

College
Bulletin
89

College of Industrial Arts
The Texas State College for Women
Denton, Texas

WHAT'S WHAT IN TEXTILES

BY

JULIA F. TEAR

DEPARTMENT OF HOME ECONOMICS



COLLEGE BULLETIN

NUMBER 89

REVISION, 1927

MAY 1, 1921

Issued monthly by the College of Industrial Arts, Denton, Texas.
Entered December 17, 1917, Denton, Texas, as second-class matter,
under Act of Congress, August 24, 1912.

EXTENSION SERVICE

FACULTY COMMITTEE

L. H. HUBBARD, B. S., M. A.,
President of the College

LILLIAN HUMPHRIES, B. S.,
Director, Department of Extension

MARIAN LONG,
Professor of Interior Decoration

W. S. DONOHO, B. A., M. A.,
Associate Professor of English

ASTRID W. NYGREN, B. L. I.,
Acting Director, Department of Speech

HELEN A. BRAY,
Assistant Professor of Textiles and Clothing

* * *

A Staff of Lecturers, Demonstrators, and Other Extension Workers from the College Faculty

* * *

Requests for Extension Service should be addressed to

LILLIAN HUMPHRIES
Director, Department of Extension
C. I. A. Station
Denton, Texas

WHAT'S WHAT IN TEXTILES

NECESSITY FOR A "PURE TEXTILE" LAW

The pure food law has been so firmly established that we are protected from adulterated foods, but we are not protected in the same manner from adulterated materials. Although there have been a number of bills dealing with pure textiles brought up in Congress, none has been passed. Since the manufacturer is so very clever in making fabrics look so much superior to what they are and since it is difficult for women to secure much knowledge in regard to the matter, it is really necessary that purchasers of fabrics be protected by the law just as the purchasers of foods are. That such a condition is possible is evidenced by the fact that England has a British Merchandise Mark Act that has been in successful operation for thirty-two years. On May 24, 1919, Mr. Barkley introduced in the House of Representatives a bill known as the Merchandise Misbranding Bill. The purpose of the bill is the correct labeling of all merchandise. If passed and enforced, it would mean that anyone selling material labeled "all wool" or "all linen" when it is not, would be liable to fine or imprisonment. Until such a bill is passed it is necessary for the purchaser of materials to know something of the practices now in vogue in regard to the adulteration of textiles.

COTTON FABRICS

Cotton is used most commonly for clothing and household purposes and is very cheap compared with materials of linen, wool, and silk. Because cotton is the cheapest fiber and the most available one in this country, it is not combined with other fibers. The most common method used to adulterate it, is to increase its weight by adding starch, paraffine, flour, fats, or tallow. These substances make the material appear smooth and firm while in the store but when laundered the substances used for weighting wash out, leaving it a limp and inferior texture. The cheaper grades of white cotton goods such as sheeting, long cloth, cambric

and muslin, also printed materials like calicoes and percales, have starch or dressing in them. Almost all cotton goods have a small amount of starch in them so that they will keep their shape while being handled in the store, but a large per cent of weighting is considered an adulteration. One means of detecting this adulteration is to look through the material toward the light. The starch may be seen filling up the spaces between the threads. When goods with this filling is torn, the starch may be seen flying in clouds in the air. Another method of detecting this excess starch is to rub the material between the hands and the dressing will fall out as a fine white powder. Before purchasing a quantity of goods, it would be a good policy to obtain a sample and try out these tests, even the washing test, and base your decision as to purchase on the results.

MERCERIZED COTTON

Mercerized cotton has become very common on the market. It is used for dress goods, for embroidery floss, crochet thread, shoe laces, dress braids. Some hose, sold as vegetable silk, are in reality mercerized cotton. Mercerization is a chemical process which gives the cotton a higher luster and increases the strength of the fiber as well as enhancing the appearance. Consequently the price of mercerized cotton is higher than that of ordinary cotton. (The name of the process comes from its inventor, John Mercer.) The silky appearance of mercerized cotton is not removed by laundering. As this process is expensive, there is a method called calendering, used to imitate it. In calendering, cotton material is given a luster by passing it through steel rollers engraved with fine lines. This irons the fabric in such a way as to give it a silky appearance that makes it attractive while on the counter, but the finish comes off with wear and washing. Here again it would be a good plan to wash a sample of material to test the durability of its finish.

HOLES IN PRINTED FABRICS

Some of the processes of manufacture decrease the wearing quality of materials. Perhaps you have had the experience of buying

attractive percales, dimities, lawns, and foulards of dark blue or black backgrounds with small white figures in them. After a time, the white design becomes holes and the garment was ruined. The reason for this is that the material was first dyed and then an acid was used to remove the color and make the white design. This, of course, weakened the fabric there and in a short time holes appeared. Sometimes the fabric is treated with a chemical before it is dyed so that the spots that form the white design will not take the dye. Either method may cause the goods to fall to pieces after very little wear.

DOTTED SWISSES

In good grades of dotted Swiss, the designs are woven in and are permanent. In order to offer a cheaper material to the public, the manufacturer makes a dotted Swiss in which the design is made of a paste. A large per cent of the colored Swiss with white dots is made in this way. In the store it is difficult to distinguish it from the better quality, but when it is laundered, the spots wash off or turn brown when ironed. When the design is woven in Swiss of cheaper grades, the weaving is not carefully done and the threads forming the design will easily pull out. Therefore in buying goods of this class, it pays to purchase a good quality.

GINGHAMS VS. PRINTED GOODS

Ginghams and chambrays are durable and as a rule hold the color well. In the manufacture of this kind of material, the cotton threads are dyed before the goods is woven and consequently the dye penetrates thoroughly and the fabrics do not fade as readily as printed cottons. For children's dresses, boys' waists, house dresses, and aprons a good grade of gingham is a good investment. Calicoes, percales, many voiles and lawns have the designs printed in much the same manner as printing paper is done. The dye is put on the surface of the material and does not penetrate it, so the material fades easily. In printed goods the design does not show through clearly on the wrong side and they are less likely to hold their color than ginghams and chambrays.

LINENS

The high price of linen has put it beyond the reach of many for everyday use for some purposes. So much of the country that produced the finest grades of flax was devastated by war that it will probably be years before we can obtain linen in such large quantities as were produced before the war. Even before the war, there were many substitutes for linen on the market, and these have increased greatly since flax has become so scarce. Linen is of value for towels because of its absorbing power and its durability; and for table linens for its luster and freedom from lint as well as durability.

SUBSTITUTES FOR LINEN

Cotton is woven in a honeycomb weave, which makes it absorb much more easily than a plain weave. Much of the cotton toweling is woven now in this way. The huck weave is also used for cotton towels. Mercerized cotton is woven to resemble damask toweling. Tow or short linen fibers combed out in the manufacture of the long, fine linen threads, is woven with cotton or is used alone in crash or huck toweling. This makes a durable material but is hard and unattractive. It softens somewhat after several washings. With linen at its present price, it is doubtful if it pays to buy linen towels for common use. The coarse linens are preferable to cotton, however, since they absorb water so much better and wear so much longer, and also remain clean longer. Cotton towels need to be laundered more frequently.

Mercerized cotton is used to a great extent for tablecloths and napkins but it is very unsatisfactory. Before being laundered, it resembles linen in appearance but after one laundering the difference can easily be detected. It does not have the body and the gloss of linen and the lint comes off badly because the cotton fibers are so much shorter than the linen fibers. One great disadvantage of the cotton is that it is so much more difficult to remove stains from it than from linen. If the cotton damask is starched a little and ironed very damp, it retains some of the gloss, but it is not highly satisfactory. It does not remain as white as linen and becomes gray looking.



JAPANESE COTTON LUNCH CLOTH AND NAPKINS. ONE CLOTH AND ONE-HALF DOZEN NAPKINS. \$2.50 UP.

CONSERVATION OF LINEN

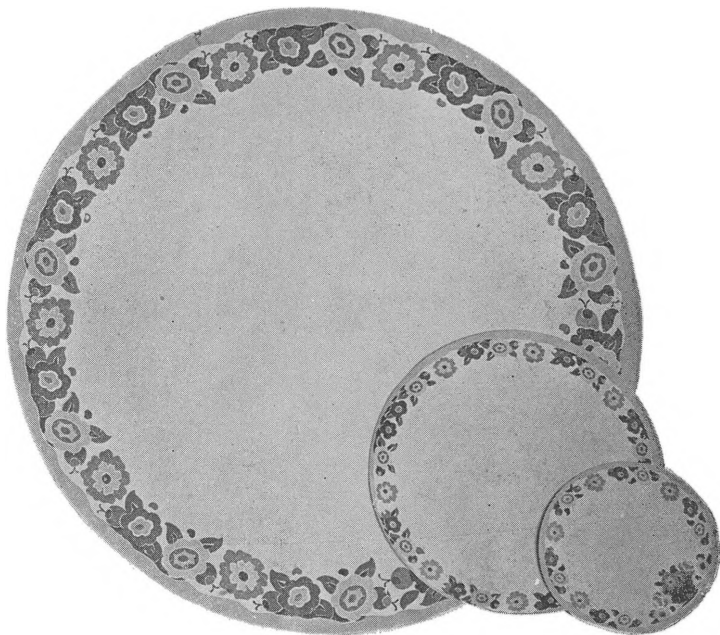
For tablecloths, napkins, scarfs, and doilies, cotton can never take the place of linen because it does not have its lustrous appearance, as the most clever imitations do not retain their luster after being laundered a few times. During the present situation it is wise for the housewife to conserve all her linens as much as possible by mending them carefully and by substituting other things for them whenever possible. The Japanese printed cottons are made in attractive designs, are durable and inexpensive. Tablecloths, napkins, luncheon sets, table runners and dresser scarfs may be obtained in this material. The use of luncheon sets saves the labor required in the laundering of a large cloth. Centerpieces and luncheon sets of a pebbled oilcloth, or sanitas stenciled in attractive designs are also used to conserve one's linen supply. When the good linen tablecloth becomes worn, one can cut out the good portions and hem them for napkins or tray cloths. Unbleached domestic and Indian Head embroidered in simple and attractive designs are being used for small cloths, napkins and scarfs.

There are unbleached damasks for table linen that are less expensive than bleached and are more durable; they will bleach out in time. In purchasing table linen, it is far better to buy the coarser, cheaper linens than the mercerized cotton because the linen will always look better. It is economy in the end to buy the best table linen one can afford and to purchase from a reliable store that will tell the truth about the goods it sells.

COTTON IMITATIONS OF LINEN

There are so many imitations of plain linens such as butcher's linen and handkerchief linen, that it requires an expert to detect some of them. A long cotton fiber which is twisted very hard and woven with the little irregularities of the linen fiber is used. It is sometimes treated with starch or magnesia to add gloss and weight. Magnesia gives the cool "feel" of linen. A large part of the so-called "linen suitings" are of cotton or are "union goods," which is the trade name for a mixture of cotton and linen.

"Union goods" is also used for towels, tablecloths, etc., and reliable firms sell it as such. Some of the cotton suitings are quite satisfactory for dress goods because they do not wrinkle as badly as linen but at best they are only an imitation of linen and should not be sold as "pure linen."



SANITAS LUNCHEON SET—13 PIECES—\$1.50 TO \$2.00.

TO DISTINGUISH BETWEEN COTTON AND LINEN

"How shall I distinguish between cotton and linen?" is a question in many women's minds. It is difficult to distinguish between them, but there are a few simple tests that may be of help to the housewife who does not have the equipment of a chemical laboratory. It is necessary to have samples to remove any surface dressing. Ravel out several threads each way of the material and break each one in two. Linen is stronger and breaks with a snap

and the fibers are shorter and curly; the ends of the cotton thread are more fuzzy. Another test for linen is to put a drop of oil (olive oil or glycerine) on it. Press it between pieces of blotting paper. If linen, the spot will look dark and clear when held against a dark background. If cotton, the spot will be opaque. A mixture of cotton and linen will look less clear than all linen. The linen will absorb the oil more rapidly than the cotton. Another simple test is to put a drop of ink on the fabric to be tested. The ink will be absorbed very quickly by linen and follow the threads in an uneven line while the spot will be even around the edges of cotton. The dressing in the material should be washed out before using either the ink or the oil on the material. In trying these tests, it is well to have a piece of cotton goods like bleached domestic or long cloth and try tests on it as well as the sample to be tested so that one can compare results on one which is being tested with one which is known to be cotton. If a sample of goods is boiled and it loses its gloss and becomes "sleazy," one can be quite sure it is cotton, as linen retains its gloss and strength after washing.

Linen does not dye readily and when dyed, loses its color easily, so that colored linen generally fades, especially lavenders and greens.

ADULTERATIONS OF WOOL MATERIALS

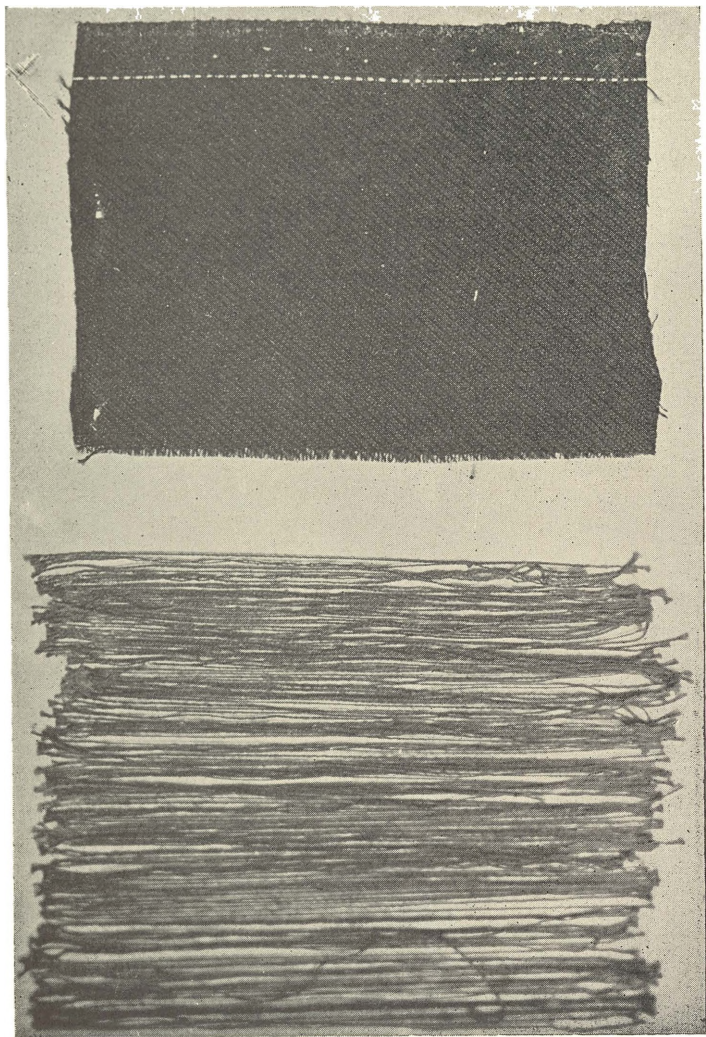
Wool is so expensive that a number of methods have been used to adulterate woolen materials. Cotton, being the cheapest fiber, is used in many ways. Fabrics are woven with cotton warp and wool filling and stripes of cotton threads are woven into wool cloth. Cotton fibers are mixed with wool fibers and they are spun into a thread together. This use of cotton is very difficult to detect. Peruvian cotton, which resembles wool in appearance, is used alone and is spun and woven in an imitation of wool fabrics. Cotton is treated chemically to give it the appearance of wool.

Another method of adulteration is the use of "shoddy" or re-manufactured wool. Because the wool supply has increased at the same rate as the demand, due largely to rapidly changing fashions old wool material is torn apart and the wool is again used. If the wool fiber is long and strong, it is not considered an adulteration, but if the fiber is very short and of poor quality, it is decidedly an adulteration because the material made from it will not be durable. Fabrics made from the poor grades of shoddy pull apart very easily.

WORSTED AND WOOLENS

Wool materials are divided into two classes, *worsted* and *woolens*. The *worsteds* are made from long fibers, all the short fibers being combed out. The threads are well twisted and the cloth has a smooth surface and a distinct weave. Serge, gabardine, tricotine, etc., are worsteds. It is more difficult to adulterate this class of material with cotton and not have the texture affected. In testing a number of materials of this type, a very small per cent were found adulterated with cotton and these were low in price and did not have a good appearance and a clear color. In those adulterated with cotton, in most materials, the warp was all of cotton.

Cotton in worsteds is to be avoided because the material will not hold its shape and plaits will not stay in press. If the material gets damp, it wrinkles badly. It pays to buy good worsted and



SERGE 36 INCHES WIDE, \$1.50 A YARD.
COTTON WARP REMAINING AFTER SAMPLE WAS BOILED IN
CAUSTIC POTASH. WOOL FILLING THREADS WERE DISSOLVED.

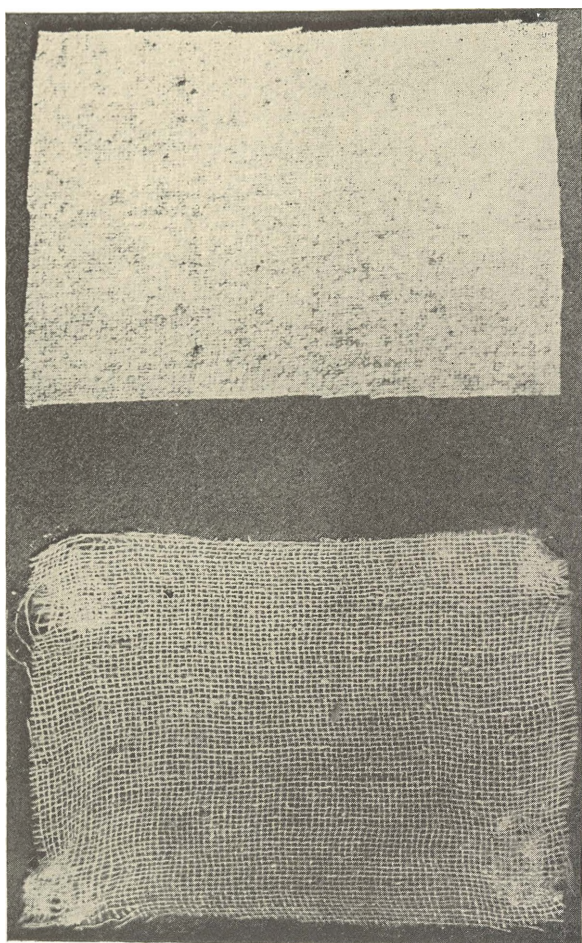
to pay enough to get all wool because of the superior appearance and durability.

Woolens are made of threads composed of short fibers, which make the surface somewhat fuzzy, and the weave is indistinct or covered entirely by a matted or felted surface. In the process of manufacture, the wool fibers are not combed to remove the short fibers and to make them lie parallel as in worsted. When spun, the fibers do not make a smooth thread. This makes it possible to mix a large amount of cotton with the wool before spinning it into a thread and still have the surface of the cloth appear "woolly." A cotton warp also can be entirely concealed by a woolen woof, the fuzzy surface of the woolen thread covering the cotton. Flannel, wool velour, broadcloth and blankets are "woolen" materials, and because of the rough surface which conceals the foundation, they may contain a large per cent of cotton.

For suitings often a material that is part cotton will wear as long as the garment remains in style and will answer one's purpose, but it does not have quite the appearance of an all wool material and it certainly should not command the price of all wool. In blankets and flannels, one wants the wool for warmth as well as for durability, and an all wool article is worth the cost. Some cotton in flannels is not objectionable because it prevents them from shrinking as badly as all wool flannel does.

DETECTION OF COTTON IN WOOL MATERIALS

The feel of wool is quite different from that of cotton. It is harsh and elastic, while cotton is inelastic and softer. Wool cloth is hard to tear and the ends of the woolen threads are more curly than the cotton threads. The threads may be ravelled out and burned. Wool burns slowly with a blue steady flame, smoulders, and leaves a gummy residue. The odor is strong, like that of burning hair. Cotton burns quickly with a bright steady flame and leaves a gray ash. It is easy to distinguish between cotton and wool *threads* by this method, but it is difficult to detect cotton *fibers* that have been spun with wool fibers. The surest test is to boil a sample of wool in a solution of 1 to 2 teaspoonfuls of household lye or caustic potash in one pint of water. Boil the



WOOLEN SUITING. COTTON FOUNDATION REMAINING AFTER SAMPLE WAS BOILED IN CAUSTIC POTASH. THE WOOL THREADS WERE DISSOLVED. THIS METHOD OF ADULTERATION IS USED IN THE MANUFACTURE OF FLANNEL AND BLANKETS.

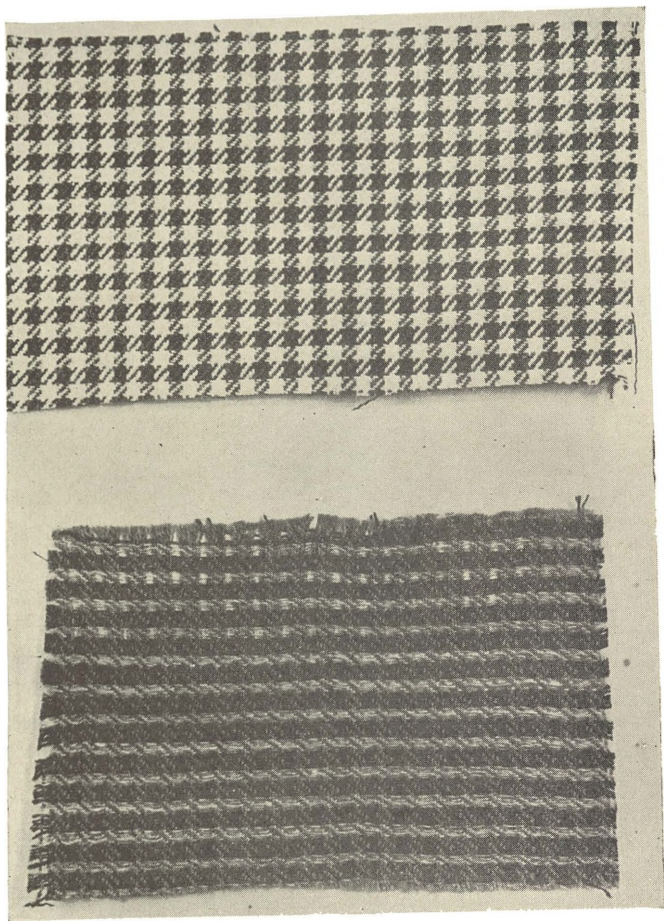
sample to be tested for fifteen minutes. If it is all wool, it will be completely destroyed. Any cotton will remain intact. This is the surest test and is one used by buyers and manufacturers.*

Many striped wool materials are all wool except the stripes in materials like white serges. The colored stripes in dark wools are often cotton. The black and white checks known as Shepherd's plaid are often adulterated with cotton. In one instance, only every other white thread of the filling was wool. In another, the white filling threads were all wool; all the black threads and the white warp were cotton.

Brilliantine, alpaca, mohair, and Sicilian cloth are made of a long, very wiry variety of wool and are always woven with a cotton warp, but they are durable, have an attractive appearance and are reasonable in price.

Worsted materials such as serges, tricotines, poplins, hold their shape well, but have the disadvantage of becoming shiny with wear. Woolen materials (those with a fuzzy surface and not a distinct weave) do not become shiny but they do not keep their shape as well as the worsteds.

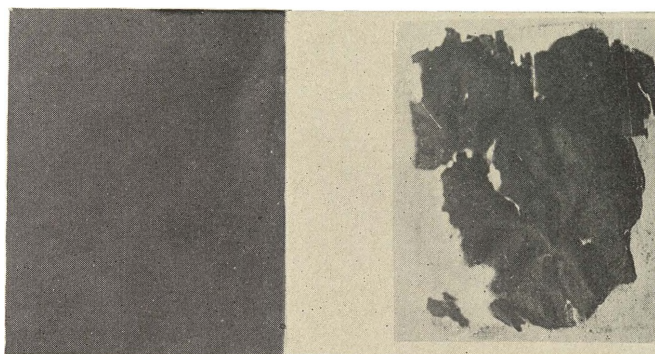
*NOTE.—One large mail order house advertises that all wool used in their tailored garments has been tested by this method.



SHEPHERD'S PLAID, 54 INCHES WIDE, \$3.50 A YARD. COTTON REMAINING AFTER BOILING IN CAUSTIC POTASH. WHITE WARP THREADS WERE WOOL AND WERE DISSOLVED. ALL WOOL PIECE COST \$6.00 A YARD.

SILK

Silk, because of its great cost, is adulterated in many ways. It is adulterated in a very different way from that used in other fibers. Silk has the power to absorb moisture until it is several times its original weight without injuring its luster, which is its chief asset. Manufacturers take advantage of this by treating the silks with acids and with solutions of tin, lead, and even sugar. A small

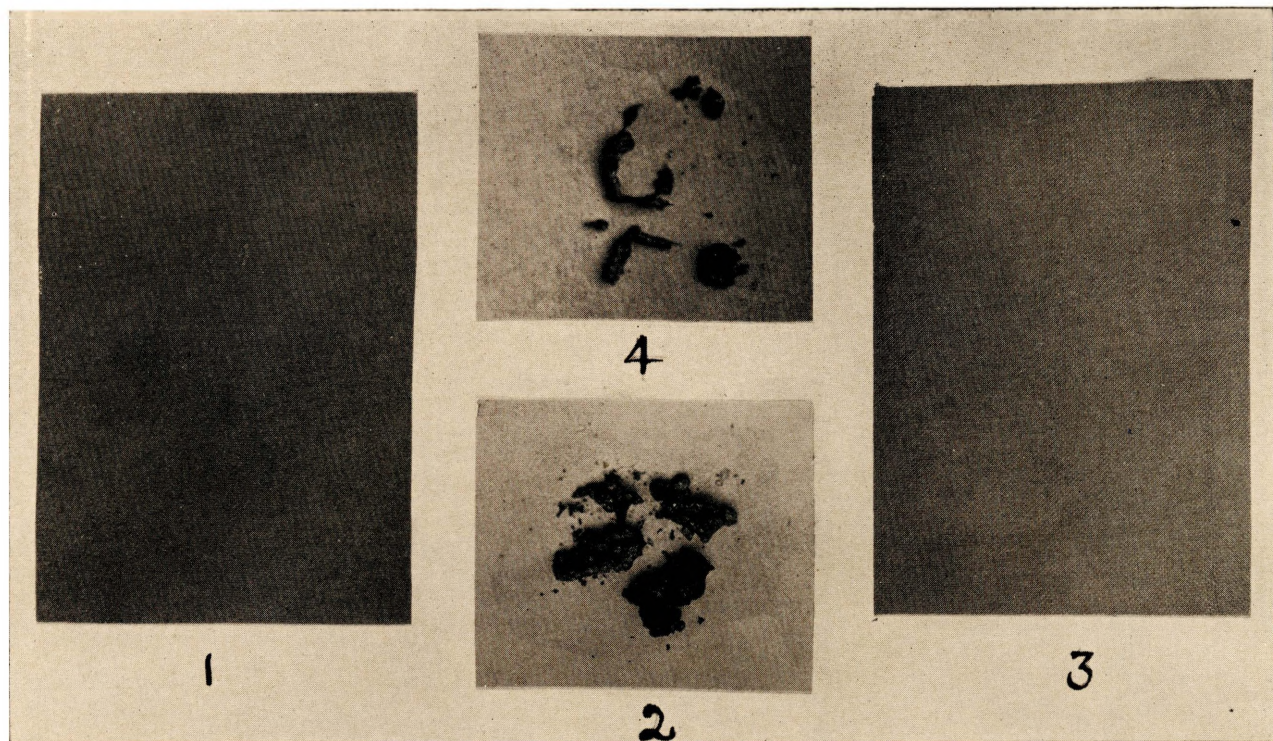


TAFFETA. 36 INCHES
WIDE, \$2.50 A YARD

RESIDUE AFTER BURN-
ING SAMPLE IN FLAME.

amount (thirty per cent) of this weighting, as it is called, is legitimate and does not injure the wearing quality of the silk. However, the silk is often weighted until its original weight is increased two, three or even as much as five times. This causes the fiber to weaken and it falls apart easily. This explains why taffeta dresses crack after little wear and why silk which has been lying away for some time becomes full of holes. Perspiration weakens the silk and cleaning will cause it to fall to pieces. The cleaner and dyer are often blamed for ruining silk dresses when it is the fault of the manufacturer and not of the cleaner. The demand for cheap silks on the part of the public has led to the wide use of weighting silks.

Soft silks which do not crease after being crushed in the hand are not usually heavily weighted. Crepe de chine, georgette, and chiffon belong to this class. Materials that are stiff like taffetas



1. CREPE DE CHINE, 40 INCHES WIDE, \$2.45 A YARD.

2. RESIDUE AFTER BURNING SAMPLE IN A FLAME.

3. PONGEE, 36 INCHES WIDE, \$1.50 A YARD.

4. RESIDUE AFTER BURNING PONGEE SAMPLE IN A FLAME.

THE SMALLER THE AMOUNT OF RESIDUE, THE LESS THE AMOUNT OF WEIGHTING IN A SILK FABRIC.

are usually heavily weighted. Natural color pongees are durable silks because they are made of a wild silk which is unbleached and undyed.

There is a simple test that anyone can use to detect the weighting. Burn a sample of material by touching a match to it. Pure silk burns rapidly. Any weighting will be left as a blackened residue. If very heavily weighted, the residue will keep the original shape of the sample but will fall to pieces when touched.

SILK ADULTERATED WITH COTTON

Cotton is often combined with silk, usually being used as the warp, the silk filling wholly or partially covering the cotton. In satins and velvets, the cotton forms the back and is entirely covered by the silk. Many of the silks that are part cotton look fairly well and are more durable than heavily weighted silk, but should not be sold as "all silk." Silk poplins and other corded silks are made with cotton, linen or wool filling, cotton making the least durable material. If the silk is of poor quality, such materials split badly.

Mercerized cottons are woven to resemble pongees, rajahs, and other materials and are more durable than a cheap silk, but ought to sell for cotton and not for silk.

ARTIFICIAL SILK OR RAYONS

Artificial silks, or rayons, as they are now called, are produced in large quantities. Wood pulp or raw cotton is treated chemically until it has a luster similar to silk and somewhat resembles the silk fiber in appearance. It is used extensively in the manufacture of underwear, sweaters, hosiery, ribbons, and embroidery silks and in combination with cotton or wool in materials by the yard. Rayons have a higher luster than silk but are not as soft or as pliable. There are several kinds on the market but in general appearance they are similar. Care should be used in laundering rayons as they lose their strength when wet. Therefore they should not be subjected to much rubbing or strain when wet.

HINTS ON PURCHASING OF CLOTH

Heavy silks at low cost are a poor investment because one can be rather sure they are weighted. The mark of the manufacturer on the selvage is a good sign because a manufacturer does not usually attach his name to a poor fabric.

In buying any material, it is well to test the endurance by pressing the two thumbs together on the cloth and then pulling the material out straight, first warp way and then filling way. If it tears or frays in either direction, it shows lack of strength.

If the threads of either the warp or filling move easily, the material will not stand strain. Corded materials in which either the warp or the filling is much stronger than the other, will not have much endurance.

Dimity with cords in both warp and filling will wear better than one with cords only one way of the material.

Names such as "linfeel," "linene," "linon," and "flaxon" are all applied to cotton goods made to resemble linen. "Wool finish" blankets are cotton blankets finished "to pull the wool over the eyes" of the customer. They usually have a long, soft nap.

The cost of any material depends on the quality of the fibers that make up the fabric, on the weave and finish, on the color and design, and last, but not least, on fashion. Good colors that are fast and good designs add to the cost of materials. But fashion often plays the leading role among the factors that enter into the price of cloth. At the end of the season, all the fashionable fabrics are often greatly reduced in price. The retailer must make what he can out of them before they are passé. Good quality in a color that has been popular in the past season may be obtained at a low cost. The price is not necessarily an indication of the quality. At the beginning of a season, the price is due to the prevailing fashion and women too frequently sacrifice quality for a transient style and the cost of clothing takes a large per cent of the family income.

Until we have a "pure textile" law similar to our "pure food" law, women will have to be informed as to the various adulterations on the market and demand the truth in regard to fabrics. Women

are likely to rely on the information of ignorant clerks in regard to durability, fastness of dyes, and other questions.

"The best for its purpose is the cheapest," is a good slogan for the women who purchase materials for clothing and household uses.

REFERENCES

Textiles—Woolman and McGowan.

Textiles—Paul Nystrom.

Household Textiles—Charlotte Gibbs.

Dressmaking—Jane Fales.

Journal of Home Economics.

Clothing: Choice, Care, Cost—Woolman.

Pictures for illustrations were taken by a student in Professor Adkisson's class in photography.