

Natural Fabrics

By Sydney Schwartz Hardiman

If you have ever wondered about the durability of natural fibers, consider these facts. Scientists exploring Mexican caves discovered pieces of cotton bolls and cotton cloth. When examined, the cotton was determined to be at least 7,000 years old.

In the tombs of Egypt, fragments of woolen fabrics have been found and when the tomb of Tutankhamen was opened in 1881, the 3,000 year old linen curtains found in the tomb were still intact.

The wool, linen, and cotton trades are some of the oldest trades in the world, and many of the basic processes used today are not that different than those practiced thousands of years ago. Each industry claims it is the oldest, but all three have roots which go back at least 3,000 years B.C. Sheep were one of the first animals domesticated and used in farming. Interestingly, it took a while before man realized he did not have to kill the sheep in order to get the wool. Cotton was first grown in what is now Pakistan in 3,000 B.C. and was brought to Europe around 800 A.D. Linen is also known to have been produced extensively in ancient Egypt and has even been discovered in European neolithic archeological sites.

LINEN

Linen comes from the fibers of the stalk of the flax plant. An annual planted in April the plant produces lovely blue or pink flowers. In order to assure long, straight fibers for weaving, the entire plant is pulled from the ground during the August harvest. In order to produce a yarn suitable for weaving, the plant must go through several different processes. The plant is first rippled, which removes the seeds from the seed pod. The plant must then be partially decomposed in a process called retting. The flax may either be left in bundles on the ground for several weeks or placed in large tanks of temperature-controlled water to rot.

The retting process forces decomposition of the plant and frees the linen fibers from the bark and stalk

core. After the stalks have decomposed and then dried, they go through scotching. The flax is fed through a machine which breaks up the flax and separates the stem from the bark and other woody matter. Two processes, hackling and gilling, work to comb out the rest of the flax fibers from the wood before the fibers move on to spinning. The flax fibers are spun into a yarn while being soaked in warm water, which softens them and allows them to slide over each other more readily. Finally, the linens are ready for weaving.

Many decorator fabrics made from linen tend to have an already worn look. This is due to the linen's natural density, which makes it difficult to get a good saturation during printing. Linen is also non-static, non-allergenic, a natural insect repellent, and rejects dirt. Water actually strengthens linen and a piece of linen fabric can absorb up to 20% of its own weight in water and still feel dry to the touch.

COTTON

Gossypium hirsutum is the botanical name for the cotton plant, which is a leafy green shrub that develops pink flowers that turn into fruit or cotton bolls, not unlike a dandelion. The five main types of cotton grown in the world are Egyptian, Sea Island, American Pima, Asiatic, and Upland. The United States primarily produces Upland and American Pima Cotton. Cotton bolls must open before the cotton can be picked. Originally picked by hand, it is now picked primarily by machine. Unlike linen, cotton undergoes one major process before going to the mills and that is going through the cotton gin. The gin cleans the cotton bolls and removes the seeds from the cotton, creating cotton lint. The lint is compressed into bales before being sent to the mills, who will pull the cotton fibers into alignment before sending them onto a combing machine which removes final impurities in the cotton strand and twists it so it can then be spun and eventually woven.

The ends of cotton fibers are spun very tightly into the yarns, which gives

cotton its very soft feel. Cotton blends very easily with other fibers, but by itself is hypoallergenic. Cotton breathes, is not affected by sunlight, and can also absorb large amounts of moisture before feeling damp.

WOOL

Wool is simply the fur of domesticated sheep. Wool fibers are primarily protein with a small amount of fat, calcium, and sodium. When growing from a sheep's skin, wool groups into staples which contain thousands of wool fibers. The basic techniques for processing wool are scouring, carding, gilling, combing, reducing, and spinning.

Scouring the wool is in essence washing it to remove the dirt, grease, and wax (lanolin) from the wool. It is washed several times with detergents before being rinsed and dried thoroughly. Once nice and clean, the wool must be carded, which involves running the wool through a series of rollers with wire teeth. This gets the tangles and clumps out of the wool and lays the fibers out. Gilling aligns the fibers, thins them down, and combines several together into one. After gilling, the wool is combed, which further straightens the fibers for spinning and gets rid of any further vegetable matter. The final process is reducing the wool, which thins out the wool into fewer fibers before it can be sent on for spinning.

Wool fabric is extremely thermal and is naturally water resistant. It is also fire resistant and is difficult not only to ignite, but to sustain a flame. It is also static, dirt, and noise resistant. Wool will absorb sound and reduce noise levels, which makes it a good choice for home theaters.



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