



## Naval Stores



### What are Naval Stores?



From the longleaf pine trees come products used in shipbuilding. These products or "stores" are turpentine, rosin, tar and pitch. At the time of the American Revolution, much of the southeastern coast of North America was covered with longleaf pine forests. The gum-like RESIN of these trees was called CRUDE TURPENTINE. The distilling of crude turpentine made SPIRITS OF TURPENTINE, which was used as lamp oil and in the manufacturing of medicines, paints, and rubber goods. A residue from the distilling process was ROSIN. Rosin was used to reduce the harshness of lye soap.

Smelting pine logs made TAR and PITCH. Tar was used to protect the rope rigging of sailing ships, to grease axles, and in making "tar paper."

Tar was used as a hair dressing and to "tar and feather" undesirable individuals in colonial society. Hot tar was also used to cauterize bleeding and to sterilize wounds and amputations. Rope, soaked in PITCH, was driven between the planks of ships to make them water tight and to coat hulls for protection from sea worms of tropical waters.

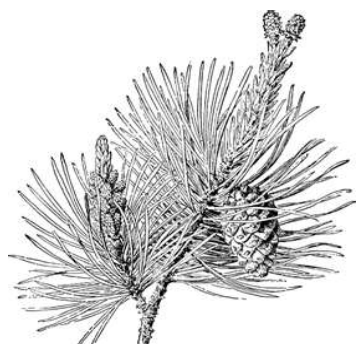
### Mercantilism



In the 1700s Great Britain followed an economic theory called mercantilism. This theory stated that the wealth of nations was dependent on gold and colonies. Gold was needed for its perceived intrinsic value. Colonies were needed as sources of raw materials for the developing factory system, as markets for those manufactured goods, and as settlements for a growing population caused by changing standards of living.

Mercantilism caused an imbalance of trade. This is evident by the shortage of "hard" money in the colonies and by the many British ships that left the colonies loaded with naval stores and returned with people, a few manufactured goods, and large quantities of ballast stone. These stones were so numerous that they were used to build house foundations and pave streets. This trade imbalance was one cause leading to the call for independence.

### The Colonial Forest



The most valuable tree to the naval stores industry was the longleaf pine. Prior to 1900, forest fires went unchecked. Fires, started by lightning, burned until they reached a river or other natural break. This periodic burning cleared undergrowth and other trees, leaving the older, larger and more fire-resistant longleaf pines.

Today the faster growing loblolly pine and sweetgum trees have changed the makeup of the coastal forest. Since the forest is no longer pruned by fire, the actual number of trees in the forest has increased. However, longleaf pine populations have declined.

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## Obtaining Crude Turpentine



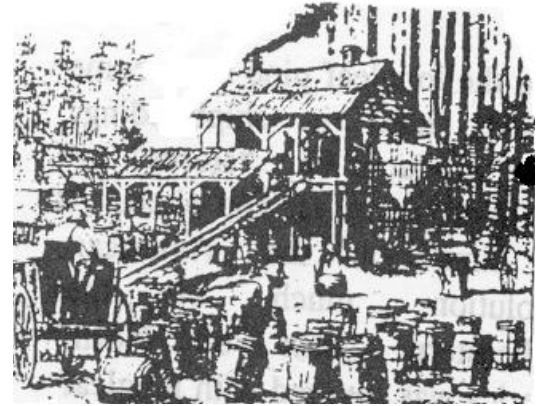
Removing resin (or crude turpentine) from the longleaf pine was a laborious task. First a quart size hole, or “box,” was hollowed into each side of the tree about a foot from the ground. Using a scraper, called a “hack”, a strip of bark was removed above the box. This strip, or “face”, was twelve inches wide and twenty inches long. Resin would seep from the trees, flow down the face and into the box.

The box was emptied seven or eight times per year. This “dipping” of turpentine did not kill the longleaf pine since the resin is not part of the tree’s nutrient system. The face would be extended each season until it reached a height of about twenty feet. At that height the tree would cease to produce enough crude turpentine to be profitable.

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## Making Spirits of Turpentine

Once removed from the longleaf pine, kegs of crude turpentine were taken to distilleries, put into large copper kettles and brought to a boil. The resin would vaporize and condense in a cooling tower. The condensed liquid became the refined or “spirits” of turpentine. Spirits of turpentine was used in paints and medicines, as a solvent, a fuel for lamps, and in processing rubber in the 1800s. The rosin left in the bottom of the kettle would be used for water-proofing leather or mixed with lard and lye to season home made soap.



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## Making Tar

Making tar and pitch required “lightwood” and a tar kiln or “tarkel”. Longleaf pines that became unproductive in making crude turpentine were sometimes used for tar production. Colonists burned the tar rich cores, or “lightwood” of these trees in their homes for light.

To remove the tar from the lightwood, a tar kiln was needed. To make a tar kiln, a round dirt platform was made in the forest. A drain, often a hollowed log, was made from the center to the edge of the platform. A pit was dug and a barrel placed to catch the tar that would gather on the platform and flow down the drain. The platform was covered in clay and packed down. Lightwood was cut into three-foot lengths and stacked on the platform like the spokes of a wheel. The lightwood was set on fire and covered with pine straw and earth. Heat released the “tar.”

Care was taken to control the burning so that tar could be produced without the kiln exploding from the gases produced. Tar kilns were not reused. Today the remains of many tar kilns can be seen in the Carolina woods. Indeed, the people of North Carolina call themselves “Tar Heels” partly in reference to the lucrative colonial naval stores industry. Tar production continued well into the late 1800s when the wide use of steel ships ended the need for tar.



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## Making Pitch

Pitch was needed to coat the hulls of ships to protect them in tropical waters. Boiling tar and a small amount of turpentine in a large iron pot made pitch. Boiling thickened the tar to a semi-solid. Hot “pitch” was poured into large barrels and a pole driven through them. These barrels could be pulled by draft animals and rolled to market.

Since roads were poor in the colonies, the most common way to get these goods to market was by river. The barge loaded with naval stores on the reverse side was a common sight in colonial America. After losing control of North Carolina in 1776, the British faced a shortage of pitch and started using copper to clad their ships.

