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## TEXTILE STUDY - SILK

by  
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The filament which is obtained from the cocoons of the cultivated silkworm makes the costliest and most beautiful textile fabric. A variety of materials are made from it, ranging from filmy chiffon and lace to the heaviest plushes and grosgrains, and from soft dull finishes to the most crisp and glossy ones. The popularity and demand for it at a low price have caused adulterations of it and substitutes of other fibers for it. Women's lack of knowledge is a large factor in the unreliability of purchased material.

Roughly speaking there are two general varieties of silk, the cultivated and the wild silk from uncultivated moths.

The cultivated silkworm passes through four changes in its life of a couple of months, egg, larva, chrysalis and adult, a creamy white moth which is about one inch in length. Mating follows. The female lays several hundred eggs. She scarcely moves three inches during the three days of life, the entire life of male and female being devoted to producing eggs. The eggs are laid on sheets of paper provided for that purpose. A slightly gummy liquid comes from the moth and holds the egg fast.

The sheets are gathered, hung for a few days in a damp atmosphere, and then placed in cold storage for about 6 months, the period of cold being advantageous for later hatching, which is done by heat.

The cocooneries where the silk worm is best cultivated are quiet, spacious, well ventilated rooms where an even temperature is maintained. Each worm is kept absolutely clean and has plenty of room as over-crowding brings disease. The best food is the perfect leaves of the white mulberry, which must be young, fresh and dry but never withered. The tree is cultivated especially for food for the silkworm. A cold winter followed by a warm spring develops the leaves well. Two prime requisites for good silk are the state of the leaves and the choice of the eggs. When the leaves of the mulberry are almost ready, the eggs are brought out from cold storage and subject to heat for a month or less before they hatch out. The

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eggs are small, dark, flat and round. The worm, when hatched, is about the diameter of a hair and less than three-fourths of an inch long. It gnaws a hole in the end of the egg from which it issues.

At first they merely suck the sap of the leaves provided for them, but later they gnaw the edges. The noise of many full grown worms eating is like the sound of rain. About thirty meals a day are eaten in the first stage for the worms are gluttons and eat their own weight daily. The development is rapid and within a few weeks the worm is full grown, about three inches long, white and velvety, and the spinning glands are full of transparent liquid.

The worm is now ready to spin. Brush or twigs are provided and the worm climbs into them and begins to enclose itself in its silken shell by expelling, from the openings underneath the mouth, two delicate threads which form a single one on issuing. Gradually the worm encloses itself in the interior as it forms the cocoon. It takes three days to complete the cocoon. The silkworm wastes away as the silk is exhausted and gradually changes into a chrysalis. From 15 to 20 days are spent in this state and then the chrysalis changes into a moth which moistens the ends of the cocoon and breaks its way out. (Textiles - Woolman and McGouchy)

Wild silk is produced by worms which are hatched in the open and not in nurseries under standard conditions. The cocoons are larger and the products coarser and harsher than the cultivated cocoons.

Countries Cultivating the Silkworm: - The culture of silk began in China in 2700 B. C. says tradition. The Emperor Justinian introduced the silkworm in the Levant in 555 A. D. and from the 9th to the 16th century the production spread from the south to the north of Europe. Silk raising is still a national industry in these countries, though the north of Europe is engaged in manufacturing silk rather than producing it. The culture was started in America as early as 1622, in Virginia, and has been attempted many times since, but economically the United States cannot compete with the cheap labor of the orient.

The real pongee silk comes from the Shantung Province of China. The worms are fed on leaves of the scrub oak. Each lot of silk is woven into a piece, and varies from another in quality, weight, fineness, and color. It is an undyed silk. The United States takes 10% of the product.

### CHARACTERISTICS OF TRUE SILK

1. Softness - True silk when gum is removed has an unusual degree of softness.
2. Weight - Lowest among textile fibers when gum is removed, consequently light weight fibers can be made from it.

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3. Durance - Pure silk will last for years even though given hard wear.
4. Heat conductor - It is not a good conductor of heat, consequently even when it is wet it feels warm in contact with the body.
5. Cleanliness - Sheds dust quickly.
6. Heat - Intense heat degenerates silk. Always have iron moderately warm when pressing.
7. Laundering - It does not felt, mat or shrink like wool. Silk turns yellow by washing in hot water and drying in the sun.

### STANDARD SILK MATERIALS

China Silk - Plain weave, thin material not very durable. Used for waists, and scarfs.

Canton Crepe - Fancy weave. Excellent for dresses because of its durability and does not crush readily.

Crepe De Chine - Fancy weave giving a crinkly effect, soft shiny silk. Used for dresses, blouses, drapes, because of its durability and softness.

Satin - Satin weave, smooth shiny surface; softer material than satin. Used for dresses, coat and suit linings.

Moire - Silk with a watered effect. This watered effect is made after the cloth is woven. Used for trimmings and hat coverings.

Panne Velvet - Silk velvet with nap pressed down. Used for dresses, suits and hats.

Pongee - Plain weave - Soft, pliable material. A durable and in-expensive silk used for children's clothes as well as grown-ups.

Taffeta - Shiny silk usually with a good deal sizing. Used for dresses, skirts and hats.

### ADULTERATIONS AND SUBSTITUTIONS

The effort to cheapen silk has tended to develop numerous processes which give effects that pass for real qualities with the ordinary consumer.

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1. In the manufacture of the thread, various soaps, oils, gums, glues and chemicals are added to increase the weight.
2. In dyeing, chemicals are used to add weight.

Substitutes - Fine grade of cotton is often used.

#### ARTIFICIAL SILK

This class of fabric is made from cotton or wood pulp. The pulp is treated chemically and made to resemble silk.

1. Artificial silk is usually harsher and stiffer than true silk.
2. Has a more brilliant luster than true silk.
3. Not as strong nor as elastic as true silk.
4. When wet, loses much of its strength.

#### SILK TESTS

1. Weave - Stretch the cloth lengthwise and crosswise over the thumbs. Do the threads pull or shift? Do they spring back to the original shape? Will this silk pull on the seams when made up?
2. Test for True Silk - Burn the sample of silk. True silk burns slowly, the ash curling up in little tiny balls on the edge of the burning material. An odor like burnt feathers is given off.
3. Test for Weighted Silk - Burn the sample. If there is a large amount of ash left or if the sample retains its shape after the silk is burned, it contains weighting. A heavily weighted piece, catches fire very slowly. The more weighting a silk contains, the weaker will be its fibers and consequently its life will be shorter.

Artificial and imitation silks do not give off odor of burning feathers. When burned they flame up more than silk. They do not leave the droplet form of ash found when burning true silk.