

ROPE MAKING

Educational handout created by the Pioneer Museum of Flagstaff, Arizona

Evidence of rope being made dates back as far as 17,000 BC. Early peoples were plaiting natural fibers by hand to create useful items and tools including fishing nets, sandals and lengths of rope used to move heavy objects. Around 2000 BC, the Ancient Egyptians made rope from reeds and papyrus plants. They created hand held spindles to spin the yarns together. These early ropes were used to help build the pyramids. In the Americas, native people were also making ropes from local barks, animal sinew and rawhide.

The first ropes were made of plant fibers. The most common plants used were hemp, manila, coir and sisal. Hemp was strong and could be grown in the cooler climates of Europe and Russia. But it was not waterproof and had to be dipped in tar in order to be used on boats. Manila comes from the abaca plant, a wild banana. It was waterproof, but could only be grown in tropical climates. Likewise, coir comes from the shells of coconuts and is found in tropical climates. It is a weaker fiber, but it does not rot when submerged in salt water. Sisal also grows in tropical climates, and had to be imported to non-tropical areas. It is a weaker fiber, but it stretches slightly making it excellent for use in mooring ropes.

Today, most ropes are made out of synthetic fibers like polypropylene and nylon, which come from refined oil. Nylon ropes are strong, but light and stretchy. They are more expensive than polypropylene ropes, which do not stretch, but can float, making them great for towing. These synthetic fibers were not discovered until the 1940s and 50s. The first wire ropes were created in 1834 and used for mining in Germany. For most of human history, ropes have been made by hand from plant fibers and animal skins.

During the Middle Ages, rope makers used simple machines called rope jacks to twist long lengths of rope in a ropewalk. These machines consisted of three hooks connected with a gear at one end and a free spinning swivel at the other. The three hooks spin together and twist the yarn into strands, and then the machine twists the strands into a rope. The rope stays together because the twists go in opposite directions. Since the length of ropes was dependant upon how long the ropewalk was, a ropewalk could stretch 1000 feet or more. Later bicycles were used to move from one side of the ropewalk to the other to save time. Rope was made by hand with simple machines until the 1700s when steam power allowed for larger machines and ropes factories and spinning mills were built to manufacture rope. Later electric power replaced steam. Automatic braiding machines were invented in the 1800s, though they were initially only used for small cords and laces.

Sailing ships needed large amounts of rope to complete trading and exploration voyages. In 1866, *The Encyclopaedia of useful Arts* lists the length and weight of rope need for a warship as 43 miles and 78.5 tons. But long before that, people were exploring the world on sailing ships using waterproof rope plaited by rope makers. Farming is another industry that has greatly benefitted from the use of rope. Rope continues to be extremely important in many industries today—from large construction projects to smaller everyday uses like laces on shoes.

Sources:

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