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Textiles and Fibers

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LINEN AND COTTON TEXTILES AND FIBERS

Presented to Anne-Marie

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To prove this man is the murderer you need to identify the textiles and fibers found on the scene. His clothing will identify him being at the location of this crime. The suspect was wearing a cotton shirt along with linen trousers. I have written up the components of linen and cotton fibers to show we have a match. We will discuss about the origins, compositions, properties, methods of care and other possible uses of cotton and linen.

The origin of linen dates to ten thousand years and possibly more. Egyptians had used linen in mummification as well as their clothes. Linen production has spread world wide but one of the most desirable climate temperatures to grow linen is Western Europe. Linen and cotton have been some of the most popular and frequently used fabrics as they are natural and plant and discovered first which eventually lead to the discovery of synthetic fibers. Cotton was discovered being first used in India and Pakistan dated back to ancient times 6,000 B.C. Eventually cotton spread to other countries like Egypt, Africa and Europe. At first cotton was harvested in warm climates until the demand for cotton grew and is now grown in most countries.

The compositions of linen are that it's processed from a flax plant. It is a blue flower called linum usitatissimum, where linens name comes from derived from linum. The stem of this flower can grow to 1 metre in height. The flax stem is bundled of 30-40 of these fibers and laid length wise. The fibres are soft and stretched 6-10 centimetres and are made of 70%-80% cellulose. Cotton is composed of 95% cellulose and 5% of wax, pectin, or dye. It is contained from the cotton plant also referred to as gossypium. Cotton is bright and silky and typically white although it can turn to a tinted pink. The cotton plant revels fruits inside and has 4 or 5 egg shaped pods with 6-12 seeds in these individual pods. The fibre is separated in different sections the cuticle which is the outer layer, the primary wall which is in between the cuticle and the lumen which is the inner layer.

Table 1: Properties of Linen and Cotton

Linen	**Cotton**
Soft High Absorption Durability Comfort/Insulation Smooth Average Flexibility	Insulation Power Absorption Very Flexible/Good Elasticity Durable Hypoallergic Breathable

In the above chart I have listed the properties of linen and cotton. The properties of linen are the softness of the fibers giving it comfortability, it absorbs colour well and retains it and it is environmentally friendly as it is a natural fiber. The fibers are also smooth and lint free, as well keeps you cool in hot weather and absorbs moisture. Linen is very durable giving it long lasting wear and is 2-3 times stronger than cotton. Although a disadvantage of linen is the material wrinkles easily. Cotton's properties are also soft and smooth making it very comfortable. It has insulating power which keeps the body warm and is breathable as well as hypoallergic making it suitable for sensitive skin types. Cotton absorbs moisture well, has good elasticity and can be dyed a range of different colours. Cotton also has great durability. Disadvantages of cotton is that it is susceptible to mold, yellows in light and wrinkles easily.

There are several different uses for linen and cotton. Some uses for linen are the following textiles; plain weaves, embroidered lace, rayon and sateen which is a fabric similar to silk. Linen provides oils for dyes, paint cosmetics, paper, floor covering and poultice which is a soft piece of cloth used for injuries. Linen has many universal possibilities but is mainly used for fabrics. You can make shirts, summer clothes, table cloths, pants, bed sheets and transparent fabrics. Cotton can be made into tents, sheets, coffee filters and book bindings for practical uses and for clothing textiles cotton be turned into velvet, jerseys, flannel, underwear, socks and fishnets. Cotton can also make oil by crushing the seeds and turn into cooking oils, cosmetics, soap, rubbers and plastics.

To care for linen, wash in warm soapy water and separate the colours. Only low concentrated stain remover can be used. Linen can be hung to dry or tumble dry low. If needing to be ironed, it can be done so at 230˚C and 260˚C while slightly damp. The care for cotton verifies slightly in the way it can be washed in hot soapy water and can be hung to dry or on a normal drying cycle. Most of the typical stain removers are safe on cotton and cotton can be ironed at the temperature of 210˚C.

Linen and cotton have similar properties, but also have differences in their textiles and fibers which were placed all over the crime scene. We have a distinct match as the compositions were identifiable and properties were the same found on his clothing and the crime scene. As well the textiles and fibers were shown they were given the proper care giving us another match. Even though linen and cotton can be used for many things the only traces we found were the clothing, placing him at the scene.

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