclusions regarding the effect of turpentining on tree growth and forest depletion than were previously known. Growth reduction proved more related to the size and number of faces on a tree than the actual volume of gum extracted. Wide and multiple faces slowed tree growth. The recommended average-size single face caused about a twenty-five percent reduction in wood formation. With healthy, rapidly growing trees with large crowns, however, the slowed rate could be as little as five percent. Discoveries concerning the rate of tree depletion led to better recommendations regarding the pattern with which pines should be turpentined and harvested. Earlier suggestions recommended long rest periods between the conclusion of work on the front face and the start of harvesting from the back. This lengthy interval, foresters discovered, permitted pitch-soaking, rot, and insect damage to work their way up the truck above the face. Foresters thus began recommending the rapid working of trees, using safe methods, and cutting the stands promptly with the end of chipping.21

By far one of the greatest industry advancements made by government researchers working at the Naval Stores Research Division was the design of a central distillery developed at the Olustee station. Costing between $20,000 and $250,000, depending on size and sophistication, central distilleries employed the most up-to-date and efficient methods to produce standardized naval stores of a higher quality and at a lower cost than did old-style copper fire stills. Because these outfits had storage capacity for up to fifty thousand barrels of crude gum, the product could be refined and marketed year-round, reducing the annual fluctuation in market prices.22


22 Davis, Encyclopedia of American Forest and Conservation History, 477; Donald Fraser Martin, Jr., “An Historical and Analytical Approach to the Current Problems of the
With central distilleries, producers could enjoy the advantages of better and cleaner equipment operated by highly trained specialists, all at a lower cost than running their own stills. Operators delivered the gum to an unloading deck at one of the large facilities. The raw turpentine arrived in sealed barrels that were weighed before proceeding to a receiving area. Here workers turned the barrels up-side-down over receiving vats to drain. After the gum stopped oozing from their containers, steam jets directed into each barrel melted the last bit of gum which ran out into the vat. Barrels were then returned to the unloading deck to be reweighed in order to determine the gum’s net weight. From the bottom of the vat, raw turpentine was pumped into another chamber, where it was melted with steam before proceeding through two sets of screens that removed such trash as insects, dirt, bark, and straw. The filtered gum then entered a wash tank were it was cleaned of water-soluble contaminants. Once cleaned, a carefully measured amount of gum entered the still. In the still, which could hold from one hundred to two hundred barrels of gum, heat was applied with submerged steam coils. Technicians carefully regulated the distillation process until the water-turpentine flow from the condenser reached a rate of nine to one. At that point the molten rosin was pumped from the still and packaged. Central distilleries processed between one thousand to two thousand barrels of crude gum each week. By comparison, a fire still could manage only a maximum of 180 barrels a week.23

The introduction of central distilleries coincided with several developments that made their success possible. First, road improvements in the naval stores region and the wide availability of motorized trucks enabled producers to haul their gum many miles to a large

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distillery more cheaply than operating a badly equipped and poorly run fire still themselves. Second, an increasing number of new gum producers, many of whom could not afford their own still, created a demand for such facilities. Third, stricter marketing requirements, which the central distilleries could meet more easily than fire stills, enhanced the former's popularity. Finally, competition from wood naval stores producers, who were growing more and more capable of producing finer, standardized product grades, necessitated that gum producers turn to specialized distillers able to refine similar products. All four factors, combined with the central distilleries clear economic advantages, led to their rapid construction across the Southeast in the 1930s and 1940s.\textsuperscript{24}

Large naval stores producers and consumers built most of the government-designed central distilleries, with factorage houses playing little role in their construction. Several were built around Jacksonville, but most were located in Georgia. In 1936, Glidden Company built the first central processing and distillation plant in Jacksonville, Florida, and later one in Valdosta and Collins, Georgia. A group of large operators organized Filtered Rosin Products Company, which, by 1942, operated stills in Brunswick, Baxley, Douglas, Valdosta, and Jacksonville. The Langdales of Valdosta began construction of a plant late during the Second World War, after they received authorization to acquire the steel and brass necessary for the project. Their distillery opened July 1, 1945, at the cost of $75,000. Employing the latest designs and equipment, it was the third such distillery erected in the southeastern Georgia community. Located just outside of town adjacent to the Georgia and Florida and the Georgia, South, and

Florida Railroad lines, it replaced the roughly twenty-five stills the Langdales operated at their own operations and also served other producers in South Georgia and northern Florida. Approximately fifty miles to the southeast of Valdosta in Lake City, Florida, the Newton family opened a similar facility not quite two months later. For three generations the Newtons had produced naval stores, beginning in North Carolina and spreading geographically until, by 1945, they were engaged in the business in all the pine states but Texas. Billed as the most modern processing plant between Jacksonville and Valdosta, the Newton facility competed with the Langdales for producers’ business.\(^{25}\) By the mid- to late-1940s, approximately thirty central distilleries were in operation in the naval stores region, processing close to eighty percent of the crude gum. Whereas approximately 1,300 fire stills were operating throughout the southern pine region in the mid 1930s, by 1950 only around sixty-three fire stills remained in operation in the South, most running on an irregular basis. The shift from independent distillation to central facilities was so rapid that, by 1948, economist Joseph B. Hosmer observed that “the gum segment has changed from a sprawling industry characterized by twelve or thirteen hundred small wood-fired stills (‘fire stills’), which creaked at the joints and leaked profit at every gasket, to a compact group of thirty to forty efficient distillation plants.”\(^{26}\) Thus, in the 1940s, gum naval stores producers returned to the status operators before the mid 1830s in that they became gum harvesters who relied on large distilleries to process their turpentine.


\(^{26}\) Joseph B. Hosmer, Economic Aspects of the Naval Stores Industry (Atlanta: State Engineering Experiment Station, Georgia School of Technology, 1948), 1.
Even as central distilleries gained popularity, the Olustee Station researchers also assisted producers with improvements to the old fire still design. Their new still used fuel more economically, heated the kettle more evenly, provided better fire protection, proved easier to regulate, and consequently produced better results than the previous design, which had remained virtually unchanged for a century. The new fire still’s furnace was designed with thick walls, allowing the maximum fire protection and durability. The redesigned flue and fire path allowed for more even distribution of heat, the still structure itself was constructed of heavy gagged copper and thoroughly welded together, and the size and strength of the worm, condensing tub, and the foundation it rested upon were increased. A thermostat provided automatic control of the temperature and water flow into the condenser tub. Rosin strainers were enlarged to handle the still’s entire content without workers having to check the flow as it drained. The strainers were lined with aluminum and fitted with a hydraulic lift to raise the vat high enough for its contents to run into barrels, eliminating the need for workers to dip it out.

In the early 1930s, one Baxley, Georgia, producer began construction of what was probably one of the first of the improved stills. The Baxley News Banner informed the curious that it was located close enough to the highway for passersby to see it work. During the first several years of the 1930s, ninety such stills were reportedly built in Florida. By 1934, around fifteen percent of stills in the South were of the government design and another eight percent employed some of its features. Only a large operation could afford a still of such quality so most stills in operation at the time used none of the improvements. An estimated seventy-eight percent of fire stills continued to use sound rather than the recording thermometer to regulate the process. As late as the 1960s some of these primitive facilities continued to operate. Many other
producers abandoned the use of their existing fire stills or, when constructing new camps, decided against building stills and instead relied on the central distilleries to process their gum.27

Intensified wartime government research resulted in yet another advance in turpentine production, the use of acid spray to increase chipping efficiency. In the early 1930s, Germany and Russia began studies into the use of an acid solution to stimulate gum flow. U.S. studies followed in 1936 at the Olustee Experimental Forest as a cooperative effort between the Southern Forest Experiment Station and the U.S. Forest Service. Few resources were initially allocated to the project since surplus of naval stores and low prices in the late 1930s reduced interest in methods to increase production. When the Second World War increased naval stores demand, research into acid treatment accelerated. The studies showed that a fifty percent water and sulfuric acid solution would collapse the wood cells lining the resin ducts, thus enlarging their openings and allowing for a longer period of gum flow. Moreover, the acid held the resin ducts open for two weeks, after which new streaks and acid were necessary. Thus, labor costs could be cut because workers needed to visit trees only half as often. Another benefit was the faces’ slowed movement up the trunk. By 1946, researchers announced the method ready for the industry’s adoption.28


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Government researchers studied other industry issues as well. They examined a wide range of naval stores packaging methods: dip barrels, turpentine storage and shipping containers, and rosin packages. It investigated the composition and derivatives of resin, rosin, and spirits. And it studied the industrial uses of naval stores, the origin and composition of the color of rosin, the causes of deterioration of turpentine in storage, and statistics of the production, consumption, and stocks of naval stores.29

Thanks to government-sponsored studies, turpentining techniques, by 1950, were vastly improved from what they were in 1900 and considerably different from just twenty years earlier. In the 1930s and 1940s, bark chipping, acid treatment and the introduction of two-quart cups transformed the practice of harvesting gum, significantly reduced the damage to trees, lowered labor requirements, and increased yields. Producers also had a variety of cup design options from clay to elongated metal to conical-shaped metal cups. New double-headed nails made nails easier to see and remove, solving the problem of saw blades striking them. With the introduction of central distilleries, producers were no longer burdened with the expense of distillation. Start-up costs included only cups, gutters, and the tools required to work the trees.30

Despite advances, however, the Great Depression hit the naval stores industry hard (fig. 12.1). Lack of restraint on the part of producers in the late 1920s resulted in over extension and overproduction, making operators wholly unprepared for the sudden economic downturn. The United States’ high protective tariff worsened the Depression’s impact on the naval stores industry, since in raising the price of imported goods, the government crushed foreign trade and


29 “Gum Naval Stores,” Bilbo Papers, 3.

made it impossible for other nations to purchase American goods, including naval stores.

Producers, attempting to remain in business, responded with desperate measures. Turpentiners slashed operating expenses as much as possible by lowering wages to bare subsistence levels and refusing to replace worn out equipment. They also reduced their overall level of production, although in many cases not by choice. Producers either lost the means to operate on the scale

![Net Cash Proceeds Per Fifty Gallons of Spirits of Turpentine, 1920-1939](image)

**Figure 12.1.** Net Cash Proceeds Per Fifty Gallons of Spirits of Turpentine, 1920-1939


they once had or went broke and saw factors foreclose on their operations. Many producers worked their reduced number of crops intensely in an effort to extract as much gum as possible over the short term. Despite increased forest exploitation, the drop in the number of producers (fig. 12.2) resulted in the 1932/33 crop year being the smallest in the previous thirty-five years. Although the economy began to crawl slowly toward recovery, in 1933 the growing use of
competing solvents, especially wood naval stores and mineral spirits, lessened the benefits of the increased business activity for the remaining gum naval stores producers. Combined with this increased competition, the economic dip of 1937-38 dealt the industry another blow, causing turpentine prices to drop further and still more operators to quit.\textsuperscript{31}

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\caption{Number of Gum Naval Stores Establishments, 1921-1939}
\end{figure}

A 1933 policy, however, served turpentine producers as a partial counter-measure to a slump in world naval stores demand. By going off the gold standard, the U.S. lowered its currency value in the world market resulting in lower naval stores prices than the French could offer. Despite stagnation in world naval stores consumption, American producers were able to export more of their product at the expense of the French. Martin, "An Historical and Analytical Approach," 144, 195; Campbell, et al., Naval Stores Industry, 22, 89-90. As the naval stores industry suffered, so did transportation companies and especially the equipment manufacturers who serviced producers. J.E. McCaffrey, interview by Elwood R. Maunder, Oral History Collection, Forest History Society, Durham, NC, 92; I. James Pikl, A History of Georgia Forestry (Athens: Bureau of Business and Economic Research, University of Georgia, 1966), 34; Robert M. Newton to P.N. Howell, 25 September 1937, Dantzler Lumber Company Papers, Special Collections, Mitchell Memorial Library, Mississippi State University.
To make conditions worse for naval stores producers, just as the Depression was reaching its worst levels, a severe drought hit the southern pine belt. Problems began in 1930 with persistent warm winds and high temperatures, part of a weather pattern that contributed to the Dust Bowl in the plains states. Although rainfall remained relatively normal that year, the winds, heat, and low humidity caused rapid evaporation and a reduction in morning dews, all of which strained vegetation. Then, over the next two years, rainfall amounts dropped sharply. With drought conditions technically beginning when precipitation drops off fifteen percent of the average, parts of the pine belt saw declines of from twenty percent to thirty percent. The lack of rain caused soil moisture to decline to 2.11 percent at a depth of three inches and 2.32 percent at a twelve inch depth when it rarely dipped below four percent and, then, only for brief periods. Under these extreme conditions, trees began dying. Longleaf pines, with their deep tap root, fared better than slash pines, yet even the former's mortality rate shot up. Overall tree loss amounted to 9.4 percent, or ten times higher than normal. Death rates were the highest in crowded stands and those on soils with high sand content. With pines under considerable stress, gum yields declined, even in stands worked conservatively and for only a few years. Overall, the faces yielded twenty percent less gum in 1932 than they had the year before. As desperate turpentiners continued working the strained trees, the incidents of dryface and ips beetle attack increased. Partial defoliation, combined with enormous quantities of debris contributed by dead pines greatly, increased the risk of fire.32

Some producers began sideline businesses as means to raise extra cash with which to weather the economic and environmental devastation. Some raised cattle and farm crops such as sugar cane, sweet potatoes, corn, and hay. Those who owned their forests attempted to market

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their previously-turpentined trees to lumber mills. But trees scarred with eight- and ten-foot faces produced at most only a few saw boards. Such pines’ pitchy bottom sections, however, could be cut and sold as ties and poles. Because only a few pulpwood mills dotted the South in the 1930s, there was a limited market for the principal product of a turpentined trees, wood chips.33

Many producers recognized that then new federal initiatives aimed at helping farmers, not sideline enterprises, offered their best chance for survival. Where earlier in the century the United States Justice department’s peonage investigations had led turpentiners to condemn federal involvement as a menace, the clear benefits of government-backed studies during the 1910s and 1920s, which in no way threatened the industry’s labor system, led operators to view Washington’s actions as beneficial. Before their petitions for funding under the farm assistance programs stood a chance, however, producers needed to convince government officials that the naval stores industry was, in actuality, agriculture. When the 1923 Naval Stores Act, which established product grades, passed Congress, it mentioned nothing about the status of naval stores as either industrial or agricultural products. The act gave the Secretary of Agriculture the duty of overseeing its enforcement only because his department administered the Forestry Service and naval stores, no one denied, were forest products. But when producers requested relief under the federal Agricultural Marketing Act of 1929, which sought to stabilize farm prices through cooperatives that received low interest federal loans and through sales to foreign countries, officials rejected them, ruling that turpentine and rosin were not defined as agricultural products under the legislation. Gum naval stores operators then began a campaign to reclassify their business as agriculture, a task that required them to differentiate themselves from wood naval stores producers, who, with large, heavily capitalized, and mechanized plants employing

hundreds of workers, clearly represented a form of industry, but produced the same product as gum turpentine manufacturers.34

Gum producers pointed out that the typical operator required relatively little capital to run his business, compared to wood naval stores operations, and that, unlike the technologically sophisticated wood naval stores industry—whose large plants and elaborate equipment permitted them to run year-round—gum producers used primitive methods and operated on a seasonal cycle. Where wood naval stores were produced by only a few large operations widely scattered across the South, gum naval stores were made by around 2,200 relatively small-scale operators. Also, they maintained, a significant percentage of gum producers cultivated crop land in conjunction with their turpentine business, raising cotton, corn, tobacco, peanuts, pecans, with the same workers. Producers further argued that they, like farmers, were subject to hazards such as uncooperative weather and seasonal over-production and they compared turpentining to maple syrup production, which was itself classified as agriculture.35

Once producers presented their reasonably valid case that gum collection was agriculture, they faced the slightly greater challenge of maintaining that distilling the gum, which many operators continued to do themselves, did not represent industry. Producers cleverly argued that, like changing any agricultural product from its “originally produced” state to its “first processed” state, distilling did not change turpentine and rosin’s nature as agricultural commodities. Converting a raw material into a primary raw material fit for future manufacturing purposes, like processing food products into a less-perishable form, producers argued, did not

34 A.L. Brogden, Memorandum, 10 August 1940, Bilbo Papers; Martin, “An Historical and Analytical Approach,” 149-150.

35 Leon Henderson to T.F. Dreyfus, 1942, Bilbo Papers; “Gum Turpentine and Gum Rosin: Supporting Brief Filed by Producers Committee that Gum Naval Stores Are Agricultural Commodities,” 20 November 1933, William M. Colmer Papers, Archives and Manuscripts Division, McCain Library and Archives, University of Southern Mississippi, 2, 4-6, 9.
transform the essence of the product. Therefore, according to their logic, distilling gum was no more an industry than ginning cotton, curing tobacco, or boiling maple syrup. Like these processes, distilling added and took away nothing from the gum. It caused no transforming chemical process, but merely separated spirits and rosin. In distilling, producers were merely preparing the gum for market. Furthermore, they maintained, naval stores products' ultimate use for industrial purposes changed nothing about their nature as an agricultural commodities. Flax and linseed oil, for example, were agricultural commodities with industrial uses.\(^{36}\) As one industry observer explained "the turpentine gum farmer is in exactly the same [class] as other American farmers. His residence, his terminology, his business, his standard of living and mode of thought places him in the same category as the producers of other agricultural commodities."\(^{37}\)

The gum producers succeeded in persuading the government of their arguments validity. Senator Walter George of Georgia exercised considerable influence in the revision of the 1929 Marketing Act to include naval stores producers.\(^{38}\) In 1931 Congress amended the act to include as an agricultural commodity "crude gum from a living tree, and the following products as processed by the original producer of the crude gum from which derived gum spirits of turpentine and gum rosin as defined in the Naval Stores Act approved March 3, 1923."\(^{39}\) The amendment made gum naval stores producers eligible for loans through the Federal Intermediate Credit Bank set up as part of the Federal Farm Board.\(^{40}\)

\(^{36}\) "Gum Turpentine and Gum Rosin," Colmer Papers, 6-10; Martin, "An Historical and Analytical Approach," 17.

\(^{37}\) "Gum Turpentine and Gum Rosin," Colmer Papers, 10.

\(^{38}\) "Memorandum Concerning Senator George and Naval Stores," 29 June 1938, Colmer Papers, 1-2.


\(^{40}\) Soon after receiving federal recognition, the principal naval stores-producing states enacted their own legislation designating naval stores as agricultural commodities.
With their new official definition, turpentiners immediately set to work to stabilize the naval stores market. In 1931, they attempted to raise prices by forming a cooperative association, the Gum Turpentine-Rosin Marketing Association, which would use federal loans to purchase a large portion of the output. With around one thousand operators, who accounted for seventy percent of total production, as members, the Association received government loans through the Federal Intermediate Credit Bank of Columbia, South Carolina. By July, after just three months of activity, the Association stockpiled 62,000 barrels of spirits and 260,000 barrels or rosin. At this point, the Association had exhausted their $2.5 million loan and, in the face of world industrial decline, had failed to raise naval stores prices significantly. Over the next four years supplies accumulated by the Association depressed the naval stores market even further until the surplus was fully disposed of.41

Although the Gum Turpentine-Rosin Marketing Association’s efforts failed, the producers’ success in including naval stores as an agricultural commodity enabled them to benefit from the Agriculture Adjustment Administration, which the Roosevelt administration created in 1933. The AAA sought to help the farm economy by reducing production and bringing supply and demand into balance. Its goal was to achieve parity, a point where farm products had the same purchasing power that they did from 1909-1914, when agricultural commodities presumably had a fair exchange value for non-farm goods. Turpentine producers petitioned the AAA for a reduced-acreage plan whereby, like cotton, wheat, and tobacco farmers, they would be paid for land taken out of production. Given Congress’ recent reclassification of naval stores, the Department of Agriculture ruled that turpentine was indeed an agricultural commodity.

Memorandum, A.L. Brogden, 10 August 1940, Bilbo Papers; Campbell, et al., Naval Stores Industry, 76.

commodity and eligible for a marketing agreement with the Agency. But because turpentine and rosin were not basic commodities like other crops, the Department decided that gum naval stores producers were not eligible for reduced production compensation. The government did not control this marketing agreement; instead it was run by a control committee elected by the producers. In the election for representatives, producers received one vote for each unit of naval stores produced in the preceding year. Thus large producers easily controlled decisions. Operators from all the naval stores-producing states were represented, as were factors, dealers, and industrial consumers. Producers from Georgia and Florida selected three members from each state and Alabama, North Carolina, South Carolina, Mississippi, Louisiana, and Texas each chose one.\footnote{Gilbert C. Fite, \textit{Cotton Fields No More: Southern Agriculture, 1865-1980} (Lexington: The University Press of Kentucky, 1984), 128; “Proposed Marketing Agreement for Gum-Turpentine and Gum-Rosin Processors,” 13 November 1934, Cary Collection; Campbell, et al., \textit{Naval Stores Industry}, 84, 90; Memorandum, A.L. Brogden, 10 August 1940, Bilbo Papers; R.H. Crosbey to Howell, 31 March 1939, Colmer Papers; Kenneth H. Thomas, Jr., \textit{McCranie’s Turpentine Still, Atkinson County, Georgia: A Historical Analysis of the Site, With Some Information on the Naval Stores Industry in Georgia and Elsewhere} (Atlanta: Georgia Institute of Community and Area Development, 1975), 8.}

Factors, concerned over the agreement’s limited focus on industry problems and its exclusion of anyone but gum producers, made their own recommendations to the AAA. Because environmental problems persisted, factors requested that as part of the agreement, producers be restrained from harvesting from trees too small to handle the stress. Factors also believed that part of the plan’s administrative fees should go toward research. They strongly felt that factors should have a say in the plan since they had so much invested in production. Moreover, they pushed for all sectors of the industry to work together. Factors argued that they, distillers, and wood naval stores producers should be included in the program if the entire industry was to pull itself out of its slump. To include all areas of the industry, they recommended the creation of a nine-member executive committee made up of three producers, two factors, two distillers, two
wood naval stores manufacturers. The factors were worried that the plan would hurt the small producers if the larger ones had a more powerful vote. They also feared that foreign producers would use the advance notification of reduced U.S. production to increase their output, thus negating any benefits of the plan.43

Approved by the Secretary of Agriculture in February 1934, the marketing agreement provided for a compulsory restriction of output to prevent over-supply and increase prices and financial gains for producers. The agreement drawn up by the control committee proposed to reduce the 1934/35 crop by ten percent from the previous year in an effort to raise prices to the 1909-1914 level of sixty cents per gallon for turpentine and thirty-eight dollars for three and a third barrels of rosin. Through the program, individual operators were allotted a production quota based on their previous four-year production averages. The committee supplied each producer with a number of tags equal to his allotment for the year plus additional tags equal to the naval stores owned by him on December 31, 1933. Beginning January 1, every package of gum turpentine or gum rosin shipped by the original producer was required to have a tag. Each tag had a number indicating the producer, the tag’s serial number, year of production, and the contents: crude gum, clean gum, turpentine, or rosin. The control committee kept a record of information related to each tag. By October 15 of each year, the committee would estimate the amount of turpentine and rosin that would be available on December 31 and determine the volume of naval stores to be marketed in the coming year. Based on this figure, the committee would allot each producer a percentage of the quantity determined to be marketed in the forthcoming year. Operators unsatisfied with their allotment could petition the committee for more tags. When a producer sold or leased any part or all of his timberland, a proportionate share of his allotment accompanied the transfer, provided the new owner or lessee could prove to

the committee his ability to fulfill the allotment. So as not to exclude new producers, each year the committee reserved three percent of the total allotment for operators beginning in the business. However, no new producer’s allotment could exceed one thousand barrels of raw turpentine. As the factors had wished, restrictions were placed on the size of pines to be harvested. Under the plan, operators agreed not to harvest from trees less than nine inches in diameter four and one half feet from the ground or to work two faces in a tree less than fourteen inches in diameter. To maintain the program, producers paid to the committee assessed charges approved by the Secretary of Agriculture. At its inception, the plan called for a fee of fifteen cents for each barrel of turpentine and five cents for rosin. Any funds remaining after administration costs would be used for industry research or product advertisement. The wood naval stores industry created a similar agreement which became effective in May 1934. As a designated industry, however, wood naval stores production fell under the jurisdiction of the National Industrial Recovery Administration.44

Despite its promised benefits, producers were unsatisfied with the allotment program. They wanted the same price support payments that farmers received under the AAA. Using arguments similar to those made in 1931, turpentiners successfully asserted that gum naval stores were agricultural products and, in the second half of 1935, they were added to the list of commodities that benefited from price support. Thus producers became entitled to funds collected under customs laws for the purpose of encouraging exports and domestic consumption, and, most importantly, price adjustments. No sooner had the turpentine producers won this privilege, however, than the U.S. Supreme Court found the AAA unconstitutional.45


45 A.L. Brogden, Memorandum, 10 August 1940, Bilbo Papers; Blount, Sprits of Turpentine, 29.
In the face of this enormous setback, efforts to bring control to the naval stores market intensified under the powerful leadership of Judge Harley Langdale of Valdosta, Georgia, the world’s largest gum naval stores producer. Langdale’s turpentine empire grew from a modest-sized operation his father started in the late nineteenth century. Born in South Carolina in 1860, the Judge’s father, John Langdale, moved as a young man to Statesboro, Georgia, then to Council, on the edge of the Okefenokee Swamp where he had begun turpentining by 1894. Until his death in 1911, John Langdale produced gum naval stores, crossties, lumber, and cattle, which he grazed on the open range. His estate, consisting of eighteen to twenty-thousand acres of property in south Georgia, was divided among his six children upon his death.46

Harley Langdale, born in 1888, graduated from Mercer University law school the year after his father’s death and began practice in Valdosta some forty miles to the west of the family home. Harley’s law practice progressed rapidly, and he was soon elected a municipal judge. But he retained an interest in naval stores production, having helped his father in the business since he was ten. In 1922, he began purchasing timber land around Valdosta and, over the next few decades, expanded his holdings in Lowndes, Ecoloes, and Clink Counties. During the 1930s, he further increased his pine acreage by purchasing large quantities of reforested cotton land available at low prices following the boll weevil’s destruction. Langdale relied on partners for efficient management of his far-flung operations. When beginning a new establishment, Langdale would find the most competent partner available, whether he could finance part of the venture or not, then borrow the money from a factor and set up the operation. By the late 1930s, Langdale, either by himself or in partnership with other operators, worked approximately 315

crops (3,150,000 faces) on nearly three million trees. His twenty-five camps and stills, which were scattered from the Carolinas to Florida, produced approximately 14,000 units (one cask of spirits and three and a third barrels of rosin equaling a unit) of naval stores, over 2.5 percent of the naval stores manufactured in the U.S. As the chairman of the board of Langdale Companies, which produced naval stores and processed and dealt in gum turpentine products and production supplies, Langdale held a powerful position not only in the naval stores industry but in Georgia and the South as well. Guests for deer hunts on his vast property included Senator “Cotton Ed” Smith of South Carolina, Georgia Senator Walter George, and Georgia governor and later senator Richard Russell. When producers met in Washington in the mid-1930s to secure financial help from the AAA, Langdale was among them, flexing his political muscle.47

What individual producers, including Langdale, continued to fear were low prices, ever-rising debts, and increased competition from substitute products. Langdale and other influential turpentiners understood that industry cooperation offered the only hope that the Depression would not swallow both large and small producers. In 1936, one producer argued that “if all of our farmers will cooperate now and from now on we will come into our own but it must be done now or we are sunk and will never get another chance.”48 They also recognized that, in a buyers’

47 Langdale was greatly involved in a variety of organizations. During his lifetime he was a member of the First Baptist Church; Rotary Club; Shriners; Valdosta County Club; Sons of the American Revolution; 4-H Club Advisory Group; Valdosta and Georgia Bar Association; Honorary Life Member of American Forestry Association; Herty Foundation Laboratory; Georgia Game and Fish Commission; a director of the Citizens and Southern National Bank, the Valdosta Times, and 4-H Club Foundation; Chairman of the Board of Lowndes County-Valdosta Hospital Authority; President of the American Turpentine Farmers Association and Valdosta Chamber of Commerce; member of the Board of Trustees of Mercer University; and Honorary Kentucky Colonel. Mary Beth Arceneuax, “Captains of the Naval Stores Industry,” Naval Stores Review 90 (September–October 1980): 8-9; Martin, “An Historical and Analytical Approach,” 232-233; Langdale, “Brief Facts on the Langdale Company,” 1; Shelton, Pines and Pioneers, 185; Musgrove, “A Tribute to Judge Harley Langdale, Sr.,” 1; Harley Langdale, Jr., interview, 1; Antwerp Naval Stores Company, et al. to W.F. Holtsman, 20 October 1933, Cary Collection, 6.

48 Frank W. Boykin to Aaron A. Lowenstein, 11 July 1936, Colmer Papers.
market in which they competed for customers with wood naval stores products, improved products, tailored to meet the needs of the consumer, represented the only way to remain competitive.49

With the end of the AAA and the marketing agreement it had overseen, Langdale in 1936 founded the American Turpentine-Farmers Association, whose mission was to unify gum naval stores producers into a cohesive force that could work to stabilize the market and industry. According to its charter, the AT-FA sought to provide improvements in production and marketing of gum turpentine and rosin and their byproducts. It also hoped to achieve more economical production and orderly marketing and distribution. The AT-FA promised to act on its members' behalf with government and business and to cooperate in the planting and conservation of pines. It also claimed the power to purchase and store any surplus turpentine in an effort to control prices and to borrow money with which to make advances to members.50

The association was administered by a board of directors elected by producers to serve one-year terms. For purposes of representation, the naval stores-producing states were broken down into districts. The state of Georgia was one district and elected four of the nine directors. Another district, consisting of Florida and Alabama, contributed three directors. A third district made up of Mississippi, Louisiana, and Texas, and a fourth representing the Carolinas, elected one director each. The association proved very conservative in changing leadership. Langdale, for example, served as its president until 1966. Membership was open to both races and reportedly some blacks did join. Blacks even served on some of the committees, but none held


positions as officers or directors. To fund the association, members paid no more than five cents for each unit of naval stores they produced annually.51

Members received their money's worth and then some. The association had a significant effect in improving the market. It successfully encouraged the federal government to conduct research into improved processing and new uses for gum naval stores which could keep the products in demand. One of the greatest changes it brought was the marketing of turpentine in small containers. In the late 1930s, only five percent of gum turpentine was sold in small bottles or cans for individual household use. Most consumers simply took a bucket to a store where they drew the spirits from a barrel. In 1939, however, the AT-FA began a $200,000 national campaign to promote the consumption of turpentine in association-approved containers which carried the “AT-FA Seal of Approval.” By 1959, eighty percent of gum turpentine was sold in bottles and cans. The AT-FA also actively supported research. In 1937, the association contracted with G & A Laboratories Inc. of Savannah to develop new uses for naval stores. For the project it retained Charles Herty, the pioneer of the American cup and gutter system, as an advisor. The Association too promoted efforts to reduce damage to trees caused by harvesting and provided members and their employees with group life and hospitalization insurance at about half the cost of individuals. Members received issues of its trade journal and invitations to its annual convention held each year in April.52

51 General Counsel and Assistant to the President [of the AT-FA] to John Slusser, 12 April 1966, American Turpentine-Farmers Association Papers; Davis, Encyclopedia of American Forest and Conservation History, 476.

52 By 1943 the convention featured the Miss Gum Spirits Competition. Each AT-FA director chose a girl from his district to compete for the title. Wearing pine needle skirts and suntops decorated with pine cones, the girls stood on a stage at the Valdosta 4-H camp while Langdale, whom it is believed conceived of both the contest and costumes, judged the winner. There was no talent competition. The winner not only enjoyed recognition Miss Gum Spirits for a year, but she received a scholarship and was featured in a photograph standing beside a tree scarred from turpentining in the next year’s Association calendar. Martin, “An Historical and Analytical Approach,” 279-280, xiii; A.R. Shirley, “Gum Naval Stores Long Linked With Industrial Development” Valdosta, Georgia Daily Times, 18 November, 1959; Maguire,
Perhaps the association's greatest achievement came immediately after its formation, when it succeeded in having the benefits of a new government support program extended to include gum turpentine producers. In response to the Supreme Court's decision declaring the AAA unconstitutional, Congress repealed the legislation that created the administration and within six weeks replaced it with a new agricultural support plan, the Soil Conservation and Domestic Allotment Act, which substituted processing taxes and acreage quotas with benefit payments for soil conservation. Crops were taken out of production to be replaced with grasses and legumes, which could add fertility and stop erosion. On March 25, 1936 Georgia senator and Langdale friend Walter George, two other senators, several House members, and representatives of the AT-FA met to convince Department of Agriculture officials that turpentine was entitled to assistance under the program. The AT-FA argued that the Soil Conservation and Domestic Allotment Act afforded the naval stores industry the opportunity to adopt improved methods. According to their contrived argument, more conservative harvesting practices would facilitate greater tree growth, which in turn would provide a regular, yearly supply of needles on the forest floor that would decompose and restore soil fertility. In making the naval stores industry healthy, the Soil Conservation Service would, in turn, create a healthy forest. The AT-FA proposed that twenty percent of the then roughly 7,340,000 turpentined acres be removed from production and that the Service reimburse producers for their loss. In late June 1936, Congress passed a bill appropriating funds for gum naval stores price support under the Soil Conservation Act.53

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53 Although they occurred thirty to fifty years earlier, the technological and marketing improvements of the Louisiana sugar industry bear a strong resemblance to those of the naval stores industry. Like nineteenth-century turpentine production, the late-antebellum sugar industry enjoyed a favorable market, the latter compliments of the 1842 tariff which raised the tax on imported refined sugar. As long as sugar prices were high and competition virtually nonexistent, historian John Heitman explains, "no edge in the market place as necessary." Some producers consequently made no efforts to improve their product or increase manufacturing.
During the first few years of government financial assistance, turpentiners received aid through two separate programs. The first was of a price support program administered by the AT-FA. The Association used support loans to stabilize the market at a base price by purchasing and stockpiling naval stores surpluses when prices weakened. The program ended the violent price fluctuations that had persistently plagued producers, especially the smaller ones. Langdale considered this market stabilization to be the AT-FA's greatest achievement. The second program provided financial support to operators who reduced their production. The Naval Stores Conservation Program, which began July 16, 1936, was hastily formulated. It called for a twenty-five percent overall reduction in worked faces and the adoption of some moderate conservation practices. Participation was voluntary, and only around 924 producers, about sixty

效率就如美国的海军仓库行业，直到20世纪初才不被外国生产商挑战。另一个特点是，糖业的发展归因于工业改进。对奴隶劳动的依赖阻碍了糖业采用科学技术。不仅糖农认为更复杂的方法超出了他们奴隶的智力能力，而且他们害怕，如果奴隶能够掌握新的复杂生产技术，他们可以利用这种技能作为杠杆反对他们的主人，质疑主人的权威，并可能叛乱。此外，联邦政府、州政府，以及未组织的糖业都不提供资源来促进科学技术创新。在战后时期，来自其他国家的挑战，尤其是来自英国和法国的大而复杂的糖精炼厂的竞争，促使路易斯安那糖生产商尝试改变。1877年，路易斯安那州糖农协会成立，目标是控制日益复杂的市场并促进技术创新。该协会制定了一些规则和条例，包括关于销售和交付糖的规则，以及提供标准的称重和等级化服务，以及为无法履行合同的生产商提供救济。在农业部的协助下，该协会鼓励研究改进方法，其中许多是借鉴了德国和法国的发明。像糖业一样，海军仓库生产商也通过政府援助成立了一个协会，并鼓励科学研究，当面临来自更先进的外国生产商以及森林砍伐的威胁时。约翰·阿尔弗雷德·海特曼, 《路易斯安那糖业的现代化》，1830-1910（路易斯安那州立大学出版社，1987），3, 35, 38-40, 44, 48, 50, 96, 137, 266, 143；乔治·B·廷德尔, 《新南州的兴起》，1913-1945（路易斯安那州立大学出版社，1967），404。马丁, “历史和分析方法的途径”，157；罗伯特·M·纽曼, “关于美国海军仓库农民协会的陈述”和“关于参议员乔治和海军仓库的备忘录”，1938年6月29日，Colmer论文；A.L. 布罗根, 备忘录, 1940年8月10日，比尔博论文。
percent, signed up. Those who did adopt the plan were forbidden from cupping trees that measured smaller than nine inches in diameter four and a half feet from the ground and from placing more than one cup on trees smaller than fourteen inches. (That year thirty percent of worked trees were smaller than nine inches.) Producers who followed these guidelines were permitted to drop up to forty percent of their total faces from production and receive reimbursement for their loss. They were paid twenty-five cents for each face no higher than sixty-six inches from the ground. This amounted to $2,500 per crop. The next year, however, in response to improved naval stores prices, many producers opted to keep their trees in production. Only 664 turpentiners representing just a third of the crops in operation participated. However, the increased production and a renewed economic recession drove prices lower in 1938 and participation consequently rose to 1,799 operators, or seventy to seventy-five percent of total faces. Many new participants were small producers who worked less than two crops. Payments for participation were substantial and often paid for stands with low profitability. In 1938, for example, one producer removed 1,356 faces, which had been badly burned the preceding fall, and 5,291 one-year-old boxes which were so scattered they scarcely justified working. For these unproductive boxes he received $444.74.\(^{54}\)

After 1938 the two different programs merged into one. In the spring of 1939, naval stores prices dipped to a near forty-year low, and the AT-FA successfully applied for a loan to keep the summer production off the market. However, only members of the AT-FA and

participants in the conservation program could benefit. After the crisis, the loan and conservation programs remained combined. Operators had to participate in the conservation program, removing from fifteen to thirty percent of their faces from production, for which they were reimbursed, to enjoy the benefits of the price support program. The number of participants rose from 1,799 in 1938 to 2,511 in 1939 to 2,785 in 1940, and to 4,264 the year after that. Those involved in the program enjoyed a better chance of operating profitably (figs. 12.3 and 12.4)\(^5\)

**Profit or Loss Per Gum Unit for Naval Stores Firms Not Participating in Government Conservation Programs**

1931-1940

![Graph showing profit or loss per gum unit for naval stores firms not participating in government conservation programs, 1931-1940.](image)

Figure 12.3. Profit or Loss Per Gum Unit for Naval Stores Firms Not Participating in Government Conservation Programs, 1931-1940


\(^5\) Martin, “An Historical and Analytical Approach,” 159-164; “Memorandum Concerning Senator George and Naval Stores,” Colmer Papers, 3; Thomas, McCranie’s Turpentine Still, 8; For figures related to production costs and the government support program’s ability to end violent seasonal price fluctuation see Appendix A.
Profit or Loss Per Gum Unit for Naval Stores Firms Participating in Government Conservation Programs
1931-1940

Figure 12.4. Profits or Loss Per Gum Unit for Naval Stores Firms Participating in Government Conservation Programs, 1931-1940

The U.S. Forest Service had the sometimes difficult task of ensuring that producers did indeed remove the promised faces from production and that they did not excessively face trees. Oversight was organized out of the Service’s regional office in Atlanta and coordinated with smaller district offices in Savannah, Jacksonville, and Pensacola. A supervisor and two assistant inspectors staffed each of the district offices. (Later these three offices were combined into a single office centrally located in Valdosta.) Around forty men worked in the field for all three districts. The job of inspecting attracted men between twenty and forty years of age who wanted steady, relatively well-paying jobs funded by the federal government during the Depression. Some inspectors had previously held jobs with the Forestry Service, especially through the Civilian Conservation Corps. Others had some experience with trees, either as workers in their

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father's naval stores operations or as college students studying forestry. One had even worked as a tree surgeon in Kent, Ohio. After a short course in gum naval stores production at the Oustee experiment station, inspectors were assigned to NSCP offices, mostly in rural communities from North Carolina to Mississippi.56

The inspectors faced the daunting task of winning the trust of rural producers who had never had a Forest Service agent on their land and continued to distrust government interference despite its benefits. Smaller producers in the more rural areas especially resented someone coming onto their property and telling them what to do. While taking a tree count at one operation in August 1936, for example, two inspectors working out of Vidalia, Georgia, were met with gunfire and forced to run for their lives from the forest. The government vehicles assigned to inspectors did nothing to make their jobs easier. Many were worn out cars confiscated by the Revenue Department. Many were riddled with bullet holes, said to be evidence of the kind of welcome some inspectors received when they attempted to perform their job. One inspector found that producers in his assigned area distrusted him because he drove a government car, a sure sign that he was in fact a revenuer looking for their still. Once the inspector explained his true mission to the sheriff, who himself ran a still, word circulated and his inspections proceeded more smoothly. Inspectors also found difficulty in convincing

56 Thomas, McCranie's Turpentine Still, 8; Arthur G. Steedly, "Doctors, Lawyers, Teachers, Merchants, and Widows, Call to Ask Advice.," in Historical Background of the Naval Stores Conservation Program, 12; Charles T. Shea, "... The Ones on the Northside Are Northern Reds and the Ones on the South Are Southern Reds," in Historical Background of the Naval Stores Conservation Program, 11, 16; Arthur A. Murphy, "Good Forestry Has Advanced 25 Years, I Believe, Because of NSCP.," in Historical Background of the Naval Stores Conservation Program, 7; John K. Cross, "Without a Doubt the Naval Stores Program Has Had a Profound Influence...", in Historical Background of the Naval Stores Conservation Program, 4; E.O. Powers, "With Pearl Harbor Our World, of Course, Turned Upside Down.," in Historical Background of the Naval Stores Conservation Program, 8; Jim A. McArther, "During the War, I Trained 22,000 German Prisoners-of-War to Work Naval Stores and Cut Pulpwood," in Historical Background of the Naval Stores Conservation Program, 6; Fulmer, "The First Voice Ordered: 'Shoot Them.'", 5.
operators and their woodsriders to keep the proper records, which would allow the inspectors to evaluate the operation's compliance with the program. Although the inspectors themselves gained the trust of some producers in the NSCP, many were won over only after witnessing the success of more prosperous producers who followed the program. The inspectors' gentle but persistent push for conservation practices combined with the government's financial support propelled the wise-use practices well ahead of where they stood before the program began.57

Although the AT-FA actively sought government assistance for its members, it worked hard to deny turpentine workers the benefits of federal programs. The Social Security Act, when originally passed in 1935, excluded farm workers and domestics but not turpentiners. Langdale—who believed that the control of adequate labor was paramount for the industry's success—and the AT-FA argued to federal officials that the majority of gum turpentine producers also grew such agricultural commodities as cotton, corn, and tobacco, and commonly used the same labor in the fields that they used in the pine forest. The AT-FA further pointed out that state and federal legislation already recognized gum turpentine production as agriculture and, as such, it received price support loans and crop reduction payments. But because no decision was made by the time the program began in 1937, some operators began paying the tax, although others refused. Government investigators looking into producers who refused to pay discovered workers too frightened to cooperate, and investigators who entered camps without warrants found themselves in jail for trespassing. Finally in November, a District Court judge in Georgia ruled that gum turpentine "is an agricultural pursuit and the labor employed by complainants

57 Fulmer, "'The First Voice Ordered: 'Shoot Them.'", 5; McArther, "'During the War, I Trained 22,000 German Prisoners-of-War,'" 6; Powers, "'With Pearl Harbor Our World,'" 8; Steedly, "'Doctors, Lawyers, Teachers, Merchants, and Widows,'" 12; Marion W. Ruffin, "'... I Had No Office, No Adding Machine, No Typewriter, and No Maps...'," in Historical Background of the Naval Stores Conservation Program, 16; Gay Goodman Wright, "Turpentining: An Ethnohistorical Study of a Southern Industry and Way of Life," (M.A. thesis, University of Georgia, 1979), 92; J. Lundie Smith, "A Few Words of Appreciation," 20 April 1966, American Turpentine-Farmers Association Papers, 7.
therein is agricultural labor.” Turpentine workers who had received their social security cards only six months earlier now found themselves excluded from the program. The Social Security Board contested the ruling. In April 1940, the Fifth Circuit Court of Appeals in New Orleans ruled in favor of the producers, stating that turpentine workers were indeed engaged in agriculture and therefore not covered by the act. The AT-FA also met success in its efforts to exclude the industry from the Fair Labor Standards Act of 1938. The law’s minimum wage and overtime provisions would have sounded the death knell for the piece work payment method used since the end of slavery and driven wages to prohibitively high levels. Thus naval Stores operators built exactly the relationship with the federal government for which they had hoped; the received financial assistance with minimal disruption of their labor practices.58

The AT-FA’s efforts to secure government assistance for themselves and deny it for their workers led to vigorous opposition from the gum turpentine producers’ rival, the wood naval stores industry. Wood naval stores producers complained throughout the 1930s and 1940s that the government’s support of the gum naval stores industry placed them at a disadvantage as manufacturers of the same products. First, they argued, gum turpentine production was in no way a form of agriculture. Unlike farmers, turpentiners grew nothing, but only collected gum from trees already growing. Also, very few producers owned the timber they worked and, in a large number of cases, lessees were not individual producers but large concerns that operated on an industrial scale and processed the gum at central distilleries, some as large as small wood

naval stores plants themselves. Like the gum naval stores producers, wood naval stores manufacturers reported their production to the Department of Agriculture, which also graded their products by the same standards used to grade gum naval stores.59 “If the gum naval stores people are agriculture,” wood naval stores manufacturer R.H. Crosby argued, “then we should certainly be classified as agriculture, as well as every saw mill in the South.”60

Second, the wood producers claimed, the classification of gum naval stores as agriculture represented nothing more than dirty politics. With over half of the wood naval stores plants located in Mississippi, they alleged, the congressmen from Georgia and Florida—in an effort to help their constituency at the expense of wood producers outside their states—made political bargains with congressmen from the Northwest to support their tax bill in exchange for the votes declaring gum naval stores agriculture. As a result of the government price support, gum producers received considerably more in return for their product than did wood naval stores producers, causing the former to produce greater quantities at a profit while the latter languished in a stagnant market. With such price divergence, the wood naval stores producers claimed they struggled to keep afloat. To make matters worse, no large consumers stocked up on rosin. They instead waited in anticipation of the government unloading large quantities of its stock on the market, a move it would almost certainly have to make to rid itself of supplies stored in wooden barrels that succumbed to weathering and decay after two years. The wood naval stores industry estimated in the late 1930s that an estimated fifteen to twenty million dollars in plant investment was bringing no return. Some of the smaller industrial operations shut down while others reduced production by half, causing layoffs and hurting landowners by reducing stump prices.


60 R.H. Crosby to William Colmer, 28 June 1940, Ibid.
Wood naval stores producers desired that either the price supports end so the two branches of the industry could compete in a fair market or that wood and gum naval stores prices be supplemented equally.61

Third, wood naval stores producers argued that gum producers constituted a drag on the economic development of their region by hurting the environment and engaging in unfair labor practices. Where the wood naval stores plants used stumps and waste wood to manufacture their product, they put forth, the gum producers harvested from living trees, severely damaging and retarding their growth. Moreover, wood naval stores plants paid their workers according to federal wage and hour legislation and paid the Social Security tax, from which the gum naval stores producers were exempt.62

Finally, the wood naval stores producers argued that the government's policy merely represented the unfair use of tax money to hurt them. Rather than a loan, they argued, the NSCP amounted to nothing more than the government purchase of gum naval stores at inflated prices.63

So frustrated was one Mississippi wood naval stores producer with Democrats and the Roosevelt administration over the NSCP that in the November 1940 election he planned "to vote a split ticket," one vote for Democratic Representative William M. Colmer and the other for Republican presidential candidate Wendell Willkie. "I hate like hell to have to vote for Willkie," he commented, but believed it was his "last resort against New Deal unfair competition."64

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64 R.H. Crosby to William Colmer, 15 July 1940, Ibid.
this wood naval stores manufacturer, other such producers resented what they perceived as a contrived argument to use federal tax money to prop up a primitive business that brought no hope of economic development and all at the expense of an industry that did indeed promise advancement.\textsuperscript{65}

Where federal assistance failed to reach the wood naval stores industry and gum naval stores laborers, it found its way to producers. Government-funded forestry efforts began to pay off by the early 1930s with the stabilization of timber resources. Because producers turned increasingly to the government-planted and protected second-growth stands in areas already damaged by turpentining, the industry's migration, which had characterized it for centuries, ended. Turpentine producers settled firmly into south Georgia and north Florida. Intensified federal research into burning practices, gum yield, harvesting methods, and distillation further aided producers by demonstrating the most efficient use of second-growth stands. Most significantly, the federal government provided economic assistance as the weakening industry faced collapse during the Great Depression. After several failed efforts by producers to gain financial support, the new and powerful American Turpentine-Farmers Association won both low interest loans to stabilize the market and price support payments to those individual producers who practiced conservation methods. But as the AT-FA secured federal assistance for its member operators, it worked to deny turpentine workers the benefits of federal aid, a contradiction that the gum producers' rival, the wood naval stores industry, argued was not only unjust, but retarded economic development. Such a persistent pattern of labor exploitation ultimately helped undermine gum turpentine manufacturing.

\textsuperscript{65} R.H. Crosby to William Colmer, 1 March 1939, 25 February 1939, and 7 June 1949, Ibid.
The new role of government and resulting scientific advancements did not change the gum naval stores industry's continued use of exploitative labor practices, and primitive manufacturing methods, both of which ultimately spelled the business's demise. The lives and work routines of naval stores workers and producers' labor management techniques remained relatively unaltered during the 1930s and 1940s from what they were decades earlier. Such continuing practices as low wages, debt peonage, brutality, and close worker oversight did little to attract laborers to the business, especially after the United States' entry into World War II. That conflict and post-war developments challenged the industry by encouraging an increased demand for lumber, loosening the binds of peonage, and creating a labor scarcity, conditions that prevented gum turpentine producers from effectively competing with the highly-mechanized wood naval stores industry. By the 1950s, large industrial plants, not independent operators, manufactured the great majority of American naval stores.

The improved methods developed by government researchers required that workers change the older harvesting practices to which they were already accustomed. Bark chipping proved especially difficult for some workers to master. Whereas traditional chipping removed a thick strip of bark and wood from the trunk, bark chipping only took off the rough outer and white inner bark to expose the surface of the wood. The procedure caused less drain on the tree's vitality, resulted in greater gum flow and reduced incidents of dryface. Although it was less physically taxing than traditional chipping, workers used to the older methods required thorough retraining to master bark chipping. Seasoned chippers, who had for fifteen or twenty
years cut into the trunk hard enough to remove pieces of wood, often found it challenging to begin cutting lightly. Workers who persisted in swinging the bark hack with great force could damage the blade, which was not designed to endure such pressure. Producers reported that, in many cases, it was easier to train laborers who had never used the regular hack before to bark hack rather than reteach experienced hackers.¹

Another innovation, acid spray, required that workers pay especially careful attention to their task. When first introduced, the technique, required workers to spray acid by blowing through a mouth piece into the spray container. Workers greatly disliked this method, and researchers quickly replaced the blow sprayer with a plastic squeeze bottle. For best results, workers needed to follow a regular fourteen-day chipping schedule using a sharp bark hack and spray bottle with a clean nozzle capable of discharging a spray of acid. Laborers first chipped only enough bark to expose the wood. Then, holding the sprayer at a forty-five degree angle, workers aimed the acid at the top of the streak with the nozzle one to two inches below the top of the streak and one to two inches away from the tree. Moving the sprayer across the streak in a single steady motion, they sprayed the top of the streak and under the overhanging bark.² Only enough acid to wet the streak completely was to be applied, but not enough to drip down the face. Proper applications allowed the solution, over fourteen days, to penetrate one-half to three-quarter inches above the streak. Over-application resulted in excessive tissue loss. Because in

¹ Ralph W. Clements, “The Bark Hack: Techniques of Using This Efficient Method,” reprint from Naval Stores Review (January and March 1953), Olustee Experiment Station Files, Georgia Agrirama, Tifton, GA.

² The exact distance of the nozzle from the streak depended on the individual bottle’s spray pattern. Poor treatment resulted if a worker incorrectly adjusted his technique to the stream delivered by a particular sprayer. Another potential problem occurred if the bottle was tilted too far downward, causing the nozzle to discharge a stream rather than a fine spray. When a stream hit the face, the force caused it to spatter and a large portion ran down the face and into the cups and gutters corroding them. If the worker held the sprayer too close to the tree, he could not see if he was correctly directing the acid and, if he held it too far away, his aim could be poor.
such cases double streaks were required to reach living wood, excess acid use caused the face to be used up too quickly, reducing the period in which a tree could be worked and thus lower yields.³

To facilitate effective treatment of higher faces and reduce the risk of acid falling back on workers as they sprayed upwards, researchers developed a spray-puller. The device, essentially a bark puller and acid sprayer in one, held a supply of acid in a plastic bottle located at the lower end of the aluminum stock. Workers had to exercise considerable skill and patience to use the spray puller accurately. Holding the puller stock firmly and placing the blade and nozzle at the precise angle, a worker squeezed the plastic bottle while cutting the new streak. By the sixth year of working a face, which required a sixty-inch long puller, accurate placement of the chip and spray was especially difficult.⁴

Although acid treatment brought overall benefits to the industry, problems did arise. Some workers misapplied acid, either providing inadequate and spotty application or spraying too much, the latter leading to the corrosion of tin and metal cups. Because so much could go wrong with acid sprayers, foresters emphasized the necessity of proper labor supervision to producers. “Success or failure of the bark chipping and acid treatment,” one researcher found, “can usually be traced to the amount and thoroughness of supervision given laborers in the turpentine woods.” Workers required adequate instruction and constant supervision until they

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mastered the technique. For optimal performance producers were also instructed to frequently inspect and promptly repair the equipment.\(^5\)

Acid use also posed both a real and perceived work hazard. Rumors associated with its use provoked fear among some producers as well as workers. It was said that acid not only attracted lightning to treated trees, but the sprayed areas sprouted mushrooms that were fatal to cattle. Word also spread that acid runoff turned swamp water black and imbied it with properties that burned the feet and legs of workers who had to wade through it on their rounds. One worker expressed the reservations that many laborers held when he concluded that “anything that will eat the parts off a man will surely kill a tree or a cow. And I bet it will give you cancer too.”\(^6\) While all these rumors proved unfounded, acid burns did pose actual risks to laborers. Under normal circumstances there was very little worker contact with the acid. However, a nozzle improperly screwed onto a bottle or a bottle punctured by the sharp edges of gutters or by hack blades could ooze acid onto workers hands.\(^7\) Producers were given the obvious advice to “never assign a leaking gun to a laborer. Good laborers can be kept longer this way.”\(^8\) If producers did not supply their workers with spray pullers, forcing them to use regular bottles and hacks instead, acid could easily blow down on a worker’s head and clothes. Laborers usually tried to make a quick pass with the spray in an effort to escape the drift, usually resulting in poor


\(^7\) Carl E. Ostrom, “Gum Yields Affected by Quality of Acid Applied to Streak,” The AT-FA Journal (June 1945): 6; John K. Cross, “Without a Doubt the Naval Stores Program Has Had a Profound Influence . . . ,” in Historical Background of the Naval Stores Conservation Program, Olustee Experiment Station Files, Georgia Agrirama, Tifton, GA, 4; “Naval Stores Equipment,” 9.

\(^8\) “Naval Stores Equipment,” 9.
coverage of the streak. Exposure to the acid was not especially harmful if the area of contact was washed immediately, but in the forest that was often impossible. If not immediately removed, acid ate through clothing and seriously burned skin. Such incidents were apparently all too frequent. At one St. Johns County, Florida operation, workers had to buy their own soda to treat acid burns. Another Florida laborer known as "Red Eye" had seriously-reduced vision from exposure to acid on his face.9

Despite the innovations of bark chipping and acid spraying, the basic seasonal pattern of turpentine work continued (fig. 13.1) and the tasks remained as challenging as ever. Since labor

Figure 13.1. Number of Wage Earners in the Gum and Wood Naval Stores Industries by Month, 1937
Joseph B. Hosmer, Economic Aspects of the Naval Stores Industry (Atlanta: Georgia School of Technology, State Engineering Experiment Station, 1948), 13.

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was paid by piece work, experience was required to perform the tasks rapidly enough to make a living. Experienced workers knew how to cover their task efficiently by taking the shortest and quickest route from tree to tree. But by the mid 1940s, tending the trees apparently required more walking than previously. Many of the second-growth stands had been burned and cut, creating stands so thin that workers spent as much as two-thirds of their time in the woods walking from tree to tree. They then had time to tend only five thousand faces a week, half of the number that had been expected of workers for well over a century. Experienced turpentine workers sometimes refused to work in such scattered stands where the piece work system ensured they would receive less pay.

Workers were expected to chip a certain amount each week which required most workers to labor all day, Monday through Friday, and half a day Saturday. But if rain during the weekday prevented work, laborers had to work all day Saturday and even on Sunday to catch up. Some camps had workers known as utility people who did not have a crop of their own but performed chipping in crops where certain workers got behind. As they maneuvered about the forest, workers faced several challenges and hazards. If the woods were not burned, as was frequently the case during the 1930s, the thick undergrowth made it extremely difficult for workers to move about. It took a full year for workers to beat down paths to facilitate easier movement. Snakes made travel through some areas potentially treacherous. On one pine-covered Florida island, for example, rattle snakes were so numerous that a worker who was promised a dollar for every one he killed quickly earned ninety-six dollars.

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Woodsriders remained an integral part of turpentine operations; they continued not only to keep the tally of piece work, but made sure that tasks were completely and carefully executed, and that tools were maintained in good condition. Most woodsriders were white, around ninety-five percent by one estimate. At particularly large operations, woodsriders during the period relied on subordinates called underriders who supervised twelve to sixteen individual workers. Once a week the woodsriver checked on the underrider. Although most underriders were white, some were black. As a rule, woodsriders seldom interfered in workers’ family matters or quarrels, but they would exercise their power to end a fight. The manager of a Georgia turpentine camp, in the 1940s, described his occupation as a fifteen-hour job. He hauled laborers to the woods, checked their work, took the sick to the doctor in Valdosta, paid their delinquent debts to local merchants, managed the commissary, and maintained law and order. The standard of living for most woodsriders probably fell below the median standard of southern whites. In 1932, for example, one woodsriver received a fifty dollar monthly salary and a house that he found infested with mosquitoes and without indoor plumbing.11

Woodsriders apparently continued to resort to brute violence to force unwilling workers to remain at their tasks. In the early 1930s, the manager and woodsriver at a turpentine camp in the Perry, Florida, area beat two black men, one severely, for refusing to work. To escape punishment for their brutality, they determined to remove the beaten men from the area. During the ride northward the car in which the men were riding overturned. The two black workers were so badly beaten, by one of the white accomplice’s admission, that “they could not lift a thing”

and were unable to help right the vehicle. Once more on the road, the party made it as far as Valdosta, Georgia, around sixty miles from Perry, where the black men were left with fifteen dollars each.12

As was the case since colonial times, producers, in the 1940s and 1950s, relied on cheap, black labor which they believed to be inherently unreliable. Almost all chippers, dippers, coopers, and ordinary still workers were black. Even as late as the 1930s, one investigator explained that for “generation after generation they have followed its [the naval stores industry’s] southward migration, and the majority of those engaged in it today are descended from a long line of turpentine workers.”13 A 1943 report by the Florida Writers Project explained that “the naval stores negro is in a class by himself. He knows his business and feels at home in the open woods, enjoys the free and easy atmosphere of his quarters remote from the city temptations that frequently got him messed up with the law.”14 One industry observer expressed the prevailing view held by whites, in the 1930s, when he explained that “the workers for the woods operation in naval stores production are almost entirely negroes, as the work is too severe and pay too small for white laborers. Too there is a feeling among the white workers that such disagreeable work is negroes work and that white men would demean themselves by doing it.”15 “The negroes are a shiftless class,” he complained, “and it is estimated that 3/4 of them are constantly in debt. Without any motive they frequently leave one producer and go to work for another, usually

12 Richard E. Smith, Federal Bureau of Investigation Report, 23 December 1936, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

13 Stetson Kennedy, Palmeto Country (New York: Duell, Sloan and Pearce, 1942), 261.


15 A. Stuart Campbell, Robert C. Unkrich, and Albert C. Blanchard, The Naval Stores Industry (Gainesville, FL: Bureau of Economic and Business Research, College of Business Administration, The University of Florida, 1934), 32.
leaving an unpaid debt behind.\textsuperscript{16} He recommended that producers establish a central agency to maintain records on the whereabouts of naval stores laborers as a means of limiting their movement.\textsuperscript{17}

Although the labor force in the gum naval stores industry remained predominantly black, more whites working in the pine forests during the 1930s than in previous decades. The number of small, white producers who performed their own labor rose, as did that of poor, backwoods farmers who engaged in turpentine production to supplement their meager incomes. The latter group constituted around four or five percent of the work force and performed the same tasks and received the same pay as black laborers. During the depths of the Depression, some unemployed whites, desperate for any work, threatened black turpentine laborers with death if they did not give up their jobs. After several hundred white men lost their jobs in 1932, for example, a group of six of the unemployed entered a turpentine camp and told the black workers that if they did not leave they would be shot the next night. Twelve to fourteen blacks fled for their lives and never returned.\textsuperscript{18}

Workers continued to be paid by piece work, not by the hour, and wages remained low. They were paid only once a month but could charge merchandise at the commissary throughout the period. At the end of the month, the woods rider or camp manager would calculate how much work had been done and then deduct the amount owed the commissary. If their accounts were in

\textsuperscript{16} Ibid., 32.

\textsuperscript{17} Ibid., 98.

\textsuperscript{18} Reed, interview; Robert Cook, “Photographing the Turpentine Industry at Cross City, Florida” in Writers Program, Florida, “Turpentine Camp at Cross City,” Department of Special Collections, George A. Smathers Libraries, University of Florida, 1; Florida Writers’ Project, “The Story of Naval Stores,” 14; Robert N. Lauriault, “From Can’t to Can’t: The North Florida Turpentine Camp, 1900-1950,” \textit{The Florida Historical Quarterly} 67 (January 1989): 315; Eldredge, \textit{The 4 Forests}, 42; E.F. Dean to Department of Justice, 1 June 1932, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
the black, workers received the difference in cash. During the Depression, however, wages fell
to levels that allowed only the most frugal laborers to remain debt-free (fig. 13.2). Whereas

![Average Weekly Gum Naval Stores Wages Per Wage Earner 1924-1940](image)

**Figure 13.2. Average Weekly Gum Naval Stores Wages Per Wage Earner, 1924-1940**

Donald Fraser Martin, Jr., “An Historical and Analytical Approach to the Current Problems of
the American Gum Naval Stores Industry” (Ph.D. diss., University of North Carolina, 1942),
339; For figures relates to chart see Appendix B.

workers could expect $1.25 for chipping a thousand faces in 1927, by 1933 they received
between 50¢ and 70¢. In an effort to attract the best chippers and thus receive the best output,
some producers paid more to workers chipping virgin faces. By the time the face reached waist-
high, the pay went down and regular chippers were used. Dippers, who in 1927 had made $1
from each barrel dipped, only earned between 40¢ and 60¢ in 1933. Workers could fill two to
five fifty-two gallon barrels a day, depending on the worker’s speed and the trees’ density.
Rapid laborers usually did not quit early, opting instead to accomplish more and receive more
pay. At these rates, turpentine workers made only $30 a month at the same time a common laborer earned $40. Even John Langdale, Judge Langdale's son, admitted that, in terms of pay, the naval stores laborer was on the "bottom of the totem pole."  

Almost all workers continued to languish in debt. Even hard workers could become deeply indebted to the commissary during periods of rainy weather or market downturns when work slowed and income dropped while commissary-purchasing continued. If a worker moved from one camp to another, whether both camps belonged to the same operator or not, he incurred a charge, sometimes as much as ten dollars. But if the worker remained at the job for a year, the moving charge was removed from his account. Older workers were especially susceptible to indebtedness. As aging laborers grew less physically capable, and their work pace slowed, their income, based on piecework, declined accordingly. Older workers were, however, reportedly permitted to continue charging groceries and supplies even though producers knew they had no chance of paying their debt. Sick workers also grew deeply indebted, not only because they were unable to work, but because the cost of medicine and doctor visits were charged to the operator, who paid the bills and added the amount to the worker's accounts. When a member of the camp died, the burial expenses created even great debt. Upon a death, everyone in the camp, including the boss, donated money, but rarely enough to cover the full costs. In at least one instance a dead man's family was unable to afford the funeral homes' fifty-dollar charge and opted to bury their relative themselves. Despite the challenges posed by a low standard of living.

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21 Workers, however, did not always resort to these expensive measures. Herb remedies and magic were common substitutes.
during the Depression, turpentine laborers found their situation less desperate than that of some sharecroppers. Unlike these poor farmers, who found themselves turned off the land as a result of New Deal agriculture programs, turpentine workers could at least depend on receiving food, clothing, and shelter—even though it was sparse and resulted in greater personal debt. For many, the period offered no better option.22

The plight of Depression-era turpentine workers was the subject of Georgia-born blues singer Tampa Red's (Hudson Whittaker) 1932 recording "Turpentine Blues."23

Turpentine is all right providing that wages are good
But I can make more money now out somewhere chopping cord wood

Turpentine business ain't like it used to be
I can't make enough money now to even get on a spree

I ain't gone work no mo, I tell you the reason why
Because everybody wants to sell, but nobody wants to buy

You can work in the fields, you can work at the sawmill too
But you can't make no money at nothing you try to do


So Lawdy please tell me what we turpentine people are gone a do
Lawdy please tell me what we turpentine people gone a do
We may work one week, but we got lay off a mon or two

Turpentine is like dying, shoot you up on the loose
Turpentine is like dying, just shoot you up on the loose
That's the reason why I've got those turpentine blues24

The example of distiller Jim Byrd, who worked for a large Florida operation in the 1930s, reveals how even a worker in a relatively high position in the gum naval stores industry could find his opportunities at once limited and better than most other alternatives. Byrd, a sixty year old black man, was originally from Bainbridge, Georgia. When he was young, he had helped his widowed mother with farm work so he received very little education. He started work in turpentine as a scraper in Georgia making $1.25 a day. By the 1930s, he made $15.00 a week as a distiller, but his salary barely paid for the basic necessities—rent, food, clothing, medical care, and life insurance. Although he received satisfaction from knowing that his employer valued his work highly, Byrd wished to become a farmer. He stayed in turpentine, however, because borrowing the money to farm would set him back too far financially and, as a distiller, he was able to support his family, better than if he took whatever work he could get as a common day laborer.25

Turpentine workers like Byrd continued to make most of their purchases from the commissary. At one commissary workers could buy such meat products as sausage and bologna, but fresh meats came from local farms. If commissaries lacked a needed item, it could be obtained by filling out an order. At one camp workers could even acquire suits this way. However, women sewed most clothes with cloth they purchased by the bolt from the


Commissary. In many cases, commissaries remained a practical necessity, the nearest town was usually fifteen to twenty miles away from the camp. However, in areas where commissaries took business away from merchants, resentments flared. In 1940, for example, Florida merchants unsuccessfully demanded that a judge order turpentine commissaries to pay the state sales tax required of all other retailers in the state.  

Commissary prices remained typically higher than those at ordinary retail stores, between ten and one hundred percent more. According to one estimate, commissaries made a net profit of twenty percent at a time when retail stores earned between five and eight percent. Producers justified the inflated prices in different ways. One maintained that “we weren’t in the grocery business. We just wanted to make up for bad debts.” Another explained that “of course we have to charge the niggers more, but they save in the long run. Just think how much it would cost them to drive thirty miles into town for vitals if they had cars.”  

Workers’ eating habits persisted with little changed from earlier periods and women continued to dominate food cultivation, purchases, and preparation. Staples of the turpentine workers’ diet remained pork—mostly fat back—corn—usually prepared as cornbread—sweet potatoes, beans, peas, collards, mustard greens, eggs, chicken, and occasionally beef. Along with the goods and produce purchased at the commissary and grown in family gardens, workers continued to supplement their diet with small game and birds men hunted in the woods, and fish, especially brim and perch, caught by women and children. According to one report, however,  

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26 Commissaries used a variety of methods to register worker purchases—tokens, check cards, and coupon books—which were advanced to workers and charged to their accounts, or they simply kept a tab. Reed, interview; Maguire, interview by author; Vail, “Old-Timer Remembers;” Wright, Old South, New South, 15, 199; Hurston, “Turpentine Camp—Cross City,” 2.

27 Wright, “Turpentining,” 114.

28 Kennedy, Palmetto Country, 259.
during the depths of the Depression, some turpentine workers subsisted on a diet of bread, sugar, and water. Workers’ wives prepared their breakfasts in time for them to get to the woods early in the morning, usually around 4:00 or 4:30. Wives also had to make their husband’s lunch and pack it in any available container. At one camp, an empty one-gallon syrup bucket served as a common lunch pail. At least once a brutal Cordelle County, Georgia woods rider beat a worker’s wife who failed to have her husband’s breakfast prepared in time.29

Workers continued to live in isolated quarters during the 1930s and 1940s. Most contained around fifteen cabins housing forty to sixty people. Camps built during this period consisted of more substantial two- and three-room cabins with exterior painted pine boards. Some had glass and screened windows and painted interior walls. A few possessed electric lights and running water. Women did not typically work in turpentine but did live in the quarters with their families. Although single men lived two or three to a cabin, nuclear families each had their own dwelling. Families usually kept their houses neat and swept their yards clean of all debris and vegetation, save for a few flowers. Backyard garden plots yielded collards and yams. Many families also kept a few chickens and a coon dog. But not all workers lived in the quarters. Because automobiles and paved roads provided easier access to local communities than in previous periods, an increasing number of workers lived in adjacent towns and commuted to work.30


Although workers had increasing access to towns, the camp church and especially the juke joint remained the principal forms of distraction from the monotonous work routine. One worker explained of turpentine laborers “that's all they got to do beside work—go to church and drink shine.” Camps usually contained a small church where either a visiting preacher or a worker led services every Sunday. At some camps, Baptist and Methodist preachers conducted worship on alternating Sundays. On weekdays after work a few laborers held prayer meetings on weekends after work. Turpentine workers who were religious tended to be very devout but a larger number of laborers still reveled at the juke joint, particularly on Saturday nights.

Typically operated by an entrepreneurial worker, jukes provided a place for laborers to drink moonshine, dance, and gamble. A few establishments also sold food such as hamburgers and fish. Along with food, sex could also be purchased at some of these establishments. Prostitutes roamed from camp to camp, usually arriving on payday. The juke on Saturday night retained its character as a violent place where fights and even murders were not uncommon. When revelry at the juke continued through Sunday, many workers were too hungover to work the next day. On such occasions one innovative woodsman administered his own hangover medicine consisting of a mixture of moonshine, 666 (a cold tonic), Raymond's Little Kidney Pills, Black Drought (a strong laxative), and any other medicine he had handy. The combination probably only exacerbated a hangover, but the woodsman claimed it left his laborers fully recovered for work the next day.32


31 Kennedy, Palmetto Country, 263.

32 Reed, interview; Florida Writers' Project, “Story of Naval Stores,” 14-15; Kennedy, Palmetto Country, 263; William P. Langdale, interview, 4-5.
Despite child labor laws, throughout the 1930s and 1940s children performed a limited amount of work at turpentine operations. Most commonly they dipped to support their families' income. Producers even issued different sizes of nail kegs as dip buckets to correspondingly-sized children. Children, along with women, also labored in nearby potato and cabbage fields, hundreds working at one time.\footnote{Reed interview; W.W. Barber to Newton, 14 April 1945, Dantzler Lumber Company Papers.}

Although not available to children at all turpentine camps, schools did become more accessible during this period. By the 1940s, some camps had one-room schoolhouses, but most commonly the church served as a classroom during the weekdays. Whether supported by the producer or the local county government, camp schools were notoriously underfunded. At a camp in MacClenny, Florida, in the late 1930s, one teacher was responsible for fifty-two children crammed into one room. At another camp, 250 students and 8 teachers were crowded into a church. In many cases teachers were traveling instructors who visited several camps during the week. Only six to nine grades were available and children were usually able to achieve a basic level of literacy at best. If, in the unusual case, a county school was nearby, children walked or were driven by a worker. No buses provided transportation.\footnote{Lauriault, “From Can’t to Can’t,” 325; Florida Writers’ Project, “Story of Naval Stores,” 15; A. Philip Randolph to Homer Cummings, 5 March 1937, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives; Hurston, “Turpentine Camp—Cross City,” 15; Wright, Old South, New South, 113-114; Kennedy, Palmetto Country, 262; Reed, interview; Meldrin, interview.} At some camps, however, no school of any kind was available within an accessible distance. Even where schools were available, several factors still discouraged regular attendance. When the weather grew warm enough for gum to run, attendance rates dropped thirty percent as children began assisting with dipping. During cold weather, some children failed to attend because they lacked warm clothing.
Along with limited educational opportunities and poor living conditions in camps, decades-old labor practices persisted. Worker recruitment continued in the tight labor market despite a gentlemen’s agreement among producers to refrain from such activity. Even in the late 1940s, a camp manager would leave for a nearby community carrying moonshine and a black worker who knew other men in the area who might be persuaded to change employers. After giving a recruit some drinks and bragging about the superior working conditions at his camp and the availability of jobs, a manager would bring the new worker back to the camp. In some cases cash advances were required to coax workers from their employers. Typical advances amounted to twenty-five dollars or less, although during the periods of greatest labor scarcity advances could rise as high as five hundred dollars. Some recruiters employed more creative means of attracting laborers. One black Florida voodoo practitioner employed magic to attract labor for his employer. On a recruiting mission to Georgia when prospective workers proved unwilling to accept his offer, he rubbed two pebbles together, glared at the men, and threatened to hex them if they did not return with him. The prospective workers then obediently climbed into his waiting truck. No matter the means used to hire workers, the following Monday morning, as was common, the manager would arrive at the recruited worker’s former camp, collect his belongings, and pay off his account.

Turpentiners attempted to control their labor by closely monitoring their quarters, an activity made possible by the camps’ continued isolation in the pine wilderness. As had been the case since the antebellum era, many were located between twelve and twenty miles from the nearest road and could be reached only by a company road winding through murky swamps and dense forests to an inaccessible spot. One member of the Florida Writers Project found the area

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35 William P. Langdale, interview, 3; Kennedy, *Jim Crow Guide*, 137; Federal Writers’ Project, *Florida*, 377; Richard E. Smith, Federal Bureau of Investigation Report, 12 November 1936, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

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between Cross City and the Gulf, where many camps were scattered, to have no towns, the open pine flats broken only by small cypress swamps and hardwood hammocks, and the region penetrated by only a few long dirt roads. Turpentiners and free-range hog and cattle raisers were commonly the only inhabitants in such regions. Many producers wanted to know the business of all who visited the camp and any details of outsiders’ discussions with workers. One investigator of forced labor practices succeeded in gaining access to a camp in Front Cove, Florida, only after he told the manager he was there to record folk songs. Once the songs were recorded and the satisfied boss left, the investigator began his interview. With the white boss gone, one worker admitted that “the only way out [of the turpentine camp] is to die out. . . .”

Some turpentine producers went to considerable lengths to protect their precious labor force. In the summer of 1936, for example, Bunnell, Florida, turpentine producer George Allen had the local sheriff detain three young men whom he feared were recruiting his workers. Two turpentine laborers in Allen’s employment had sent word requesting employment with another producer, W.J. Ward, of Baldin, Florida, approximately fifty miles to the northeast. But when Ward’s two sons, Kevin and Leslie, and a black man named Giles arrived at Allen’s quarters they were ambushed by Allen’s men who forced the three into a car and drove them to the county seat of Bunnell. There the sheriff and Allen locked them in the jail on the charge of “being unlawfully in the quarters of Mr. Allen’s camp.” The sheriff released them with Allen’s approval only after they spent a week in jail and vowed never to return to the area nor attempt to recruit any more of Allen’s turpentine workers.

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36 Lauriault, “From Can’t to Can’t,” 327; Cook, “Photographing the Turpentine Industry at Cross City, 5; Duncan, “Report on Trip to Cross City,” 1,4; Federal Writers’ Project, Florida, 376; Maguire, interview, St. Augustine Historical Society.


38 Richard E. Smith, Federal Bureau of Investigation Report, 12 November 1936, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
This example of restricted labor movement and further evidence suggests that peonage remained a common practice in the 1930s. An investigator with the Workers Defense League found that "peonage is nothing unusual in Florida. There are several sections in which it flourishes but these are veritable 'no-man's lands' where one must tread softly if wishing to live." When one turpentine worker, James Day, escaped from a turpentine camp in Manioh, Georgia, the owner falsely claimed that Day owned him two hundred dollars and held his four small children as ransom for his return. After unsuccessfully appealing to the U.S. District Attorney and the FBI, Day went to court for the return of his children only to be jailed for abandoning them. The sheriff offered to release Day only if he agreed to return to the producer for work. In another instance, Lige James Johnson, a black turpentine worker for Charles A. Gaskins near Wewahitchka, Florida left his job free of debt for employment in Panama City. But in 1938 Gaskins alleged that Johnson owed him thirty-five dollars and forced him to return to the turpentine camp for four more months of work. Three years later Gaskins claimed, after examining his books, that Johnson still owed him twenty-two dollars and wanted him to return to the camp. This time Johnson resisted, a struggle ensued, and Johnson was forced into Gaskins' car. During the thirty-mile long ride back to the camp, Johnson jumped from the car and ran into the woods. Gaskins' subsequent trial for peonage attracted the attention of the American Turpentine-Farmers Association. Fearing that Gaskins' conviction might disrupt the industry's labor practices, the association lent the services of its own attorney to the defense. Despite their efforts, however, Gaskins was convicted of peonage. But on appeal, the U.S. District Court in Pensacola overturned the conviction, citing that Johnson had escaped from the car before

returning to work at the camp. Thus Gaskins had attempted but not succeeded in placing
Johnson in debt servitude and consequently was not guilty of a crime.40

Two powerful institutions historically associated with the naval stores industry—
factorage houses and the criminal justice system—helped perpetuate the peonage system. Factors
would only advance capital to producers whom they trusted to manage an operation profitably.
The secret to success, as one former producer explained, “was that if you could handle the labor,
most all turpentine labor was black, if you could handle those and knew how to get the work out
of them, well then you could get along with the factors pretty good because you could operate.”41
Although the official leasing of convicts had ended in the early 1920s, the practice continued to
be sustained by the criminal justice system. If a worker left an operation, his employer could
have him charged with a crime, taken to court, convicted, and then sentenced to the worker’s
choice of either twelve to eighteen months in prison or a fine. Workers typically chose the latter.
The employer then paid the fine, obligating the convicted worker to labor for him to pay off the
debt. The sheriff usually threatened the worker with the chain gang if he left again.42

The absence of labor union activity in the gum naval stores industry allowed such abuses
to go largely uncontested. Although many of the white laborers, who dominated the skilled
positions at pulp and paper mills were organized, the majority of black workers involved in
harvesting timber and stumps and virtually all of the gum naval stores were not.43 A. Philip

40 Kennedy, Jim Crow Guide, 40; Shofner, “Postscript to the Martin Tabert Case,” 171-

41 Reed, interview; Harley Langdale, Jr., interview, 7.

42 Shofner, “Postscript to the Martin Tabert Case,” 164-167; Reed, interview; Pete
Press, 1990), 180.

43 Eldredge, The 4 Forests, 43.
Randolph believed that black workers were exploited "because there is no labor organization in the South that has the strength and power to prevent the exploitation of Negro and white workers."  

The investigation and trial of turpentine worker Will Knabb demonstrates the degree to which peonage and brutality persisted among some producers. On October 13, 1936 three black turpentine workers—Ed Backer, his son-in-law Arthur Smith, and Alfred Smith—decided to quit work for Knabb to find better wages. They came to R.T. Boyd's residence in Coleman, Florida, and requested work at his still. They also asked that a truck be sent to MacClenny, Florida, to move their belongings and that Boyd pay their accounts. The next day Boyd and a worker named William Simpson went to MacClenny to move the three men and their families and settle their debts. Boyd first settled the account of Alfred Smith for $9.22 at a separate camp under the management of Knabb's son Earl, for which Boyd received a receipt. He then loaded Smith's household goods onto his truck and proceeded to MacClenny to Camp 17 to settle the other accounts and load the other two workers' belongings. But upon entering the Camp 17 office, Boyd found the owner Will Knabb, his woods rider Fred Jones, and Earl Knabb, who had proceeded them to MacClenny, all armed with pistols. Knabb refused to let Boyd take the three workers and accused him of recruiting his labor, at the time a crime in Florida. The three men cursed and threatened Boyd. Laying his hand on his pistol, Knabb informed Boyd that he could not leave the office until he accepted the return of the $9.22 he had paid Earl on Alfred Smith's

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44 A. Philip Randolph to Homer Cummings, 5 March 1937, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

45 The Florida statute read that "whomever shall entice or persuade by any means whatsoever any tenant, servant or laborer, under contract with another, whether written or verbal, to violate such contract, or shall employ any servant or laborer, knowing him or her to be under contract or aforesaid, shall be punished by imprisonment not to exceed sixty days or $100.00 fine." C.B. Winstead, Federal Bureau of Investigation Report, 19 March 1937, Ibid.
account. Knabb also claimed that Arthur Smith owed between thirty and forty dollars for burning part of a forest. The three men forced Boyd to unload Alfred's belongings at Camp 17. In the meantime, Knabb called Alfred and Arthur into his office and asked if they were trying to leave. Upon replying in the affirmative, they were threatened with severe beatings, a response reported to be typical of Knabb when disciplining workers who attempted to leave.

Several days after the incident, Ed Baker escaped and made his way to Boyd's camp, but his wife, daughter, and belongings remained with Knabb. Knabb warned the two women that he would have their shack guarded and if they left he would have them arrested. Knabb also prevented the Smith men from leaving the camp, and they continued work in the woods. In an effort to at least get Alfred and Arthur out, Ed sent word for them to meet him in Baldwin, Florida early one morning and rendezvous with Boyd's truck on its run to Jacksonville with a load of turpentine and rosin. According to the plan, the Smiths left the camp at night, walked along the highway, and reached a depot by daylight. But before the Boyd truck passed, Ed Hall, one of Knabb's woodsriders, drove up. When Hall instructed Arthur to get in his truck he complied. But when he approached Alfred and explained, "boy, Mr. Knabb sent me down and told me to bring you back," Alfred refused. When Hall then approached him with a gun, he ran for cover behind a box car. Because a group of whites were watching, Hall retreated to his truck and left with Arthur. Alfred, however, failed to meet the Boyd truck, returned to Knabb's camp, and went back to work.

A few days later the FBI Jacksonville Bureau Office received a letter from Boyd describing the experience surrounding his attempt to remove the three workers from Knabb's employment. On October 23, 1936, Boyd, Simpson—who had accompanied Boyd to Knabb's

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camp—and Ed Baker all visited the Jacksonville office and related the story in person. A week and a half later, Will and Earl Knabb, Fred Jones, and Ed Hall were subsequently charged with peonage violations and taken into custody by Bureau agents and U.S. Marshals. All three men pleaded not guilty and were each released on one-thousand-dollar bonds. Once the Knabbs were arrested, Arthur and Alfred Smith and Baker’s wife and daughter were all moved to Boyd’s camp, where they became his workers.48

The inquiry and trial drew considerable attention from the press and concerned organizations. By the fall of 1936, newspapers across the country carried stories of Knabb’s operation. The NAACP and Workers Defense League sent investigators of their own. The NAACP urged the Justice Department to thoroughly investigate and prosecute the Knabb men. AFL president William Green demanded that Florida governor David Sholtz lend his state’s full resources to the investigation. When the AFL sent its own agent to inspect conditions, he experienced first-hand the intimidation that made the labor system work. Fearing for his own safety after an informer notified the manager of his presence and a small group of white men gathered, the agent left the camp after two hours. The president of the Federation’s Jacksonville branch submitted a report on the plight of Knabb’s laborers.49 Boyd hoped that the AFL would “continue to make efforts to clean up the situation which now exists in not only Florida but possibly other places.”50


49 Shofner, “Postscript to the Martin Tabert Case,” 168-170; W.G. Boyd to Dave Sholtz, 1 December 1936, Walter White to Attorney General, 8 December 1936, and A. Philip Randolph to Homer Cummings, 5 March 1937, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.

50 W.G. Boyd to William Green, 1 December 1936, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
According to workers interviewed by the NAACP, all of Knabb’s four hundred black laborers were held in peonage. Workers labored from sunup to sundown and received from sixty cents to one dollar per day, although a few received $1.25. It was rumored in the community that, although Knabb kept accounts of wages owed to workers, they received smaller amounts than they were due on payday and met with serious consequences if they complained. Workers were forced to make all their purchases from the commissary, where prices were one hundred percent higher than at retail stores. Thus their low wages had only half the buying power they would have with area merchants. For example, white bacon or fatback, which cost 15 cents in Tampa, cost 25 cents in Knabb’s commissary and six pounds of flour, which cost 24 cents elsewhere, cost 40 cents if purchased from Knabb.51 One woodsraider, in fact, discontinued his employment with Knabb after two years because he did not approve of the way the camps were operated. He admitted that “the general feeling of people acquainted with the turpentine industry is that the Knabbs are unfair to their employees, and that they are hard to get along with, especially Will Knabb.”52 Knabb ran his various turpentine operations like small police states. He had all roads leading to the quarters watched, and two spies lived among the workers, even crawling under the shanties to discover dissatisfaction or escape plans. If workers attempted to leave, Knabb threatened their lives and had them beaten. Because labor was so scarce, it was Knabb’s policy to punish workers but not dismiss them. When one of Knabb’s woodsriders


52 Richard E. Smith, Federal Bureau of Investigation Report, 23 December 1936 Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
dismissed a worker for calling him a liar, an unhappy Knabb explained that it was “all right to whip them, but not to run them off...”

The Knabb case illustrates the difficulty prosecutors found in securing convictions in peonage cases. When questioned about the fear of peonage charges, Knabb responded with sarcasm and arrogance that “there isn’t any such thing in Florida. I have been doing that for 19 years and there hasn’t been any charge of peonage made against me, and nobody has tried to stop me.” Knabb’s powerful friends, including state senators, reportedly sought to interfere with the case. Will Knabb’s brother, T.J. Knabb, had been a state senator and turpentiner and had himself been the subject of an earlier peonage investigation. Another brother who was associated with Will in the turpentine business was the president of the Bank of MacClenny. Knabb’s supporters made efforts to tamper with government witnesses, actions that Boyd explained were “very easy when negroes are offered money or either intimidated to forget what they know.” A local doctor who believed that the Knabbs were capable of practicing peonage, thought that they considered themselves “to be the cock of the walk” in Baker County. Boyd wrote to the governor requesting help as well as to the U.S. Attorney General explaining the seriousness of the case. “I do know,” he proclaimed, “that if the Federal Government fails in


54 Ibid.


56 W.G. Boyd to J. Edgar Hoover, 28 December 1936, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.


58 W.G. Boyd to Homer S. Cummings, 1 December 1936 and W.G. Boyd to Dave Sholtz, 1 December 1936, Ibid.
this attempt at this time to bring about justice what will take place hereafter in the turpentine and operation of same, slavery and servitude here in Florida. It will show that the Knabbs not only control the territory surrounding McClenney (sic) but that they are bigger than the Federal Government as they have often made their brags." 

The trial’s outcome did nothing to disprove Boyd’s claim. Earl Knabb was dismissed from the case by the District Attorney, who decided the evidence did not involve him. Before the trial the defense attorney argued that the indictments reference to “a condition of peonage” was vague and uncertain to the degree that the defendants did not know the nature of the charges against them. Once the trial was under way, the defense argued that the peonage charge represented nothing more than a rivalry between turpentine operators and had grown from Boyd’s frustrated efforts to recruit labor from Knabb’s camp. The defense also intimated that the lawyers representing Boyd had demanded $16,000 in “hush money.” Even after listening to this implausible defense, the jury deliberated for less than thirty minutes before acquitting Knabb and his men of all federal peonage charges.

Not all camp managers fit the mold of Will Knabb. At one Cross City, Florida operation a group of Federal Writers Project workers, which included Zora Neal Hurston, encountered a thirty-two year old widow serving as vice president and overseeing production. They described her as a “brunette, not bad to look at—by no means. Not the business girl, nor the athletic type, nor the purely feminine kind, but something of all this. Beyond that, she knows her business. Dons blue riding breeches, boots, striped shirt and bandanna neckerchief and goes right to work. . . . She seems more capable and intelligent than she knows herself.” She also appeared to be

59 W.G. Boyd to Homer S. Cummings, 1 December 1936, Ibid.

60 Motion to Quash and “Witness Arrested As Perjurer, 2nd Held For Contempt,” newsclipping, Ibid.
decent, agreeable, and completely unaware that her business practiced peonage and violently mistreated its employees.\footnote{Lauriault, “From Can’t to Can’t,” 326-327.}

Not only did forced labor practices continue into the 1930s and 1940s, so did the timber lease. The majority of producers, around seventy-three percent, leased the crops they worked. Leasing was most common in South Carolina, where 81.5 percent of the crops were not owned, and practiced the least in Alabama where producers leased only 65 percent of their crops. Evidence suggests that leased tracts became more available in the 1930s. Lumber companies dramatically reduced their output, in some areas by as much as two-thirds, and grew more willing to lease their forests to turpentine producers. Lease prices, however, do not appear to have declined substantially. Because producers commonly controlled their leases for four years, those who made agreements in early 1929 faced pre-Depression lease prices through 1932. But even for those turpentiners negotiating leases in 1933, the rate had dropped by only sixteen or seventeen percent from the late 1920s. Land owners had to charge at least enough to pay the property tax, keeping lease prices elevated.\footnote{Donald Fraser Martin, Jr., “An Historical and Analytical Approach to the Current Problems of the American Gum Naval Stores Industry” (Ph.D. diss., University of North Carolina, 1942), 236; Elwood R. Maunder, \textit{Voices From The South: Recollections of Four Foresters} (Santa Cruz, CA: Forest History Society, 1977), 88; I. James Pikl, \textit{A History of Georgia Forestry} (Athens: Bureau of Business and Economic Research, University of Georgia, 1966), 2; Campbell, et al., \textit{Naval Stores Industry}, 27-89.}

Provided the lessee used conservation methods, timber owners could make more money by leasing their timber before cutting it than leaving it to grow undisturbed. In most cases the mortality rate among turpentinined trees was not noticeably different from that of round trees. And because improved methods reduced growth by only five percent over four years, landowners still profited by working their stands for turpentine despite the lost wood growth. But leasing timber continued to pose some risks. Beetle infestation could bring serious destruction to turpentinined
timber no matter how carefully a lessee worked it. Timber owners also ran the risk of serious
tree damage if they leased to sloppy and unscrupulous producers. In the late 1930s and early
1940s, one owner, for example, leased to an uncooperative and careless operator with disastrous
results. The latter's violation of approved practices included cupping trees smaller than 9.5
inches in diameter, failing to properly rake around the trees at the end of the season, running
chipped faces together without leaving any strip of live wood to sustain the tree, and using a
large hack which produced deep and broad cuts. Worst of all, he failed to remove all nails and
aprons from the stands that he had finished working. Once at the mill, saws repeatedly hit nails
embedded in the wood, causing considerable damage to the blades and seriously endangering the
workers. Landowners worried that even the most informed producers would harm their timber
with fire. In 1936, one consultant informed a landowner that even though the lessee was “a
member of our Forestry Commission and favorable to protecting young timber from fire, it is just
as natural for a turpentine man to want to bum woods where he is operating as it is for a canary
to sing, and unless some restriction with reference to the use of fire is inserted [in the lease],
great harm is liable to be done young timber and seedlings.” Turpentiners resented the
stereotype, arguing that it was illogical for them to incinerate that from which they made their

63 Nails in turpentined trees had been a persistent problem for the mill. Between 1938
and 1942 a saw struck nails a total of 1,713 times, causing a total of $4,343.21 in damage. When
confronted, the producer would only admit to chipping accidentally too deeply and claimed the
nails were left from the turpentining of the same timber years before. The angry landowner
considered halting turpentining but feared the producer would leave his equipment mounted on
the trees in retaliation. With so much equipment in the forest and labor scarce, the timber owner
had no way of removing it without lessee's cooperation. Shirley, Working Trees for Naval
Stores, 5; Clifford S. Schopmeyer, “Gum Yield and Wood Volume on Single-Faced Naval Stores
Trees,” reprinted from Southern Lumberman (15 December 1955), Olustee Experiment Station
Files, Georgia Agrirama, Tifton, GA; P.N. Howell to W.W. Barber, 14 March 1943, W.W.
Barber to Newton Naval Stores Company, 23 February 1942, Newton to L.N. Dantzler Lumber
Company, 24 April 1943 and 7 August 1942, and P. N. Howell to E.J. Ford, 3 April 1943, and
W.W. Barber to P.N. Howell, 13 January 1941, Dantzler Lumber Company Papers.

64 P.N. Howell to L.N. Dantzler Lumber Company, 23 November 1936, Dantzler Lumber
Company Papers.
living, yet some of them feared that their laborers would accidentally set blazes with camp
fires.65

Thus, many conditions long associated with turpentine production persisted, the timber
lease and threat of fire among them. Producers continued to organize labor according to the task
system and pay by piece work. The low-paid black men who dominated the labor force
continued to work in rough terrain under the watchful eye of woodsriders who considered
violence and brutality necessary measures for labor management. Workers lived in isolated
camps where they remained indebted to the commissary. Driven from the open by U.S. Justice
Department investigations, peonage continued as did efforts by producers to recruit or "steal"
workers from one another.

Not all industry patterns continued, however. The number of small producers rose
rapidly beginning in the late 1930s, due in large part to the growth of central distilleries. These
large gum processors eliminated the need for capital to own and run a fire still and made it
possible for owners of small timber tracts to enjoy a greater return by working their trees for
turpentine themselves rather than leasing to large producers. Small owners thus began working
their own pines, commonly employing their sons as laborers, and marketing the gum at the
nearest central distillery. Men who possessed no land occasionally found timber owners willing
to let them work land on shares for turpentine. Blacks made up a substantial portion of these
new share producers. Unlike black turpentine wage earners, share workers labored
independently and, because their production expenses were low, did not need to rely on advances
as did agricultural share croppers. During the Depression and especially the Second World War,
out of pocket expenses for small producers were low enough and naval stores prices sufficiently
high to bring an attractive profit. Their rapid entry into naval stores production greatly altered

65 P.N. Howell to L.N. Dantzler Lumber Company, 23 November 1936 and Robert M.
Newton to P.N. Howell, 15 October 1937, Ibid.
the industry's makeup. In 1934, the typical turpentine worker worked nearly ten crops and employed thirty workers in gum production and just over two in distilling. Eighty percent of these producers had their own still which, on average, produced 435 units annually. But from the early 1930s to the mid 1940s the number of turpentiners grew from six hundred to between four and five thousand, seventy percent working less than one crop of faces.66

In yet another change, the factorage houses entered a decline during the 1930s. In the early years of the decade, around eighty percent of naval stores were marketed through factors as they had since at least the early nineteenth century. One southeastern Georgia producer's factor, for example, loaned him operating capital, marketed his product, and sold him supplies and equipment. In another instance of the factors' power over operators, in the early 1940s one Jacksonville factor strongly recommended that a producer not invest in a new centrifugal pump for his still, directing him instead to have the Glidden Company central distillery refine it. This factor also reminded its clients of the importance of working within the guidelines of the NSCP to remain eligible for benefit payments. Consolidated Naval Stores Company remained the largest factor in the United States with a tangible net worth, in 1935, of eight million dollars, or seventy-five percent of all the other ten houses combined.67

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By the late 1930s, however, growing dissatisfaction with the factorage system developed among producers. They complained that factors and dealers did not initiate any consumer marketing strategy, but instead just took orders for what was available instead. Because gum turpentine producers had competition from wood naval stores, producers demanded more aggressive efforts to retain their market share. They also alleged that factors encouraged overproduction because they benefited from commissions on the extra sales, regardless of the resulting low naval stores prices, and profited from the investment in additional loans and equipment sales. Producers especially resented the recent vertical integration of factorage houses like Consolidated, which controlled not only the marketing of products and the supplying of investment capital, but also manufactured the equipment, marketed the groceries needed to stock the commissaries, and even competed with producers by running their own operations. Another complaint was that factors were expensive at a time when economic efficiency mattered more than ever. The factor charged two and a half percent commission for each transaction, with eight percent interest for all capital advances. Harley Langdale, Jr., the Judge’s son, likened factors to loan sharks. Some producers even began questioning the factors’ honesty, suspecting that they conspired with bankers and exporters to manipulate prices for their own profit. Although producers resented the paternalistic relationship between themselves and their factors, most considered them necessary evils. They had, after all, helped many operators begin their businesses at a time when they had nothing at all. Judge Langdale, who himself had experienced great difficulty working his way out from under his factor, saw them as a necessary, stabilizing force in the industry.68

With the government's entrance into market regulation and the rise of centralized distilleries, however, producers found it somewhat easier to loosening ties to their factors. The factor was now no longer the principal voice in an operator's production practices. Under the Naval Stores Conservation Program, turpentiners needed to satisfy the Forest Service's requests just as much as their factor's, although both parties were usually in agreement on recommendations. In the American Turpentine-Farmers Association producers also had a new, powerful voice with considerable political clout and capable of influencing national policy. But the shift from processing gum in fire stills to centralized distilleries undermined factors the most. Producers could now sell their gum directly to the central distillery and not wait for the factor to find a buyer or pay a handling fee. Moreover, in reducing the operating expenses by eliminating the need for each producer to run his own still, the central facilities decreased producers' reliance on factors. The entry of new types of producers spurred by the central distilleries also weakened the factors' position. The many new small operators harvested gum largely with their own labor and had very low production costs that did not require the factor's financial services. Smaller producers were usually able to secure loans from banks, relieving themselves of any need for a factor. Not only was the region's banking industry better developed by the 1940s than at any other time, but small producers tended to own their own timber, which banks accepted as collateral. They also required only small loans, just enough to cover the cost of the hardware needed to place their trees in production.69

Surprisingly, factors failed to lead the industry's construction of central distilleries. The uncertain business climate of the 1930s caused their hesitation to invest in these expensive and technologically revolutionary facilities. By the time very large producers and consumers

69 Kayton, interview, 4-5; Eldredge, interview, 9-10; A.R. Shirley, "Gum Naval Stores Long Linked With Industrial Development" Valdosta, Georgia Daily Times, 18 November, 1959.
constructed enough of these plants to prove their profitability, the region was well on its way
toward containing as many facilities as its gum producers could keep in business. Desperate to
have part of the market share, by the early 1940s such companies as Turpentine and Rosin
Factors of Jacksonville and the giant Consolidated Naval Stores Company, bought interest in
existing stills, but they were too late to gain any control in the processing. Because factors
failed to adapt to changes in gum naval stores processing and marketing, their businesses rapidly
decayed and, by the second half of the 1940s, played a minor role in the business.

Although the great majority of producers gladly accepted the weakened role of factors,
associated with government intervention in production and development of central distilleries,
not all makers welcomed the changes. In 1939, the AT-FA faced a temporary challenge from a
rival organization frustrated with industry trends. Organized in Vidalia, Georgia, the Gum
Turpentine Farmers Cooperative Association believed that the AT-FA had failed to address
circumstances that reduced the operators’ control of the industry. The Cooperative opposed what
its organizers charged were exploitatively high interest rates and commission charges by factors as
well as the trend toward central distillation, which they argued lessened the operators’ control of
the industry by reducing them to the status of mere gum producers, not manufacturers of spirits
and rosin. Organizers were also dissatisfied with what they considered the AT-FA’s failure to
promote cooperative processing and marketing strategies. The Gum Turpentine Farmers
Cooperative Association’s efforts and organization were short-lived, however. Most producers
were happy to rid themselves of the expensive and troublesome task of distilling their gum and
many could already foresee decline in the factors’ industry position, making any new program to
curb their power unnecessary. Moreover, the government already administered satisfactory
marketing and production regulation programs 71


71 Ibid., 283.
Whereas such developments as an increase in small producers and decline of the factorage houses' represented significant changes during the 1930s, the Second World War set in motion circumstances that transformed the entire business. When it began in Europe in 1939, the war created uncertainty in the gum naval stores market. Although many European buyers clamored for the products, interruption in shipping traffic made export difficult (figs. 13.3 and 13.4). In the winter of 1940, for example, the Continental Turpentine and Rosin Corporation of Laurel, Mississippi, had difficulty receiving British Navicerts, commodity passports required to accompany goods aboard neutral ships. Because of the resulting shipping delays, the company's barrels of rosin sat at port, drawing charges for storage and insurance. When shipments were finally possible, the company had to pay astonishingly high freight charges.72

With American entry into the conflict, wartime demand for rosin industry transformed supplies of that product from surplus to shortage, and the Naval Stores Conservation Program, whose initial mission had been to reduce production, shifted to encourage naval stores manufacture for the war effort.73 Such companies as Filtered Rosin Products attempted to recruit new producers with a booklet explaining the basics of gum naval stores production and by offering assistance to anyone desiring to enter the business. The company assured operators that "crude gum production for turpentine and rosin is a vital necessity for victory. Produce more of

72 Continental Turpentine Company and Rosin Corporation, Incorporated to Cordell Hull, 13 February 1940, William M. Colmer Papers, Archives and Manuscripts Division, McCain Library and Archives, University of Southern Mississippi; For figures related to the volume of naval stores exports by country and the value of United States naval stores exports see Appendix A.

73 Arthur G. Steedley, "Doctors, Lawyers, Teachers, Merchants, and Widows, Call to Ask Advice.," in Historical Background of the Naval Stores Conservation Program, Olustee Experiment Station Files, Georgia Agrirama, Tifton, GA, 12; Thomas, McCranie's Turpentine Still, 8.
Figure 13.3. United States Turpentine Exports, 1930-1940

Figure 13.4. United States Rosin Exports, 1930-1940
it and buy victory bonds with your larger income.” The Newton Company circulated a similar publication to help producers realize the maximum yield from their faces. NSCP foresters, for their part, put on “Naval Stores for Victory Shows” to encourage production expansion. With a few musicians, a truck full of war equipment, and one or two wounded servicemen, they preached the message that “no ship can sail, no plane can fly, and no soldier can eat or fight without naval stores.” By 1942, the U.S. Department of Agriculture estimated that of the approximately thirty million acres of pine in the naval stores region, sixty percent was in production and 400,000 people depended, at least partially, on the products manufacture for a living. But despite these large numbers, turpentine and rosin demand exceeded production throughout the war. With a goal of 350,000 units, the industry could only supply 250,000.

An increased demand for lumber and pulpwood relative to naval stores created part of the difficulty. From 1939 to 1942 lumber production in Georgia nearly doubled, from 1.09 billion board feet to 2.07 billion board feet. Pulp and paper industries were attracted to the South’s rapidly growing second-growth forest, cheap labor, and good transportation systems. By 1939, forty-seven paper mills operated in the South, representing an investment of two hundred

74 M.E. Henegar, Gum Naval Stores Timber Land Use: Information and Suggestions (Brunswick, GA: Filtered Rosin Products, Inc.), Olustee Experiment Station Files, Georgia Agrirama, Tifton, GA, 6.

75 M.E. Henegar, Slash and Longleaf Pine Growers Handbook: Practical Information and Suggestions for Growing, Protecting, and Realizing Maximum Utilization (Lake City, FL: The Newton Company, Incorporated), Olustee Experiment Station Files, Georgia Agrirama, Tifton, GA.

76 E.O. Powers, “‘With Pearl Harbor Our World, of Course, Turned Upside Down,’” in Historical Background of the Naval Stores Conservation Program, Olustee Experiment Station Files, Georgia Agrirama, Tifton, GA, 8.

million dollars. With a growing market for smaller timber, landowners were more willing to sell their trees untapped than risk part of its value to the sometimes unreliable work of turpentiners. Indeed, even if producers used the most conservative techniques, owners could still lose part of their timber is value.\textsuperscript{78}

An acute labor shortage, however, explains most of the difficulty in meeting wartime demands for naval stores. With workers willing to chip and dip already scarce, the labor shortage further intensified once the United States government requested that operators increase production by fifty percent for the war effort. In November 1941, Harley Langdale insisted to Washington officials that operators must greatly increase wages in order to retain their present workers and attract others who had already left for better-paying jobs. He explained that where farmers could rely on machinery to increase production, gum turpentine producers relied completely on man power.\textsuperscript{79} The following year a producer lamented that he was making all he could, but because of the labor shortage his production was less than fifty percent of its potential. He complained that the army was drafting his turpentine workers, but worse, a “large part of our turpentine labor, both white and black are on W.P.A., and so far, my efforts to get them back in to the turpentine business has been a failure.”\textsuperscript{80}


\textsuperscript{79} Harley Langdale, Memorandum Regarding Gum Naval Stores, 10 November 1941, Colmer Papers.

\textsuperscript{80} Cliff Dees to Theodore G. Bilbo, 26 February 1942, The Papers of Theodore Bilbo, Archives and Manuscript Department, McCain Library and Archives, University of Southern Mississippi.
Problems securing adequate labor persisted throughout the war. The federal government’s wartime Office of Price Administration set prices of naval stores so low that producers were reportedly unable to raise wages to attractive levels without incurring a loss. Nor could the industry successfully compete for workers with other forest product industries in the naval stores belt or with the war industries that lured rural workers to the cities. Under the wage rates set by the War Labor Board, naval stores workers earned around seventy-five percent of the minimum standard of $28.60 per week. Despite the federal government’s request for greater gum naval stores production, its manufacture continued to drop through the war years because of inadequate labor supplies. To remedy the crisis, turpentine producers recommended that the government raise the price of naval stores by $18 per unit, or $1.33 1/3 per one hundred pounds of rosin. Eight dollars of the $18-increase would be applied to chippers’ wages, $2.80 to dipping, and $7.20 to other labor. Opponents of raising the price ceiling admitted that wages in gum naval stores production were substandard and that the basic obstacle to production increases was a manpower shortage. But they doubted a price adjustment would remedy the situation since there was no guarantee that producers would use the increased returns to raise wages. No minimum wage standard existed in the business to compel them to do so. And even if wages did rise, they still might not attract a significant number of additional workers. Moreover, the severe shortage of gum rosin, they alleged, was not solely the result of a labor shortage, but partially caused by speculative withholding of stocks in anticipation of profits once the price increase was granted. Despite such warnings, in early May 1945, the War Food Administration recommended that the maximum price for base-grade gum be increased by at least ninety-five cents per one hundred pounds. At this time the price ceiling was already 254 percent over that of the 1939-1940 season and even 143 percent above that of the previous season.81

81 The Labor Board set wages at 55¢ per hour plus time and a half for over-time. Forty hours at 55¢ equaled $22 plus eight hours at 82.5¢ equaled $6.60 or $28.60 per week. Jay Ward to Theodore G. Bilbo, 9 May 1945, Claude Pepper to Chester Bowles, 11 May 1945, Robert M.
As severe as the labor scarcity was, it could have been much worse. Changes in the industry had already eliminated the requirement for two historically important classes of laborers, coopers and distillers. The need for coopers gradually declined as the manner in which turpentine and rosin were packaged changed. By 1930, most producers purchased factory-made, tightly-constructed spirit barrels, which were made of oak. Coopers still had to coat the barrels’ inside with glue to properly seal them. Glue was purchased in a brick form, melted on a small stove, and, once liquefied, poured into the bung hole. The cooper then rolled the barrel until the inside became evenly coated. Distillery workers poured spirits in only after the glue dried. At some operations coopers continued to construct wooden rosin barrels from machine-cut staves. Wooden barrels become prohibitably expensive. Moreover, the metal barrels did not possess several problems associated with wooden ones. Unless the staves were well-seasoned, wooden barrels shrank as they dried and allowed the rosin to leak. Wood barrels used to hold the NSCP loan stock could not endure more than two years in storage before decay required rebarreling at considerable expense. Wide weight variation in wood barrels made it difficult to determine prices and central distilleries had a harder time sampling resin from wooden barrels. During the 1930s producers, therefore, began to use metal rosin barrels, which arrived either ready-made or in two sections that had to be crimped together. More and more smaller producers shipped rosin in metal drums to larger processing plants, where it was pumped in its liquid form into insulated tank cars and delivered hot to the consumer. By 1941, all 130,503 barrels of rosin in storage were held in metal barrels. A small percentage of naval stores was packed in four to six ply paper bags weighing one hundred pounds. Few producers employed coopers by the Second

Newton to Office of Price Administration, 2 May 1945, and William H. Davis, 28 May 1945, Bilbo Papers.
World War. As with cooperers, the number of distillers declined as producers ended their use of old fire stills and began shipping resin to central distilleries.\(^2\)

Despite the decreased need for cooperers and distillers, turpentiners still lacked a sufficient work force; they reacted to the labor crisis in several ways, among them the continuation of peonage. In 1942, the FBI received a letter from one young man’s desperate mother and aunt requesting help in rescuing him from peonage. The two women wanted “to see if there is enny wat(y) of getting you to get my boy out of the Hills of MacHenry - Miss Sippie. he have been there Six mears this coming September the First and I just heare from him now and then. he is on a tearptine Farm ant, that is a out Law Place and I am asking you for help if you Please. I want to see my Dear sun if there is enny possible chance enny more in life.”\(^3\) The Justice Department, at J. Edgar Hoover’s recommendation, decided not to investigate the case. In yet another incident in the 1940s, a family of dippers was recruited by another producer who sent them bus tickets. Their employer, however, stopped them on their way to town with their

\(^2\) Wood naval stores plants shipped most of their product intended for the domestic market in 6,000- to 10,000-gallon-sized railroad tank cars. For dealers and export trade they barreled it in fifty to fifty-five gallon-sized casks. Because ninety-two percent of gum turpentine was sold through retail paint, hardware, and drug stores, most was packaged in four ounce to five-gallon-sized containers. For the small number of distillers that remained, the old practice of regulating the stills through sound, the hazard of explosions, and the pattern of training through apprenticeship continued. As one Florida Writers Project participant discovered, “the still workers are probably the elite of a turpentine personnel.” The technique had gone virtually unchanged for a century, retaining its primitive and dangerous nature. Maguire, interview by author; Hurston, “Turpentine Camp—Cross City, 12-14; Robert S. Blount, Spirits of Turpentine: A History of Florida Naval Stores, 1528-1950 (Tallahassee: Florida Agricultural Museum, 1993), 43-45; Carroll B. Butler, Treasures of the Longleaf Pines, Naval Stores (Shalimar, FL: Tarkel Publishing, 1998), 114; Florida Writers’ Project, “The Story of Naval Stores . . . ,” Florida Highways 11 (July 1943): 31; Campbell, et al., Naval Stores Industry, 32-34; Shirley, Working Trees for Naval Stores, 35-36; Joseph B. Hosmer, Economic Aspects of the Naval Stores Industry (Atlanta: Georgia School of Technology, 1948), 23; Martin, “Historical and Analytical Approach,” 32; Duncan, “Report on Trip to Cross City,” 4.

\(^3\) James Houser, 7 July 1942, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives.
belongings and forced them to return. After the father went to the new employer by himself, his
former one, with whom his family stayed, went to retrieve him only to be punched and held at
gun point until the sheriff arrived. The three-hundred pound sheriff shook the producer until he
agreed to let the family move to Florida. Three days later a truck arrived to move the family, and
the driver delivered a check to pay off their account. After an FBI investigation the producer
narrowly escaped peonage prosecution because of the leniency of a sympathetic Superior Court
judge in Tifton, Georgia. At the same time a convention of Georgia Baptists concluded that
"peonage or debt slavery has by no means disappeared from our land. There are more white
people involved in this diabolical practice than there were slaveholders. There are more Negroes
held by these debt slavers than were actually owned was slaves before the war Between the
States. The method is the only thing which has changed." Also, a Florida Writers Project
participant found that turpentine workers "are the lowest strata of legally free humans" and a
social worker remarked that "a negro who is foolish enough to go to work in a turpentine camp is
simply signing away his birthright."

Producers as well responded to their labor shortage in more innovative ways than
peonage. The state of Georgia paroled convicts to provide workers in rural areas. The program
was begun in the spirit of patriotism on the argument that crop products were more essential to
victory than road construction by chain gangs. The employers were to see to the ex-convicts’
upkeep and to pay them the current rate for rural help, but if the parolee left the camp, he was to
be arrested and returned to prison to complete his sentence. Whereas many parolees went to

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84 John Edgar Hoover to Wendell Berge, 1 August 1942 and Wendell Berge to Director,

85 Stetson Kennedy, *Southern Exposure* (Garden City, NY: Doubleday and Company,

farms, some found themselves in turpentine camps. In one instance a member of the governor's staff, who operated a large turpentine operation in Patten, Georgia, employed a dozen parolees, both white and black. They all lived together in a barn. At least one such worker objected to the turpentine work and complained that he was not adequately compensated. Other operators employed released Florida convicts. In the 1940s, Florida apparently freed prisoners, even murderers, if they promised not to return to the state. Many took jobs at Georgia turpentine operations.87

German prisoners of war who worked at many jobs in the South—in agriculture, pulpwood, and at army bases—also labored in the naval stores industry. Foresters helped to train twenty-two thousand prisoners of war, many of them captured from Rommel's army, for harvesting turpentine and cutting pulpwood at Blountsville, Florida. Turpentiners apparently so valued and jealously guarded the use of these German workers that, upon repatriation following the war, they sought assurance that their prison workers would not be withdrawn at a rate faster than in other businesses.88

The naval stores producers’ effort to hold onto their prisoner laborers as long as possible resulted from the challenging situation that the Second World War presented them; at the same time the war drove product demand to dizzying heights, it sapped the supply of low-cost workers on whose shoulders the labor-intensive business rested. Producers’ concern therefore shifted from managing surplus quantities of turpentine and rosin to securing adequate timber supplies.

87 J. Carlton Gatner, Federal Bureau of Investigation Report, 7 January 1943, Correspondence, Classified Subject Files, Department of Justice Central Files, General Records of the Department of Justice, Record Group 60, National Archives; Maguire, interview, St. Augustine Historical Society; William P. Langdale, interview, 5; Blount, Spirits of Turpentine, 29.

88 Jim A. McArther, “During the War, I Trained 22,000 German Prisoners-of-War to Work Naval Stores and Cut Pulpwood,” in Historical Background of the Naval Stores Conservation Program, Olustee Experiment Station Files, Georgia Agrirama, Tifton, GA, 6; John W. Snyder to William Colmer, 29 May 1946, Colmer Papers.
and workers to meet government requirements for increased supplies. But the military, federal work programs, and war-time industries, all of which paid higher wages than work in turpentine, siphoned off the laborers needed to harvest gum. Operators responded through continued efforts to hold workers in peonage and even by resorting to innovative forms of convict labor.

With the war’s end, the gum naval stores industry entered a rapid decline. As long as the war continued, naval stores demand exceeded supply and the industry persisted despite its shortcomings. Because nothing about the gum naval stores industry changed over the course of the conflict, as forest researcher Keith W. Dorman observed, the “outlook for the future is not bright for the competitive position of gum naval stores . . . than it was before the war.” Dorman, “High-Yielding Turpentine Orchards,” 295.

Gum producers continued to suffer from labor shortages. The hard, low-paying work required laborers to toil in the summer heat while fighting bugs and snakes and attracted few black southerners who, with the rise of small manufacturing facilities in local communities, could now find better-paying and less physically-demanding jobs. By the early 1960s, the expansion of minimum-wage laws to cover agricultural workers, including those in naval stores production, forced operators to abandon the piece work system for hourly wages. In 1949, forest researcher Albert Snow, with the Southeastern Forest Experiment Station, explained that “the naval stores industry must compete with newer industries for manpower, and its products must be marketed in competition with those of modern chemical industries.”

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Just as alternative job opportunities began attracting workers away from the gum naval stores industry, widespread peonage diminished, although the practice by no means ended.92 First, two Supreme Court rulings in the first half of the 1940s found both Georgia’s and Florida’s labor laws, which continued to support peonage despite previous court decisions against similar statutes, unconstitutional, thus removing the legal underpinnings for the practice in those states. Second, as roads improved and cars became more accessible, community grocery stores began to attract the business of turpentine workers, undermining the role of the commissary, the linchpin of worker indebtedness.93 In 1943, one Florida observer found that “low-price cash and chain stores in nearby towns, improved transportation facilities and the fact that with few exceptions present-day camps are no longer isolated communities, have reduced commissary stocks to staple groceries, work clothes, tobacco, and soft drinks.”94 In some cases, however, producers relied on country stores in place of the commissary, opening accounts in the worker’s names, paying their bills, and then deducting the balance from their monthly pay. Finally, the increasing availability of cars made escape easier and the telephone put workers in better contact with legal assistance.95

The workers who continued in the business had grown up in it, had little or no education, and knew only that trade. They had no way of leaving the industry, no one to intercede for them, and an investigation of peonage begun by the Workers Defense League in the second half of the 1940s uncovered potential forced-labor practices in turpentine camps. The League found that “more forms of forced labor are more widely practiced in Florida than in any other state.” And as late as 1949 the Workers Defense League found fourteen turpentine camps in Alachua County, Florida alone where peonage was openly practiced. Brown, Forest Products, 186; Duncan, “Report on Trip to Cross City,” 5-7; Kennedy, Southern Exposure, 49; Shofner, “Forced Labor in the Florida Forests,” 24; Shofner, “Postscript to the Martin Tabert Case,” 172.

92 An investigation of peonage begun by the Workers Defense League in the second half of the 1940s uncovered potential forced-labor practices in turpentine camps. The League found that “more forms of forced labor are more widely practiced in Florida than in any other state.” And as late as 1949 the Workers Defense League found fourteen turpentine camps in Alachua County, Florida alone where peonage was openly practiced. Brown, Forest Products, 186; Duncan, “Report on Trip to Cross City,” 5-7; Kennedy, Southern Exposure, 49; Shofner, “Forced Labor in the Florida Forests,” 24; Shofner, “Postscript to the Martin Tabert Case,” 172.


94 Kennedy, Palmetto Country, 259.

95 Wright, “Turpentining,” 115.
and had no choice but to accept whatever they were given. Wages in the naval stores industry remained so low that, as John W. Langdale, the judge's son, explained "they could make as much on welfare as they could working the pine trees to get gum." But as this work force aged, no one replaced them. In 1959, one retired forester explained that "today blacks don't want to work in turpentine. They can go to a little town and work at a manufacturing plant and make more money with shorter hours." Many of the few producers who continued worked on a very small scale, laboring with their families to harvest gum. In some cases, white women replaced black men in the forest. On one occasion an NSCP inspector came across a producer and his wife preparing trees for installing cups. The wife held a broad ax while her husband hit it with a maul. The same inspector also discovered a widow, whose livelihood depended on naval stores using a hack after her chipper left. Such cases were reportedly not uncommon.

Resumption of foreign naval stores production after the Second World War also hurt the American gum naval stores industry by decreasing export demands. Before the war, nearly half of all U.S.-produced rosin and close to forty percent of turpentine was exported. In the mid 1930s, for example, the U.S. made 57 percent of the world's naval stores and France, ranking second, manufactured 22 percent (fig. 13.5). Spain, Russia, and Portugal followed with 8.57 percent, 4.29 percent, and 3 percent respectively. Greece, Mexico, and India contributed small quantities to the world market. And as European gum naval stores production rose in the 1940s

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96 Reed, interview; Kayton, interview, 5; Dwight Wilson, interview, Oral History Collection, Research Library, St. Augustine Historical Society, St. Augustine, FL; Blount, Spirits of Turpentine, 30.


98 Kayton, interview, 5.

99 Ibid.; Meldrin, interview; McArther, "During the War, I Trained 22,000 German Prisoners-of-War," 7.
with the stabilization of the European economies, American exports fell. By the late 1940s, less than a quarter of rosin production was sold overseas. U.S. production continued to outpace exports, however, causing price declines. In 1947, the U.S. exported 95,000 barrels of turpentine and 570,000 drums of rosin. But in 1948, 453,000 barrels of turpentine and 975,000 drums of rosin were available to fill foreign orders. The loan program's stocks began to rise as only a small portion of gum naval stores left the country.  

Figure 13.5. World Gum Turpentine Production, 1935

Donald Fraser Martin, Jr., "An Historical and Analytical Approach to the Current Problems of the American Gum Naval Stores Industry" (Ph.D. diss., University of North Carolina, 1942), 324.

Over the 1930s and 1940s, the gum naval stores industry's losses were the wood naval stores industry's gains (figs. 13.6 and 13.7). By the late 1930s, the American gum naval stores

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100 Campbell, et al., Naval Stores Industry, 19, 36-37, 92-93; Martin, "Historical and Analytical Approach," 193, 196-197; Harley Langdale and E.E. Holdman to Office of International Trade, United States Department of Commerce, 6 May 1948 and Harley Langdale to Secretary of Agriculture, 13 October 1947 [38], Colmer Papers.
industry was responsible for just 53.67 percent of world naval stores production, down from 80 percent ten years earlier (fig. 13.8). The greatest part of the decline was the result of increases in

![Production of Turpentine by State](image)

Figure 13.6. Production of Turpentine by State, Selected Years 1931-1944
* Texas figures for 1931, 1934, and 1938-1944 are included in Louisiana figures.
Joseph B. Hosmer, *Economic Aspects of the Naval Stores Industry* (Atlanta: Georgia School of Technology, State Engineering Experiment Station, 1948), 8; For figures related to chart see Appendix B.

![Production of Rosin by State](image)

Figure 13.7. Production of Rosin by State, Selected Years 1931-1944
* Texas figures for 1931, 1934, and 1938-1944 are included in Louisiana figures.
American wood naval stores production. In 1933, Phoenix Naval Stores Company acquired and reopened the Yaryan wood naval stores plant at Gulfport which Hercules had earlier shut down with the completion of its Hattiesburg facility. Three years later the Crosby Naval Stores plant began operations in Picayune, Mississippi, and the Alabama Naval Stores Company started production in Mobile. In 1938, the Chemical Products Company plant opened at Laurel, Mississippi. Newport Company, based in Pensacola, remained active during the period and, in 1939, opened a new plant. By the late 1940s, naval stores plants went up in western Louisiana. A Crosby plant opened in DeRidder in 1946 and, one year later, a Newport plant started operations in Oakdale. By the end of the 1940s, the South contained thirteen wood naval stores plants: one in Georgia, one in Florida, three in Alabama, six in Mississippi, and two in Louisiana.
One Mississippi plant held the distinction as the largest in the world. Although, in 1940, gum naval stores operators manufactured the majority of products, 60.7 percent of U.S. turpentine and 53.6 percent of rosin, the domestic wood naval stores output that year was the largest on record while gum naval stores production had shrunk to one of its lowest levels of production in half a century. With the rise in demand during the Second World War, wood naval stores increased its share of the world market. As their customer base continued to expand, by 1945, wood naval stores exceeded gum naval stores in production. Over the 1950s gum naval stores manufacture declined by nearly sixty-five percent (figs. 13.9 and 13.10). In 1950, gum naval stores accounted for forty percent of the total production of naval stores products. By 1960, it reached close to twenty percent, around sixteen percent in 1965, and, in 1970, less than half of a percent.\textsuperscript{101} One industry observer remarked that, despite all of the gum naval stores industry's government support, "the steam solvent industry due to its efficient operation, competes with the gum industry and produces a better product at less cost, and is on a sounder financial and industrial basis."\textsuperscript{102}

But just as gum naval stores production declined and wood naval stores manufacturing experienced impressive growth, the latter's consumption of huge quantities of stumps threatened to exhaust the supply, just as gum turpentine had nearly consumed the living pine stands.


\textsuperscript{102} "Naval Stores History We Never Knew 'Til Now," 5.
generations earlier. In total, the thirteen wood naval stores plants had a capacity of nearly four thousand tons of stumps per day, requiring two hundred boxcars or five hundred trucks full to keep them supplied. Although the southern pine belt contained hundreds of thousands of acres of cut over land from which stumps were available, the growth in demand outpaced the replacement of the supply, especially since not all pine stumps made suitable processing material. Because they contained most of the heartwood, the stumps from old-growth longleaf

*1950-1954 figures do not include destructively distilled turpentine.

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103 During the 1930s, wood stump usage at the Pensacola Newport plant rose from 70 tons per day to around 1,100 tons per day following the plant's expansion. The Crosby plant in southwestern Louisiana consumed 750 tons of stumps per day, a quantity that required around five hundred men working in the field to supply. Using bulldozers, they uprooted the stumps, then chopped them into pieces and transported them an average distance of thirty-five miles on trucks to the plant.
were the most profitable to process. Like the virgin longleaf pine stands themselves, the number of stumps was finite.

Wood naval stores plants went to great lengths to secure adequate stump supplies. They purchased them from landowners who granted the companies a certain amount of time in which to remove them. In 1942, for example, Phoenix Naval Stores Company purchased from the Dantzler Lumber Company of Mississippi all its old dead lightwood pines, all surface and turpentine pine lighter wood, and all lighter stumps on the company's property in George County. They had four years to complete the removal. The sale of stumps provided landowners with extra income and cleared their cutover property for pasture, agricultural use, or
reforestation. Some companies not only gathered up as many stump purchase agreements as they could, they also purchased the property on which the stumps and wood lay. In late 1946, the Crosby plant owned about 100,000 acres of land and had contracts for stumps on another 400,000 acres in the vicinity of DeRidder. The supply was estimated to last the company between twenty and forty years.\textsuperscript{104}

Beginning in the late 1940s and continuing through the 1950s, the wood naval stores industry suffered not only from a decline in available stumpage but, most importantly, because of new, more efficient production techniques developed by the pulpwood industry. At the South’s increasing number of pulpwood plants, trunks were debarked, chipped, and cooked in a weak sulfuric acid solution to extract the wood’s cellulose for paper. During the process, turpentine spirits were released and, once condensed, formed sulfate turpentine. While the spirits vaporized from the cooked solution, rosin was emitted in the form of tall oil, a frothy substance that materialized on the top of the mixture and could be skimmed off after cooking. During the early years of the pulpwood industry, no process existed to refine the tall oil into its usable component parts and it had to be discarded or burned as fuel. But in the late 1940s, the Arizona Chemical Company, after a decade of research, developed a fractional distillation process whereby tall oil could be separated into fatty acids, rosin, and pitch. With this discovery, the sulfate naval stores industry, a division of the chemical/pulpwood industry, quickly moved to conquer production. Sulfate naval stores could be made more cheaply than comparable gum or wood products. By 1955, sulfate turpentine production exceeded that of gum turpentine and over the next thirteen

years, almost completely replaced all other methods. Although many wood naval stores companies went out of business, a few innovative producers, such as Newport Company, began construction of tall oil processing plants. In the late 1940s, Newport built a facility at Bay Minette, Alabama and later enlarged its capacity ten times. In the early 1960s, it erected another such plant in Oakdale, Louisiana.

By the early 1950s, many larger producers and businesses that supported the gum naval stores industry phased out production and turned to other activities. Foreseeing the industry’s continued decline, producers like the Maguire family began selling their St. Johns County, Florida, timber for pulpwood in the early 1940s and started a timber land management company that remains in operation today. The Langdales continued to prosper by consolidating their naval stores operation and simultaneously branching out into a wide range of businesses. In the mid-1940s, the Langdale turpentine operation consisted of eighteen to twenty separate partnerships, but, in 1947, the judge consolidated these different enterprises into the Langdale Company with he and his sons as equal shareholders. They then began buying out the partnerships. At the same time, they built a central distillery and a wood-treating operation. Through the 1960s, the Langdales remained a powerful force in Georgia and what little remained of the gum naval stores industry. The judge continued as the AT-FA president until 1966. While a Georgia state congressman from 1949 to 1951, his son John sponsored an unsuccessful bill on behalf of the AT-FA to change Georgia from the Peach State to the Turpentine State. Over the next few


106 The judge had built his empire by joining with a partner who actually saw to the day-to-day operation of the enterprise.

107 At that time South Carolina was the country’s largest peach producer and Georgia the largest gum naval stores producer. In March 1998 the Georgia House of Representatives passed a resolution eulogizing John W. Langdale following his death earlier that year.

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decades, as the gum naval store industry continued to decline, the Langdales shifted their financial resources into other lines of business. When the Judge died in April 1972 at the age of eighty-four, another son, Harley Jr., became the head of Langdale Company while yet another, son Billy, took on responsibility for organizing timber for the Langdale mills. Harley Jr. served as chairman of the Valdosta Savings and Loan and as the chairman of the board of Georgia’s state university system. In the mid-1970s, Langdale Company sold its gum turpentine processing plant, which had operated continuously since 1945, to a Guatemalan concern. By the 1980s, their businesses in and around Valdosta included a sawmill, a building supply company, a Sheraton Hotel, a Ford car dealership, a tire company, a fuel company, and an insurance company. Outside of the Valdosta area, they owned a fence post processing plant in Homerville, Georgia, a pole pealing operation and pole yards in both Chauncy and Blackston, Georgia, and a wood processing plant in Sweetwater, Tennessee.\(^{108}\)

Companies supplying turpentine equipment also had to reorient their focus or go out of business. The Lerio Corporation of Valdosta, for example, began as a manufacturer of metal turpentine cups. Founded by the family patriarch who had been in the naval stores industry since the turn of the century, the company produced its last cups in the early 1960s. The business continued, however, because a decade earlier the Lerios had the foresight to diversify and began manufacturing ice cans, draft beer pumps, garden hoses, and oil breather caps. By the late 1970s, their largest-selling product was metal containers used by nurseries for growing plants. Not all companies made such a successful transition. Consolidated Naval Stores Company, the vertically-integrated gum industry giant, kept its factorage business during the Depression, but

closed its subsidiaries. With the increasing popularity of central distilleries, it acquired a twenty-five percent interest in Filtered Rosin Producers, which operated five plants in south Georgia and north Florida. Unsatisfied with the arrangement, Consolidated divested itself within only a few years. By 1948, only forty operators used their factorage services. With such little demand for its services, Consolidated closed its factorage business at the end of 1949.

A very few gum turpentine producers continued after the 1960s. Not only did operators face the challenge of low prices and high production costs, but the end of government support. In 1967, the government began liquidating its stock pile of gum naval stores held as part of the NSCP and, in 1972, it shut down the program. One year later the Olustee Experiment Station ended naval stores studies and began agricultural research. Remaining producers faced the difficulty of finding a still to process the gum. As the central distillation plants closed, operators were forced to truck their gum further and further away. In 1961, twenty central distilleries operated, but fifteen years later, only seven plants remained. By the late 1970s, just two gum distilleries operated in the Valdosta area. Today only one facility, built in Baxley, Georgia in 1949, continues to serve the very small number of remaining gum naval stores producers. Most naval stores are supplied by pulpwood plants using the sulfate method.\textsuperscript{109}

The demise of the gum naval stores industry in the post-World War II South ultimately represents the defeat of a poorly-capitalized, technologically-primitive, and labor-intensive business by a well-funded, sophisticated, and highly-mechanized one. Retaining the basic characteristics it possessed as far back as the colonial era, the gum naval stores industry, despite significant government support, found itself unable to compete in the South's mid-twentieth-

century business environment. Change began slowly with the gradual rise of wood naval stores plants in the early 1900s and rapidly accelerated during the 1940s as changing labor conditions denied the industry an adequate supply of cheap workers. Gum naval stores producers could therefore not successfully compete with their rival, which offered far more attractive employment and produced a superior product at a lower price. With its failure to modernize, the gum segment of the naval stores industry fell victim to an advancing economy.

During the 1930s and 1940s, the labor conditions of naval stores workers remained remarkably unchanged from what they were many decades earlier. Although new gum-harvesting technology required workers to adopt new techniques, the routine and labor conditions changed little. Producers persisted in their reliance on cheap, black labor and debt peonage and woodsriders continued to monitor workers closely and employed violence to maintain control. Moreover, workers' lives remained centered on isolated camps where education was scarce. Hard work, low pay, and poor living conditions offered little to encourage workers' retention once greater employment opportunity rose in the World War II and postwar South. As employment related to the war effort attracted black men, naval stores producers found little means of encouraging or even forcing them to stay. The economic development and associated transportation and communication improvements that continued to sweep the South after the war further widened worker options and greatly eroded operator control of turpentine camps. As the pool of cheap and reliable black labor vanished, the wood naval stores industry grew at the expense of its gum counterpart. Just as wood naval stores production made impressive gains, however, a newer, even more efficient method rose to take its place. Most gum naval stores producers diversified into other businesses leaving only a few very small operators who employed family labor. The American gum naval stores industry rapidly disintegrated into a minor business. Today large industrial plants supply the demand for naval stores.
Conclusion

This study, in its effort to determine what southern development looks like through the lens of naval stores production, first establishes the industry's colonial and antebellum characteristics as a baseline by which to compare developments after the Civil War. In the late-eighteenth and early-nineteenth centuries, naval stores languished as a marginally-profitable business with which no state, save North Carolina, would bother; North Carolina lacked any other staple it could produce profitably. Planters grew tobacco in the colony's fertile southeastern river bottom land, and rice in the coastal region near Wilmington, but most areas had to rely on their pine forests for income. North Carolinians were able to produce some lumber from their pine forests, but scarcity of water power for sawmills and the difficulty and high cost of transporting the heavy product made tar and pitch more profitable. Thus, North Carolina achieved its distinction as the Tar Heel State because it had to settle for the manufacture of a commodity that no one else wanted.

By the 1830s, however, new uses for turpentine as a solvent in the growing rubber industry, as an principal ingredient in the most widely-used lamp oil of the day, and as an essential element in the manufacture of paints and varnishes resulted in increased demand for turpentine, even greater than that for tar, and brought prices high enough to make gum and spirit production an appealing alternative to cotton cultivation. The same types of producers who dominated colonial production remained in the business. Poor whites, who lived in relative isolation and primarily practiced subsistence agriculture in the pine barrens, either harvested small quantities of gum, which they sold for finished goods or food, or labored on an irregular
basis for larger producers. Yeoman farmers worked on a somewhat more regular schedule to produce larger amounts of turpentine for the market, sometimes with the help of several slaves. Another type of producer, however, entered production in the 1830s. With access to capital resources and the control of large, slave labor forces, new entrepreneurs each invested in thousands, even tens of thousands of acres of previously undesirable pine land, constructed their own distilleries, and began production on a grand scale. At the same time, a transportation revolution in North Carolina—improvements in river navigation and construction of plank roads and then railroads—facilitated the industry’s expansion into areas earlier too remote to permit profitable manufacture. Unlike the piney woods whites most of these large producers did not reside in isolated areas, but near small population centers or at least major transportation routes. Their lives more closely resembled those of large agricultural plantation owners than small naval stores producers.

Slaves performed the vast majority of work at these large turpentine operations. The various procedures involved in harvesting gum, the size and location of the pine forests, and the ways that these three factors affected slave management practices created distinct work patterns and manners of life for slaves in the naval stores industry. Environmental factors also played an important role in shaping their lives. Given the size of the pine forests and the methods of harvesting resin, producers could not permit workers to labor in groups. Instead, slaves were forced to spread out widely through the forest, where they worked alone and their tasks were closely monitored by overseers who patrolled the forest on horseback. The migratory nature of the industry discouraged producers from constructing substantial cabins to house their workers. Instead, laborers could take refuge only in crude lean-tos that could be easily dismantled, moved, and reconstructed. The natural setting of the turpentine orchards also contributed to poor conditions. Most owners found it unfeasible to raise food at the camp sites. Instead, producers hauled provisions into the forests and tended to keep rations at a subsistence level. Unlike many
plantation slaves, turpentine laborers lacked the opportunity to supplement their diets with food raided from local smokehouses, chicken coops, and cornfields or gathered from their own garden plots. Analysis of turpentine slaves’ experiences finds that they lived lives similar to those of bondsmen involved in other areas of manufacturing in that they tended to labor for absentee producers, were worked excessively hard by overseers, and received food, clothing, and shelter of an inferior quality to agricultural slaves.

Slave laborers were not the only victims of exploitation by the burgeoning naval stores industry. By the 1850s, destructive gum-harvesting methods led to severe depletion of the North Carolina longleaf pine forests, causing the industry to begin a southward migration in search of fresh stands. The practice of cutting quart-size gum collection cavities, or boxes, in the trees’ bases seriously weakened their stability and left them vulnerable to decay and disease. The process of weekly chipping an inch-thick streak of bark and wood from the trunk to maintain gum flow interfered with the movement of nutrients from the trees’ roots to the top of their trunks. Fire, usually deliberately set to clear away underbrush and debris, often scorched the flammable scarred trunks and boxes, especially in worked out and abandoned stands where hardened gum coated the old wounds and flammable debris carpeted the trees’ bases. The weakened pines were left susceptible to insects which invaded the trees’ bark and sapwood, nibbling at the live wood until too little was left to support its life. As North Carolina’s mature longleaf pines yielded to windfall, rotting, fire, and insects, stands failed to regenerate. A relatively slow-growing but fire-tolerant species, the longleaf pine required frequent, low-intensity blazes to prevent other trees from overtaking them in the early years. The cessation of regular burning in used-up tracts allowed other tree species to shade out the longleaf seedlings. Those which managed to begin vibrant growth were usually consumed by wild hogs who found the pines’ starchy taproots especially tasty. As their longleafs disappeared, many North Carolinians abandoned the turpentine industry for agricultural production, which new fertilizers
made possible in the eastern counties' sandy and infertile land. Other producers, determined to continue in the business, purchased fresh pine tracts in South Carolina, Georgia, Florida, and Alabama, and moved their operations, including their slaves, to the new locations, persisting in the same destructive harvesting practices that had forced them from North Carolina.

The antebellum naval stores industry's trends—large-scale production, primitive harvesting methods that led to environmental degradation, and reliance on forced labor—continued after the Civil War. The war devastated the turpentine market, interrupted the industry's southward movement out of North Carolina, and freed the slaves on whose labor production had relied. But the business recovered rapidly. The New South's railroad building boom provided access to more and more previously-isolated longleaf pine tracts, just as had the antebellum transportation improvements in North Carolina. The old harvesting process, which dated back to colonial times, persisted and, consequently, destruction of the turpentined timber stands continued as well. The unchanged practices and their effect on the forest perpetuated the industry's transient nature, ultimately forcing almost all turpentining out of North Carolina.

Throughout the industry's postbellum migration, North Carolinians and their descendants continued to dominate production. By the beginning of the twentieth century, these Tar Heels were firmly established in south Georgia and north Florida where they pioneered a middle-class business community in the thinly-settled pine forest into which they introduced a more market-oriented economy. Some turpentiners and their children not only established naval stores operations, but also began sawmills, custom distilleries, general merchandising businesses, and banks in the small towns whose numbers remained few but began to dot the piney woods South in the late nineteenth century.

Along with the southward migration and domination by an entrepreneurial group, reliance on various forms of unfree black labor represented further continuation of the industry's antebellum characteristics. Producers moving into the more southerly areas of the pine barrens
faced two interrelated challenges: first, securing an adequate number of workers and, second, maintaining a reliable labor force at tasks well-known to be more physically exhausting and less well-paid than agriculture. Because little antebellum plantation agriculture existed in the piney woods, the area contained only a small native black population. Its white population, also relatively sparse, viewed turpentining as “black” work and refused to have anything to do with the difficult and low-paying occupation. Turpentine operators who left the Carolinas and formed the backbone of the industry in Georgia, Florida, Mississippi, and Alabama attempted to remedy the scarcity of available labor by bringing their workers with them. Indeed, through the end of the nineteenth century, the typical turpentine laborer in Georgia remained an African-American native of North Carolina. The influx of turpentiners and their workers into the pine region grew so great that they dramatically altered the area’s demographics. In the Georgia counties most active in naval stores production, the black population grew at a rate that surpassed both the increases in the state’s white population and the overall rise in the black population, resulting in the more than doubling of African-Americans as a percentage of the turpentine region’s residents.

As before the war, producers relied on forced labor and employed various tactics to ensure that workers remained in the business. Convicts leased to turpentiners, especially in the state of Florida, provided cheap and reliable labor. But as part of the overall naval stores work force, however, their number was small, between 1880 and 1910 only seven to eight percent. The great majority of turpentine workers lived in a state somewhere between freedom and forced labor. Whereas some workers were free to sell their labor on the market, enticement, emigrant agent, and vagrancy legislation limited their movement, casting them into a gray area of semifree labor. Others languished in debt peonage whereby they were coerced to work to repay what they owed their employer. The naval stores industry’s dependence on various degrees of unfree labor reinforces recent scholarship that argues that forced labor proved compatible with southern
industrial development. It offered the turpentiners the ability to pay low wages in a tight labor market and still enjoy a relatively reliable labor supply. The intensive work routine involved in naval stores manufacture and the laborers' daily existence in the isolated pine forest camps also persisted.

The industry's characteristic elements survived largely unchanged through even Progressive Era reform efforts. Around the turn of the century, as southern states strengthened peonage legislation with false pretense laws and expanded vagrancy statutes and employers began drawing whites—particularly recently-arrived immigrants—into the system, the Department of Justice investigated and tried employers for violation of the Thirteenth Amendment. The national press coverage of the cases focused public attention on the use of forced labor and spurred public outcry. But despite intense national interest and peonage's apparent wide-spread use, only a relatively small number of producers were ever tried and fewer still convicted. With the same zeal but more successful results, reformers also attacked convict leasing. Not as widely practiced as peonage, convict leasing proved less capable of withstanding opposition pressure. The combination of public attack, the growing expense of leasing, and the demand for chain gang work on state projects, finally brought convict leasing to an end. Peonage, however, survived. Although the fear of prosecution drove the practice out of full public view, it continued beyond the 1930s.

Despite the attacks on the naval stores industry's labor practices during the first decades of the twentieth century, relatively little changed in the lives of workers. The labor force remained predominately black and was supervised by white overseers. Camps remained rough and isolated places where workers lived in clusters of small shanties. For convicts, conditions did grow more tolerable with small physical improvements to camp buildings, a limited increase in diet quality and variation, and the institution of a better record system of convict treatment. But brutality and abuses continued until convict leasing's demise.
Although the Progressive efforts failed to alter significantly the lives of turpentine workers, they did bring successful efforts to adopt less destructive harvesting methods than had been employed since the naval stores industry began in the American colonies two centuries earlier. Researchers pioneered two new practices, shallow scarring of the tree trunk to make gum run and the attachment of a clay cup to collect it, methods that not only produced a higher-grade gum than the older practices of deep chipping and boxing but also caused less harm to the tree. The industry’s efforts to alter production methods resulted from the coinciding of two significant events, the near total loss of the southern pine forest and the emergence of scientific forestry in the United States. The success of these new techniques fostered a more receptive environment for forestry among many producers, which allowed for further refinement of improved methods and ultimately greater involvement of forestry in the South. In this more cooperative atmosphere the federal Bureau of Forestry and the Bureau of Chemistry were able to pioneer other improvements that aided the industry. But despite all these advancements, the basic system of production persisted. In fact, the innovations were intentionally designed to alter techniques as little as possible to minimize labor complications. Even so, although many operators, especially large turpentiners, embraced the new methods to save the industry, not everyone was converted. Many producers continued to view forestry as a meddlesome and intrusive movement and persisted in production practices little changed from the eighteenth century.

Unlike destructive production methods, turpentiners faced business challenges during the Progressive Era that federal efforts did not address. Despite a stabilization of timber resources, due largely to forestry efforts, pine acreage remained relatively scarce and expensive, especially after lumber companies, fearful of a timber depletion, began buying up remaining stands. Other production costs, particularly labor, rose during this period, the greatest jump occurring during the First World War as African-Americans began migrating to northern cities. Both higher timber and labor costs strained turpentine producers’ ability to operate profitably. Competition
from two new rivals, the wood naval stores industry and foreign gum naval stores production, posed another serious threat to operators. Wood naval stores production involved the highly-mechanized and technical process of extracting turpentine and rosin from ground pine stumps, and was thus very different from the gum naval stores industry. Wood naval stores manufacturing enjoyed an advantage over gum naval stores production in its ability to provide superior products possessing specific qualities for individual consumers’ needs. Foreign gum naval stores producers, especially the French, grew capable of supplying European consumers with quality gum turpentine and rosin thus cutting into the U.S. naval stores export market.

The persistence of these challenges, combined with the economic and social changes that affected the South in the 1930s and 40s, finally brought the gum naval stores industry to virtual collapse and the wood naval stores industry took its place. However the transition occurred only after considerable efforts by producers and the federal government to save the dying industry. With the creation of the American Turpentine-Farmers Association in 1936, operators demanded federal assistance, especially after successfully arguing that they were in fact agriculturists, and began receiving the benefits of New Deal crop support payments. But despite price subsidies and increased government research, producers were unable to operate without cheap labor and as the supply declined, so did gum naval stores production. Although their new status as farmers provided operators with a temporary reprieve from minimum wage and social security legislation, New Deal work programs and especially the influx of young black men into the military during the Second World War drained available labor. Moreover, though peonage survived into the 1940s, improvements in transportation and communication made naval stores camps far less isolated than in earlier periods and significantly reduced the control exercised by producers over their workers. The wood naval stores industry, which did not rely on intensive labor but rather heavy mechanization and a small number of well-trained technicians, made gains at the expense of the gum industry. By 1945, wood naval stores production exceeded that of gum.
and, ten years later, outpaced it by two and a half times, only to be replaced itself by the manufacture of naval stores at pulpwood plants during the 1960s. Thus, naval stores production did not fully industrialize until the Second World War.

Analysis of naval stores production, one of the most representative of southern industries, provides a different picture of southern economic development than scholars, who concentrate on cotton cultivation and textile manufacturing, typically offer. It reveals that antebellum southerners possessed an intense interest in manufacturing and, although they admittedly poured the majority of their resources into agricultural pursuits, they did indeed invest in such enterprises as turpentine operations, especially in areas which failed to support plantation agriculture. Turpentine production, typical of antebellum southern industry, was closely linked to agricultural production, operated in rural areas, required relatively little initial capital investment, and employed forced labor in the form of slavery. Further examination of naval stores manufacturing in the postbellum era reveals that these characteristics persisted well after the Civil War and thus demonstrates a considerable degree of continuity between the Old South and the New. The postbellum turpentine industry continued to rely on primitive production techniques, which in many ways resembled agricultural methods and work cycles, operated in isolated rural areas, and continued to employ forced labor in the forms of convict leasing and debt peonage. With minor changes, these characteristics carried on into the twentieth century and only ended when the New Deal and the Second World War created an environment in which gum turpentine production could no longer profitably operate. Thus, the naval stores industry shows that a significant portion of post-Civil War southern development represented a continuation of antebellum patterns and suggests that the Old South was not so old nor the New South quite so new.
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Appendix A
Charts

Number of Workers in the Cotton and Timber Industries
1900

<table>
<thead>
<tr>
<th></th>
<th>Cotton</th>
<th>Timber</th>
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<td>100,000</td>
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<tr>
<td>40,000</td>
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Product Value in the Cotton and Timber Industries
1900

<table>
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<tbody>
<tr>
<td>$6,180,333</td>
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Number of Establishments in the Cotton and Timber Industries
1900


Number of Workers in the Cotton and Naval Stores Industries
1900

Product Value in the Cotton and Naval Stores Industries
1900


Number of Establishments in the Cotton and Naval Stores Industries
1900

Barrels of Turpentine and Rosin Exported from the United States
1800-1860

A. Stuart Campbell, Robert C. Unkrich, and Albert C. Blanchard, The Naval Stores Industry (Gainesville, FL: Bureau of Economic and Business Research, College of Business Administration, The University of Florida, 1934), 55.

Total Naval Stores Exports from Wilmington, North Carolina
1866-1900


Production of Turpentine by State
Selected Years from 1907-1929

Production of Rosin by State
Selected Years from 1907-1929

*Texas figures for 1909 and 1924-1929 are included in Louisiana figures

Joseph B. Hosmer, Economic Aspects of the Naval Stores Industry (Atlanta: Georgia School of Technology, 1948), 8.

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Total Value of Turpentine and Rosin Exports
1900-1930

A. Stuart Campbell, Robert C. Unkrich, and Albert C. Blanchard, The Naval Stores Industry (Gainesville, FL: Bureau of Economic and Business Research, College of Business Administration, The University of Florida, 1934), 54.

Exports of Gum and Wood Turpentine to Europe
1909-1922

High and Low Prices of Spirits of Turpentine at Savannah Georgia
1900-1919

Profit or Loss Per Unit of Gum Naval
1919-1929


Number of Wood Naval Stores Establishments
1921-1939


Estimated Production Cost Per Crop by State
1936-1941

Percent of Still Output of Gum Turpentine by State
1930-1950

Exports of Gum Turpentine by Country
1930-1939

* "Other Countries" includes Argentina, Brazil, Chile, South Africa, Japan, Sweden, Norway, Denmark, and Italy
Exports of Gum Rosin by Country
1930-1939

* "Other Countries" includes Sweden, China, Belgium, Cuba, Australia, New Zealand, Norway, Finland, Denmark, British India, Poland-Danzig, and France.

Joseph B. Hosmer, Economic Aspects of the Naval Stores Industry (Atlanta: Georgia School of Technology, 1948), 32.

Unit Value of Turpentine Exported from the United States
1931-1944

Joseph B. Hosmer, Economic Aspects of the Naval Stores Industry (Atlanta: Georgia School of Technology, 1948), 17.
Joseph B. Hosmer, Economic Aspects of the Naval Stores Industry (Atlanta: Georgia School of Technology, 1948), 17.

*After 1936, chemicals and pharmaceuticals includes turpentine consumed in producers' plants in the production of unclassified derived products.

Rosin Consumption in the Paint, Paper, and Soap Industries
1930-1950


Average Price of Gum Turpentine and Gum Rosin by Month
1955-56 Season

### Appendix B

#### Tables

#### Value of Naval Stores Produced

Southeastern United States  
1850-1860

<table>
<thead>
<tr>
<th></th>
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<th>SC</th>
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<th>AL</th>
<th>MS</th>
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#### Number of Naval Stores Establishments by State

Southeastern United States  
1850-1860

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Number of Hands Employed in Naval Stores Production
Southeastern United States
1850-1860

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<td>1850</td>
<td>2858</td>
<td>220</td>
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<td>3775</td>
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Value of Naval Stores Produced
1870-1900

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<th>FL</th>
<th>AL</th>
<th>MS</th>
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<td>1880</td>
<td>$1,758,488</td>
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<td>1890</td>
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### Number of Hands Employed in Naval Stores Production
1870-1900

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<th>FL</th>
<th>AL</th>
<th>MS</th>
<th>LA</th>
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<tbody>
<tr>
<td>1870</td>
<td>959</td>
<td>876</td>
<td>138</td>
<td>18</td>
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### Naval Stores Establishments by State
1870-1900

<table>
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<tr>
<td>1870</td>
<td>147</td>
<td>54</td>
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<td>201</td>
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<td>15</td>
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<td>174</td>
<td>132</td>
<td>524</td>
<td>366</td>
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### Average Weekly Gum Naval Stores Wages Per Wage Earner
1899-1930

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<td>1924</td>
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<tr>
<td>1925</td>
<td>$9.93</td>
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<td>1926</td>
<td>$9.50</td>
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<td>$8.60</td>
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<td>1929</td>
<td>$7.20</td>
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<td>1930</td>
<td>$5.75</td>
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### Total Barrels of Gum Turpentine and Gum Rosin
**1897-1933**

<table>
<thead>
<tr>
<th>Year</th>
<th>Gum Turpentine</th>
<th>Gum Rosin</th>
<th>Total</th>
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<tbody>
<tr>
<td>1897</td>
<td>500,000</td>
<td>1,665,000</td>
<td>2,165,000</td>
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<tr>
<td>1898</td>
<td>525,000</td>
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<td>1899</td>
<td>535,000</td>
<td>1,782,000</td>
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<tr>
<td>1900</td>
<td>620,000</td>
<td>2,065,000</td>
<td>2,685,000</td>
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<tr>
<td>1901</td>
<td>600,000</td>
<td>2,000,000</td>
<td>2,600,000</td>
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<td>581,000</td>
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<td>1903</td>
<td>545,000</td>
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<td>2,600,000</td>
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<tr>
<td>1905</td>
<td>590,000</td>
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<td>1906</td>
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<tr>
<td>1907</td>
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<tr>
<td>1908</td>
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<tr>
<td>1909</td>
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<td>2,000,000</td>
<td>2,600,000</td>
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<tr>
<td>1910</td>
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<td>2,662,000</td>
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<td>1911</td>
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<td>1912</td>
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<tr>
<td>1913</td>
<td>675,000</td>
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<td>2,923,000</td>
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<tr>
<td>1914</td>
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<tr>
<td>1915</td>
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<td>2,295,000</td>
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<tr>
<td>1916</td>
<td>610,000</td>
<td>2,032,000</td>
<td>2,642,000</td>
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<tr>
<td>1917</td>
<td>520,000</td>
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<td>1920</td>
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<td>1,748,000</td>
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<tr>
<td>1921</td>
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<td>1,665,000</td>
<td>2,165,000</td>
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<tr>
<td>1922</td>
<td>520,000</td>
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<tr>
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<td>530,000</td>
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<td>2,210,000</td>
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<td>1927</td>
<td>650,000</td>
<td>2,165,000</td>
<td>2,815,000</td>
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<tr>
<td>1928</td>
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<td>2,425,000</td>
</tr>
<tr>
<td>1929</td>
<td>625,000</td>
<td>2,081,000</td>
<td>2,706,000</td>
</tr>
<tr>
<td>1930</td>
<td>600,000</td>
<td>2,000,000</td>
<td>2,600,000</td>
</tr>
<tr>
<td>1931</td>
<td>500,000</td>
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<td>1,300,000</td>
<td>1,690,000</td>
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<tr>
<td>1933</td>
<td>450,000</td>
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### Total Cost Per Unit of Gum Naval Stores 1919-1930

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<tr>
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Net Cash Proceeds Per Fifty Gallons of Spirits of Turpentine
1907-1930

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<td>$28.20</td>
</tr>
<tr>
<td>1911</td>
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<td>$23.37</td>
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<tr>
<td>1929</td>
<td>$22.45</td>
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<tr>
<td>1930</td>
<td>$18.33</td>
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### Season Average Prices of Gum Spirits and Gum Rosin
#### 1900-1930

<table>
<thead>
<tr>
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<th>Gum Rosin</th>
<th>Gum Spirits</th>
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<tbody>
<tr>
<td>1900</td>
<td>$ -</td>
<td>$ 0.359</td>
</tr>
<tr>
<td>1901</td>
<td>$ 0.610</td>
<td>$ 0.283</td>
</tr>
<tr>
<td>1902</td>
<td>$ 0.740</td>
<td>$ 0.414</td>
</tr>
<tr>
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<td>$ 1.050</td>
<td>$ 0.454</td>
</tr>
<tr>
<td>1904</td>
<td>$ 1.300</td>
<td>$ 0.465</td>
</tr>
<tr>
<td>1905</td>
<td>$ 1.830</td>
<td>$ 0.570</td>
</tr>
<tr>
<td>1906</td>
<td>$ 1.960</td>
<td>$ 0.556</td>
</tr>
<tr>
<td>1907</td>
<td>$ 1.930</td>
<td>$ 0.490</td>
</tr>
<tr>
<td>1908</td>
<td>$ 1.460</td>
<td>$ 0.331</td>
</tr>
<tr>
<td>1909</td>
<td>$ 2.240</td>
<td>$ 0.423</td>
</tr>
<tr>
<td>1910</td>
<td>$ 2.610</td>
<td>$ 0.617</td>
</tr>
<tr>
<td>1911</td>
<td>$ 2.970</td>
<td>$ 0.481</td>
</tr>
<tr>
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<td>$ 0.359</td>
</tr>
<tr>
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<td>$ 1.960</td>
<td>$ 0.327</td>
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<tr>
<td>1914</td>
<td>$ 1.830</td>
<td>$ 0.388</td>
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<tr>
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<tr>
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<td>$ 1.212</td>
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<tr>
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<td>$ 1.393</td>
</tr>
<tr>
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<td>$ 1.830</td>
<td>$ 0.556</td>
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<tr>
<td>1922</td>
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<td>$ 1.138</td>
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<tr>
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<td>$ 0.753</td>
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<tr>
<td>1925</td>
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<td>$ 0.907</td>
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<tr>
<td>1926</td>
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<td>$ 0.776</td>
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<tr>
<td>1927</td>
<td>$ 3.630</td>
<td>$ 0.454</td>
</tr>
<tr>
<td>1928</td>
<td>$ 3.600</td>
<td>$ 0.445</td>
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<td>$ 3.280</td>
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<td>1930</td>
<td>$ 2.180</td>
<td>$ 0.333</td>
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**Annual Average Number of Wage Earners in the Gum Naval Stores Industry by State 1909-1919**

<table>
<thead>
<tr>
<th></th>
<th>FL</th>
<th>GA</th>
<th>AL</th>
<th>LA</th>
<th>MS</th>
<th>TX</th>
<th>SC</th>
<th>NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1909</td>
<td>18,143</td>
<td>12,787</td>
<td>3,519</td>
<td>1,688</td>
<td>2,573</td>
<td>—</td>
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<tr>
<td>1919</td>
<td>11,748</td>
<td>7,078</td>
<td>3,014</td>
<td>2,604</td>
<td>2,495</td>
<td>1,018</td>
<td>84</td>
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**Number of Naval Stores Establishments with Wage Earners by State 1900, 1909, 1919**

<table>
<thead>
<tr>
<th></th>
<th>AL</th>
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<th>LA</th>
<th>MS</th>
<th>NC</th>
<th>SC</th>
<th>TX</th>
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<tbody>
<tr>
<td>1900</td>
<td>152</td>
<td>366</td>
<td>524</td>
<td>10</td>
<td>145</td>
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<td>132</td>
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<tr>
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<td>175</td>
<td>493</td>
<td>592</td>
<td>23</td>
<td>64</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
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<td>452</td>
<td>441</td>
<td>33</td>
<td>45</td>
<td>14</td>
<td>22</td>
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### Net Cash Proceeds Per Fifty Gallons of Spirits of Turpentine
#### 1920-1939

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<thead>
<tr>
<th>Year</th>
<th>Proceeds</th>
</tr>
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<tbody>
<tr>
<td>1920</td>
<td>$60.94</td>
</tr>
<tr>
<td>1921</td>
<td>$28.74</td>
</tr>
<tr>
<td>1922</td>
<td>$54.28</td>
</tr>
<tr>
<td>1923</td>
<td>$38.24</td>
</tr>
<tr>
<td>1924</td>
<td>$38.96</td>
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<tr>
<td>1925</td>
<td>$45.33</td>
</tr>
<tr>
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</tr>
<tr>
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<td>$24.51</td>
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<td>1928</td>
<td>$23.37</td>
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<tr>
<td>1929</td>
<td>$22.45</td>
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<td>$18.33</td>
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<td>1931</td>
<td>$17.43</td>
</tr>
<tr>
<td>1932</td>
<td>$17.65</td>
</tr>
<tr>
<td>1933</td>
<td>$19.67</td>
</tr>
<tr>
<td>1934</td>
<td>$21.59</td>
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<tr>
<td>1935</td>
<td>$17.33</td>
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<tr>
<td>1936</td>
<td>$14.64</td>
</tr>
<tr>
<td>1937</td>
<td>$9.38</td>
</tr>
<tr>
<td>1939</td>
<td>$11.89</td>
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### Number of Gum Naval Stores Establishments
#### 1921-1939

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
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<tbody>
<tr>
<td>1921</td>
<td>1,062</td>
</tr>
<tr>
<td>1923</td>
<td>1,203</td>
</tr>
<tr>
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<td>1,183</td>
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<tr>
<td>1931</td>
<td>953</td>
</tr>
<tr>
<td>1933</td>
<td>843</td>
</tr>
<tr>
<td>1935</td>
<td>895</td>
</tr>
<tr>
<td>1937</td>
<td>933</td>
</tr>
<tr>
<td>1939</td>
<td>755</td>
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### Average Weekly Gum Naval Stores Wages Per Wage Earner
#### 1924-1940

<table>
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<td>$9.50</td>
</tr>
<tr>
<td>1927</td>
<td>$8.60</td>
</tr>
<tr>
<td>1928</td>
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<tr>
<td>1933</td>
<td>$4.03</td>
</tr>
<tr>
<td>1934</td>
<td>$4.00</td>
</tr>
<tr>
<td>1935</td>
<td>$4.60</td>
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<tr>
<td>1936</td>
<td>$5.00</td>
</tr>
<tr>
<td>1937</td>
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</tr>
<tr>
<td>1939</td>
<td>$5.00</td>
</tr>
<tr>
<td>1940</td>
<td>$5.20</td>
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### Production of Turpentine by State in Gallons

**Selected Years from 1931-1944**

<table>
<thead>
<tr>
<th>Year</th>
<th>GA</th>
<th>FL</th>
<th>AL</th>
<th>MS</th>
<th>LA</th>
<th>NC AND SC</th>
<th>TX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931</td>
<td>12,523,749</td>
<td>7,802,435</td>
<td>1,847,880</td>
<td>636,301</td>
<td>567,534</td>
<td>971,125</td>
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<tr>
<td>1934</td>
<td>14,440,650</td>
<td>6,885,000</td>
<td>2,226,150</td>
<td>451,350</td>
<td>247,350</td>
<td>951,150</td>
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<tr>
<td>1935</td>
<td>13,772,500</td>
<td>7,070,800</td>
<td>2,281,850</td>
<td>502,250</td>
<td>236,650</td>
<td>882,650</td>
<td>298,350</td>
</tr>
<tr>
<td>1936</td>
<td>13,834,050</td>
<td>6,229,250</td>
<td>2,553,850</td>
<td>554,000</td>
<td>112,250</td>
<td>762,600</td>
<td>103,300</td>
</tr>
<tr>
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<td>14,790,450</td>
<td>6,842,300</td>
<td>2,501,500</td>
<td>798,650</td>
<td>103,250</td>
<td>791,450</td>
<td>33,350</td>
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<tr>
<td>1938</td>
<td>15,289,550</td>
<td>7,443,500</td>
<td>2,236,500</td>
<td>832,600</td>
<td>193,050</td>
<td>719,350</td>
<td>95,100</td>
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<tr>
<td>1939</td>
<td>11,373,450</td>
<td>5,172,550</td>
<td>1,434,850</td>
<td>565,200</td>
<td>153,600</td>
<td>439,400</td>
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<tr>
<td>1940</td>
<td>10,910,100</td>
<td>4,328,000</td>
<td>1,172,200</td>
<td>393,500</td>
<td>91,000</td>
<td>302,000</td>
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<tr>
<td>1941</td>
<td>9,476,600</td>
<td>3,366,100</td>
<td>884,850</td>
<td>265,450</td>
<td>79,450</td>
<td>180,050</td>
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<tr>
<td>1942</td>
<td>11,169,650</td>
<td>3,450,900</td>
<td>1,000,700</td>
<td>226,000</td>
<td>50,800</td>
<td>198,450</td>
<td></td>
</tr>
<tr>
<td>1943</td>
<td>9,931,850</td>
<td>3,272,250</td>
<td>829,500</td>
<td>176,400</td>
<td>46,000</td>
<td>163,100</td>
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</tr>
<tr>
<td>1944</td>
<td>8,376,900</td>
<td>2,881,200</td>
<td>698,650</td>
<td>160,400</td>
<td>33,350</td>
<td>109,200</td>
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* Texas figures for 1931, 1934, and 1938-1944 are included in Louisiana figures.

### Production of Rosin by State in Barrels

**Selected Years from 1931-1944**

<table>
<thead>
<tr>
<th>Year</th>
<th>GA</th>
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<th>MS</th>
<th>LA</th>
<th>NC and SC</th>
<th>TX</th>
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<tbody>
<tr>
<td>1907</td>
<td>657,202</td>
<td>993,647</td>
<td>234,358</td>
<td>142,972</td>
<td>70,754</td>
<td>136,426</td>
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<tr>
<td>1908</td>
<td>673,713</td>
<td>1,081,984</td>
<td>250,269</td>
<td>155,514</td>
<td>109,650</td>
<td>114,258</td>
<td>16,050</td>
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<td>506,240</td>
<td>868,000</td>
<td>173,600</td>
<td>108,080</td>
<td>93,520</td>
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<tr>
<td>1914</td>
<td>347,931</td>
<td>733,772</td>
<td>165,099</td>
<td>154,115</td>
<td>150,793</td>
<td>22,294</td>
<td>41,639</td>
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<tr>
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<td>234,690</td>
<td>486,432</td>
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<td>115,984</td>
<td>112,900</td>
<td>7,636</td>
<td>60,179</td>
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<tr>
<td>1922</td>
<td>467,349</td>
<td>556,355</td>
<td>133,702</td>
<td>139,159</td>
<td>116,912</td>
<td>23,701</td>
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<td>627,305</td>
<td>660,009</td>
<td>151,641</td>
<td>162,231</td>
<td>145,223</td>
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<td>655,512</td>
<td>604,260</td>
<td>121,255</td>
<td>*</td>
<td>310,039</td>
<td>29,700</td>
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</tr>
<tr>
<td>1925</td>
<td>679,915</td>
<td>570,837</td>
<td>102,775</td>
<td>*</td>
<td>192,339</td>
<td>33,000</td>
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<tr>
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<td>953,923</td>
<td>711,852</td>
<td>144,381</td>
<td>117,688</td>
<td>93,601</td>
<td>50,368</td>
<td>*</td>
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<tr>
<td>1929</td>
<td>1,002,446</td>
<td>623,188</td>
<td>123,798</td>
<td>81,683</td>
<td>70,580</td>
<td>73,936</td>
<td>*</td>
</tr>
</tbody>
</table>

* Texas figures for 1931, 1934, and 1938-1944 are included in Louisiana figures.

Joseph B. Hosmer, _Economic Aspects of the Naval Stores Industry_ (Atlanta: Georgia School of Technology, State Engineering Experiment Station, 1948), 9.
Robert Boone Outland, III, was born in Ahoskie, North Carolina, on August 24, 1967. He attended private schools in North Carolina and Virginia, graduating from Virginia Episcopal School in Lynchburg, Virginia, in 1985. He received his bachelor of arts degree in history and anthropology from Wake Forest University in 1989 and his master of arts degree in history from Appalachian State University in 1991. As a doctoral student in history at Louisiana State University from 1992 to 1999, Robert served as a teaching assistant and instructor of American history. He is scheduled to receive the degree of Doctor of Philosophy at the December 1999 commencement. Robert, his wife, and their son live in Baton Rouge.
Candidate: Robert B. Outland, III

Major Field: History

Title of Dissertation: ANOTHER NEW SOUTH: PATTERNS OF CONTINUITY IN THE SOUTHERN NAVAL STORES INDUSTRY

Approved:

[Signatures]

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

29 September 1999