

DAMAGE TO FABRICS—FABRIC CONSTRUCTION

ABRASION ON RIB WEAVE

Why does this occur? Some fabrics have low resistance to abrasion because of the way they are made. For example, a ribbed effect may be produced by using a large yarn of low twist in the crosswise direction of the fabric and then covering it with many small, fine, low-twist filament yarns in the lengthwise direction. The small fine yarns are on the surface and form the outer covering of the heavier crosswise yarn. This type of fabric construction offers little resistance to abrasion in wear.

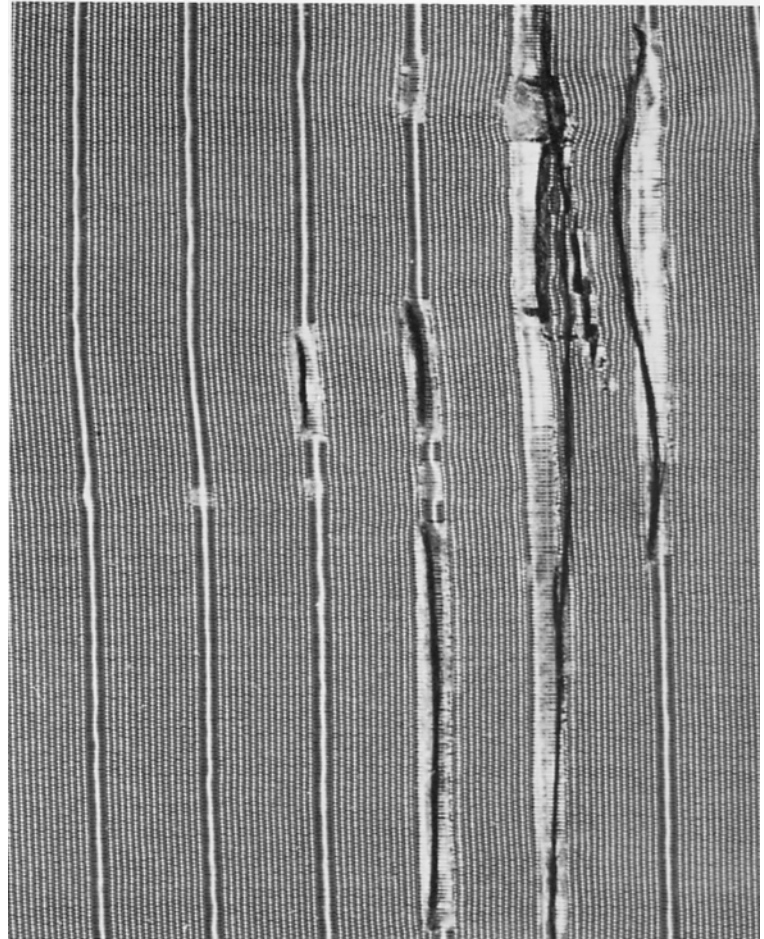
When does this occur? Sewing with a needle serves to separate the yarns in this type of fabric. This separation becomes more noticeable with wear and successive drycleanings.

How may this be controlled? The filament warp yarns are so fine that they have a tendency to shift or break easily. This problem may be controlled by better balance of yarns in the warp and filling directions.

(Reference: NID Technical Bulletin T-235)

FIGURE 112

In some ribbed weave fabrics, the fine filament warp yarns are easily abraded in either wear or drycleaning. When they separate they expose heavy filling yarns of a different color. Often the separation of the filament yarns is brought on by stitching in the garment construction.



BAR EFFECT IN KNITS

Why does this occur? During manufacture yarns sometimes come in contact with oil used to lubricate the knitting needles. Sometimes these oil traces are so minute that they are not noticed and are left in the yarns.

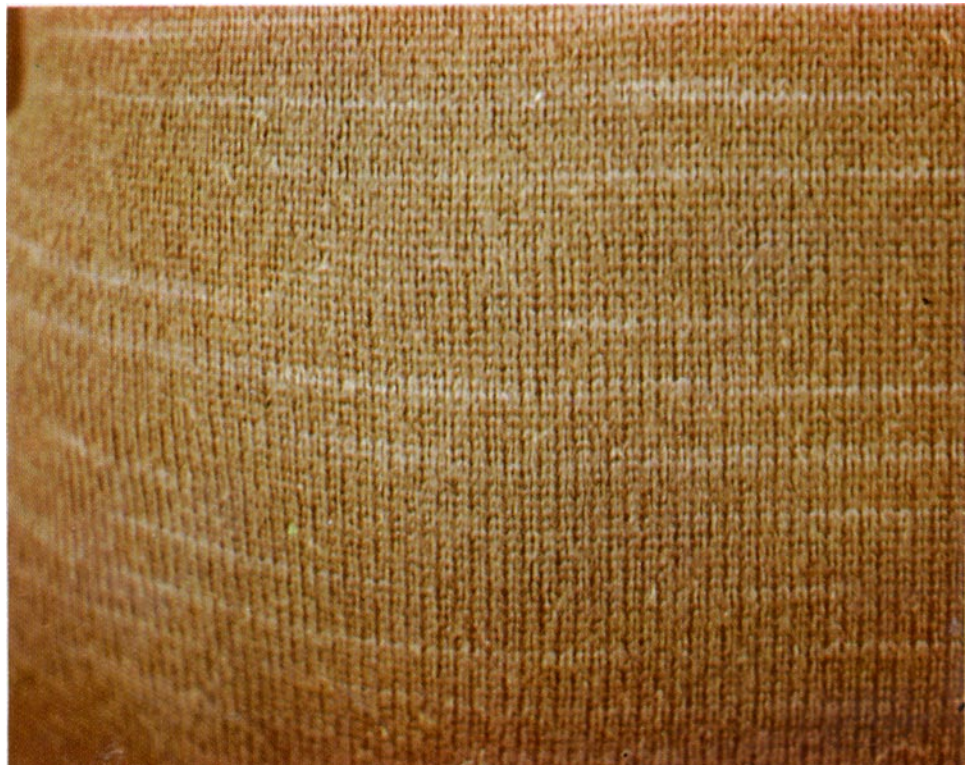
When does this occur? Over a period of time, these oil stains oxidize and become more apparent. The heat of drying and finishing

when the garment is drycleaned may bring to light this oxidation of the oil stains. They can always be recognized as the stain develops in a straight-line or bar pattern.

How may this be controlled? Once this stain develops, it is often impossible to remove. This type of damage may be controlled by care during manufacture.

FIGURE 113

When this sweater was made, the yarns picked up oil from the knitting machine needles. With time, the oil stains oxidized, producing streaks.



LOSS OF ELASTICITY—STRETCH FABRICS CONTAINING RUBBER

Why does this occur? Fiber classification of stretch fabrics is important because of the wide use of natural rubber in stretch fabric constructions. Stretch fabrics containing rubber should be wetcleaned if garment construction permits. They should not be drycleaned unless labeled drycleanable.

Several factors may contribute to the loss of elasticity in stretch fabrics containing rubber.

1. *Segmentation of natural rubber core yarn.* A rubber filament is wrapped with a textile yarn, usually cotton, which is then referred to as rubber core yarn. In drycleaning the rubber absorbs solvent and swells. In this condition, the rubber loses elasticity and breaks easily when stretched. Flexing of the fabric in drycleaning and drying, breaks the core yarn and causes the fabric to relax and become elongated. Synthetic rubber yarns are drycleanable.
2. *Deterioration of the rubber core yarn.* Some fabrics show complete breakdown of the rubber yarn into a powdery substance. The fabric develops an odor peculiar to rubber that has deteriorated. If very small amounts of copper or brass get into a batch of rubber, it can cause rapid deterioration. Small particles of brass or copper from the gears of the

textile dyeing and finishing equipment, plus time, may result in complete deterioration of a rubber yarn.

Why does this occur? Stretch fabrics differ in their degree of stretch. Stretch is important. Recovery after wear and drycleaning is just as important. If a fabric is stretched during wear at the elbows, knees, across the seat, and these areas will not recover after drycleaning, wetcleaning and finishing, dissatisfaction with the fit of the garment will result. Some stretch fabrics may elongate from their own weight while hanging.

How may this be prevented? Proper fit of a garment is the first step for satisfaction during wear. Proper care is the second consideration. Follow manufacturer's care instructions. Wetclean stretch fabrics containing rubber. Some stretch fabrics should be placed flat in a drawer rather than hung on a hanger.

Rubber core yarn makers should use sequestering and chelating agents in the dyeing and finishing of fabrics made with rubber core yarns. The agents combine and neutralize the free copper or brass and this prevents the deterioration of the rubber.

(Reference: NID Fabrics-Fashions Bulletins FF-105; FF-106.)

SEE FIGURES 114, 115, 116 ON PAGE 487



FIGURE 114

The metallic fabric used in this band uniform is a filling stretch fabric of rubber wrapped spirally with a cotton yarn. The warp or lengthwise direction of the fabric is made with an acetate and a metallic yarn. After wear and drycleaning, the original elasticity of the fabric was lost, resulting in a wrinkled garment.

FIGURE 115

This shako covered with the metallic stretch fabric and used for band uniforms is described in Fig. 114. It curled and rippled during wear. The shako was not drycleaned.

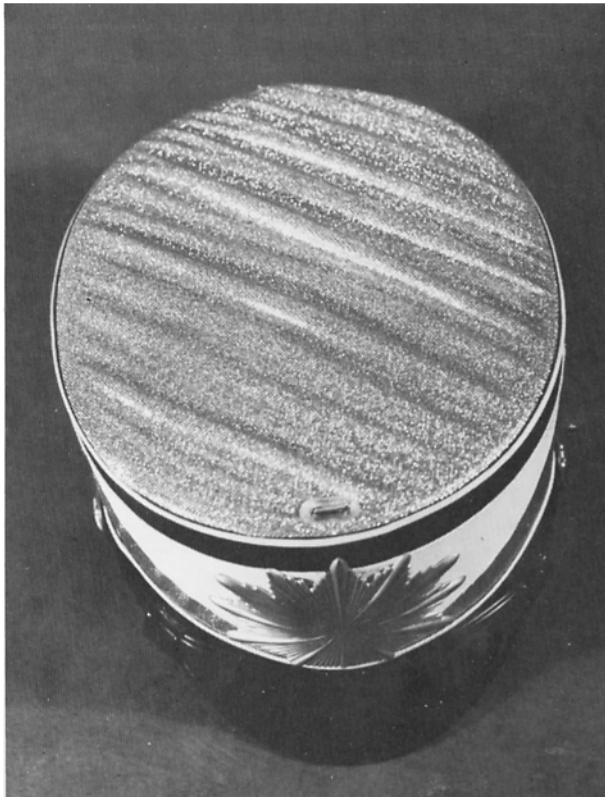


FIGURE 116

The fabric used in the stretch pants pictured is made with a rubber core yarn wrapped with a cotton yarn. Note how the yarns have relaxed in the areas of stretch during wear.



OIL STREAKS

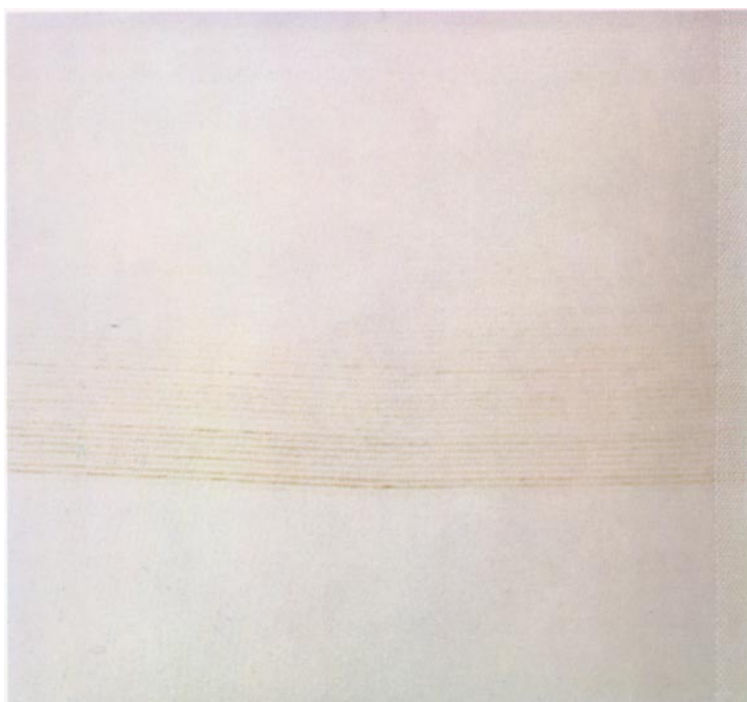
Why does this occur? Many different types of oil and grease are used in the weaving and finishing operations in making yarns and fabrics. Sometimes these oils and greases come in contact with the yarns of fabrics while the fabric is being knitted or woven. When the stains oxidize they cannot be removed.

When does this occur? Although the oil or grease comes in contact with the yarns or fabrics during manufacture they do not develop into stains immediately. After a period of time or aging, the streaks and smudges become noticeable.

How may this be prevented? This type of damage may be controlled in the textile mill. Careful inspection will eliminate damaged goods from reaching the consumer market.

FIGURE 117

Three yards in a thirty-nine yard length of silk Duchess satin had to be discarded because of oil streaks and smudges.



PILLING

Why does this occur? Pilling may be defined as the bunching together of fibers on the surface of the fabric. They appear like little balls. Soft-textured and loosely woven or knitted fabrics of wool, Orlon, Dacron, nylon and Acrilan may pill under certain conditions.

When does this occur? Pilling may occur in wear alone or wear in combination with drycleaning. Excessive pilling of a soft-textured, loosely woven, or knitted fabric may also occur if it is not handled properly in drycleaning. If pilling is caused by wear

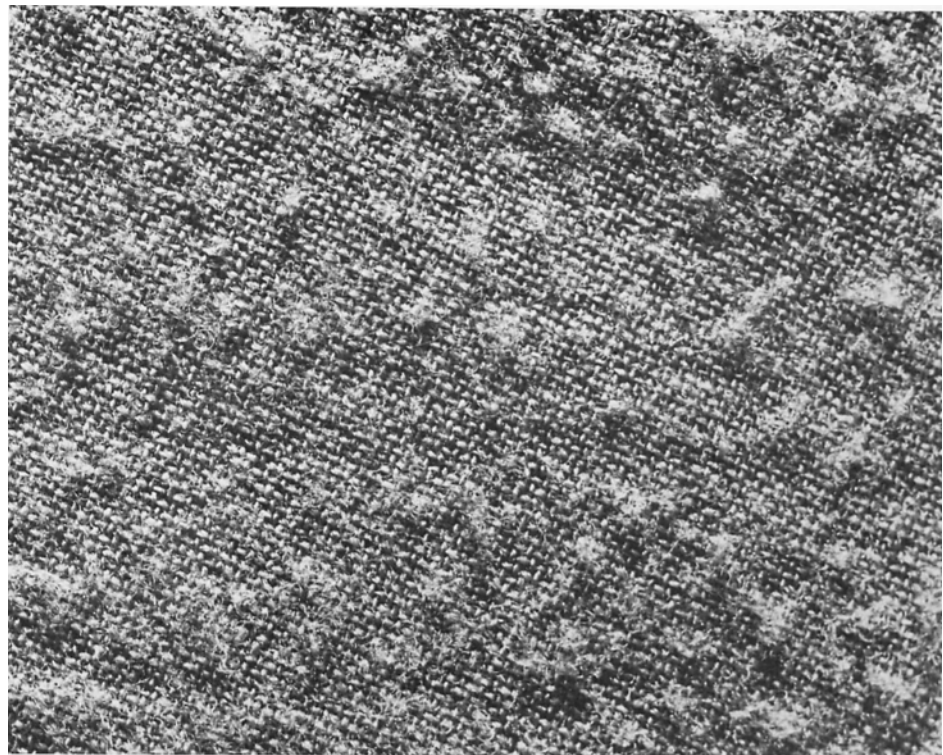
it shows up only in areas subject to abrasion in wear such as the underarm, seat, back, or crotch. Generally speaking if pilling is caused by drycleaning, it shows up all over the garment.

How may this be controlled? Yarn and fabric construction techniques and special finishes have been developed which reduce the tendency of fabrics to pill. Drycleaning methods also may be controlled to reduce pilling of fabrics.

(Reference: NID Technical Bulletin T-198)

FIGURE 118

Fibers of loosely twisted yarns may work to the surface of a fabric in the form of little balls or "pills." Pilling may occur in wear; drycleaning may accentuate it.



QUILTED FABRICS—DAMAGE FROM FIBER BATTS

Why does this occur? Quilted fabrics are used in coats, jackets, carcoats, raincoats, housecoats and ski wear. The majority of quilted fabrics perform satisfactorily. Consumer dissatisfaction with them may be classed as follows:

1. *Bonded wool in quilted interlinings:* Wool fibers are bonded together with synthetic rubber. The rubber breaks down from oxidation giving off hydrochloric acid in sufficient quantities to cause some dye-stuff to change color (see page 432) and some fabrics to disintegrate. (See page 457.)
2. *Color bleeding of wool fibers in quilted interlinings:* Multi-colored dark wool fibers are used in making the batt. The dye in the dark wool bleeds when moisture is used in prespotting, or spotting on the spotting board with steam, water, and detergent or a wet spotting reagent. The color stains the outer fabric. (See page 419 and 420).
3. *Finish applied to the fiber batt causes flattening and stiffening of the batt:* A batt of fibers is quilted between the outer fabric and an open mesh cotton gauze. The fibers are sprayed with polyvinyl

acetate, a resin with low thermoplasticity. The heat required in finishing softens the resin resulting in flattening and stiffening of the batt.

4. *The use of a thin non-woven paper-like sheet between the fiber batt and the cotton gauze in the quilted construction:* Between the outer fabric and the cotton gauze, a batt of reprocessed wool fibers and a very thin, paper-like sheet are quilted together. The paper-like sheet breaks along the line of stitching. It disintegrates in drycleaning.

When does this occur? The fabric failure begins in wear. It is accentuated in drycleaning.

How may it be prevented? The problems cited above may be controlled in manufacture by: (1) Selecting binders that do not oxidize to acid in wear and drycleaning; (2) Using fibers in batts that are colorfast to moisture; (3) Selecting and using binding agents that are not heat-sensitive; (4) Selecting a non-woven fabric of heavier weight and using the proper length stitch and controlling the width of space between the lines of stitching.

(Reference: NID Fabrics-Fashions Bulletins FF-58; FF-73; FF-86.)

SEE FIGURES 119, 120, 121 ON NEXT PAGE

FIGURE 119

Some quilted fabrics have closely spaced patterns of stitching; others larger patterns. (See Figure 120.)

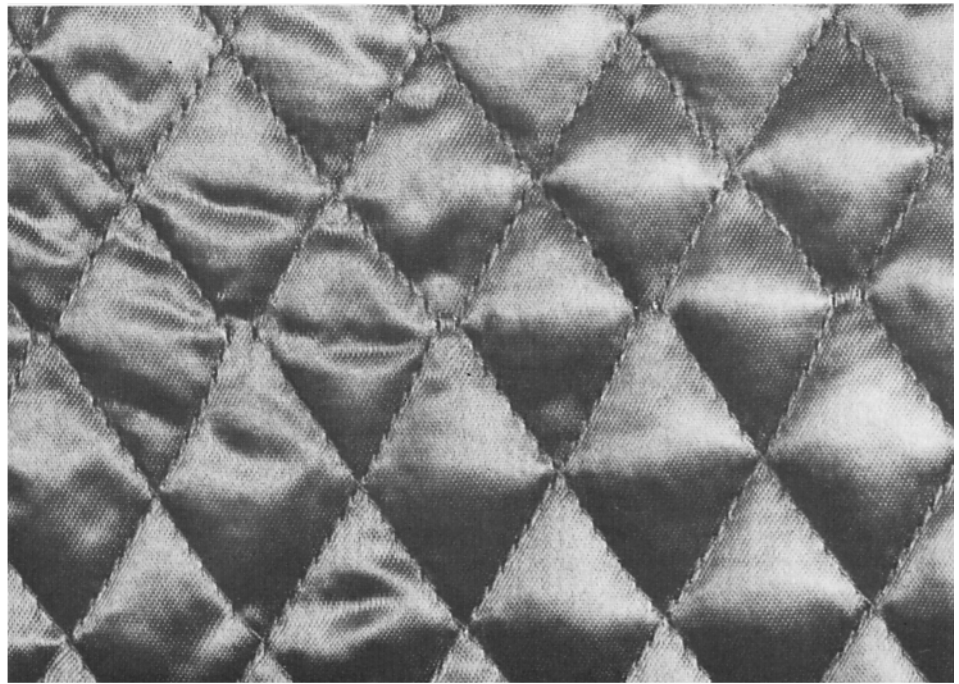


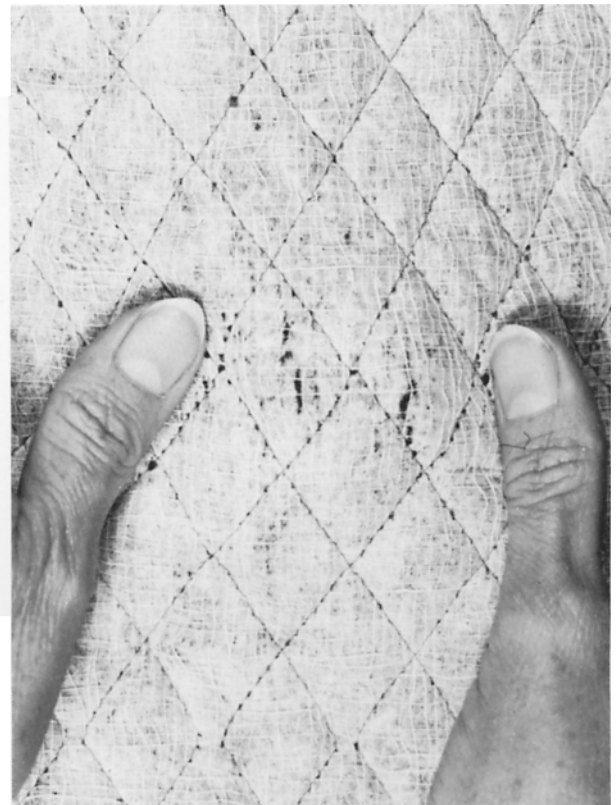
FIGURE 121

Place the lining fabric between your thumb and first finger. Slight pressure will show the low tear strength of the non-woven paper-like sheet.



FIGURE 120

Note the breaks that occur in the non-woven paper sheet. Note also the larger design of the quilted pattern. This fabric has not been drycleaned.



STRUCTURAL DESIGN—BOUCLÉ YARN

Why does this occur? The structural designs of some fabrics are made by the introduction of novelty yarns in either the warp or filling direction or both directions. The decorative yarn may be caught and held to the surface by very fine filament yarns. These fine yarns have very low strength and break easily.

When does this occur? This type of damage may occur from abrasion in wear alone, or abrasion in wear and drycleaning.

How may this be prevented? Certain decorative design constructions have limited serviceability in wear and drycleaning. They should be purchased with this fact in mind. Due to certain limitations in production of decorative designs, all cannot be made to have the same degree of serviceability or durability.

(Reference: NID Fabrics-Fashions Bulletin FF-23)

FIGURE 122

The decorative design of this fabric is made by introducing a bouclé yarn in the filling or crosswise direction of the fabric. The fine warp yarns break from abrasion in wear, causing the bouclé yarn to hang loosely from the base fabric.



STRUCTURAL DESIGN— UNSUPPORTED METALLIC YARNS

Why does this occur? A structural design (See page 97) may be made by the use of metallic yarns. In some cases the metallic yarn is used in both the lengthwise and crosswise direction of a fabric to create a checked design. Where the metallic yarns cross one another, they are not supported by a textile yarn. Where the metal yarns do not cross, they are supported by a textile yarn.

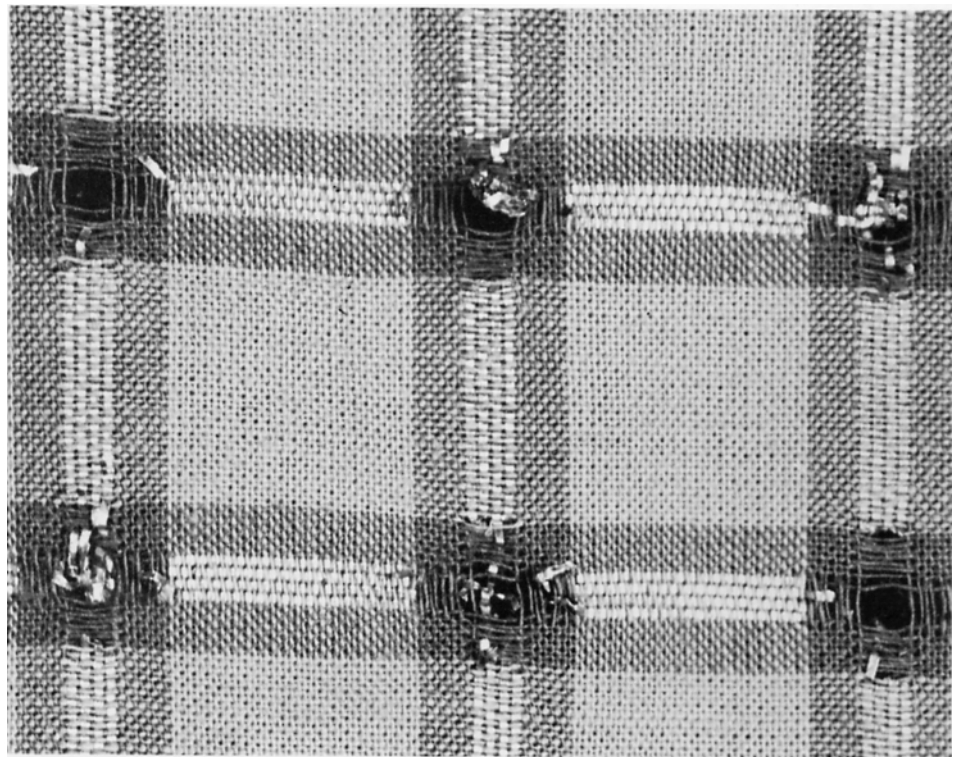
How does it occur? Damage often occurs at the point of intersection of the metallic yarns. The metallic yarns do not possess flexibility, hence they tend to cut each other.

How may this be controlled? This is a problem of fabric design. Perhaps modification of the weave and better balance and support of yarns would serve to overcome this problem.

(Reference: NID Technical Bulletin T-265)

FIGURE 123

Where the metallic yarns cross each other, they are not supported by a textile yarn. Since they lack flexibility, they cut each other, forming a hole.



"V" AND "W" TYPE VELVET

Why does this occur? There are two types of velvet pile constructions. One is called a "W" pile; the other a "V" or "U" pile. V-shaped pile velvets are made by passing a yarn through and around one yarn of a base fabric and then back again. The pile is not anchored very securely and, therefore, it may be removed easily. In some fabrics, a sizing is applied to the back of the fabric to hold the pile more securely in place. In a "W" pile, the pile yarn passes over and under two warp yarns. This anchors it securely.

When does this occur? A partial loss of pile may occur in the V-shaped velvet from abrasion or rubbing of the fabric surface during

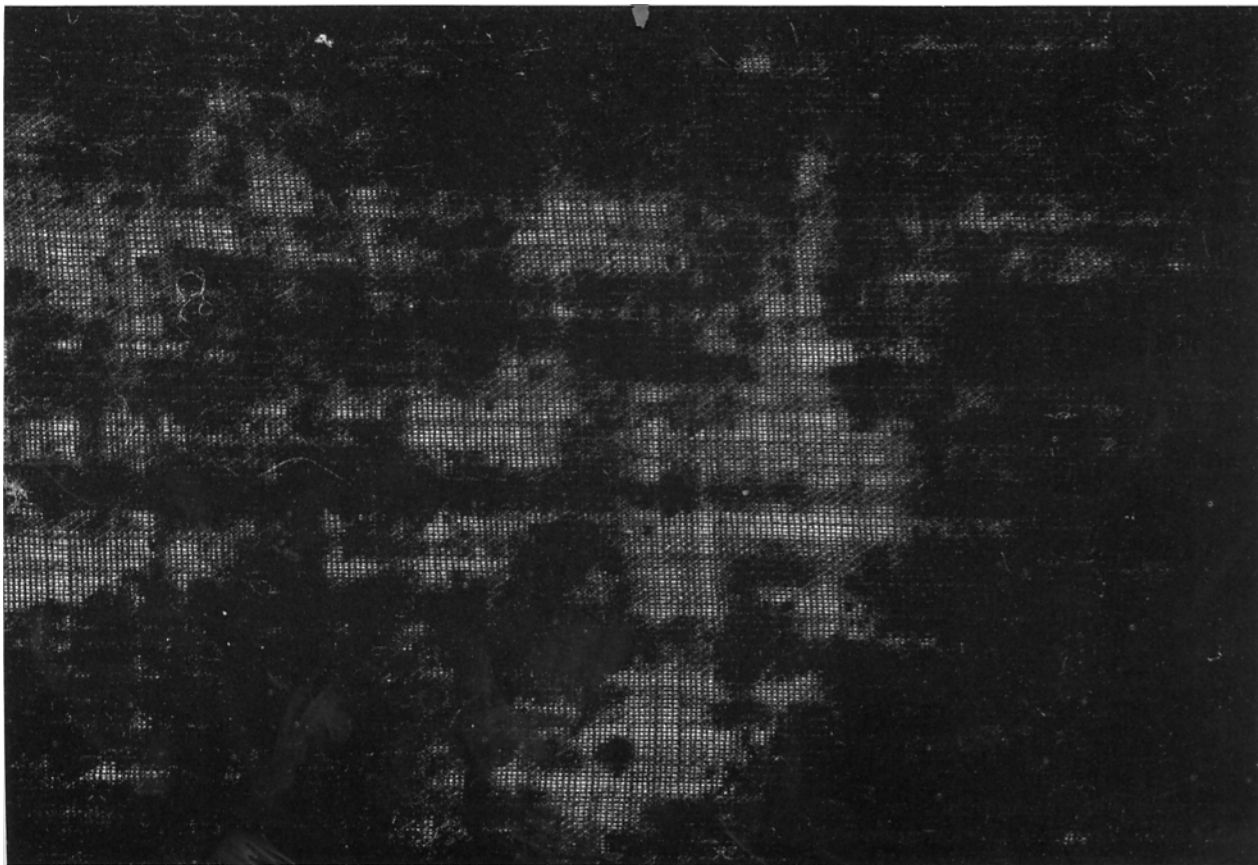
wear. The sizing may be loosened by flexing during wear. A partial loss of pile may also occur in drycleaning. The sizing may be disturbed. The flexing during drycleaning is sufficient to cause some of the pile to be removed from the fabric.

How may this be controlled? V-shaped pile velvets are inexpensive as compared with W-shaped pile velvets. They may perform very satisfactorily for some uses. A W-shaped pile should be selected for any item that will be subjected to flexing and rubbing in wear and drycleaning.

(Reference: NID Technical Bulletins T-129; T-222)

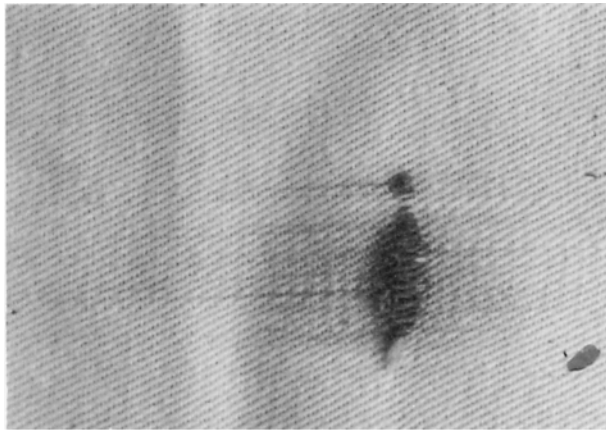
FIGURE 124

The pile of a V-weave velvet is not anchored securely and comes loose easily in wear and drycleaning.



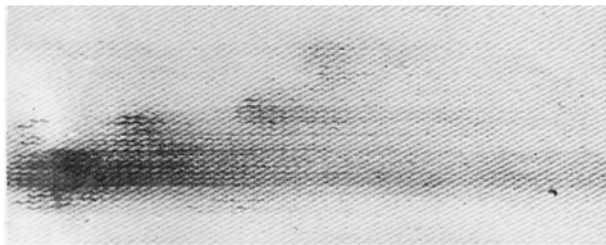
WOVEN DEFECTS

There are certain types of defects in woven fabrics that occur during manufacture. Such defects may result in lost yardage or waste to the textile producer. Some of these fabrics may be classified as seconds. The fabrics may be purchased for "sale merchandise" or find their way into mill end shops and be sold at a reduced cost. Usually these are appearance defects and do not affect the fabric's performance characteristics. Weave defects such as illustrated may not be noticed at the time of purchase. Garments or household items may be



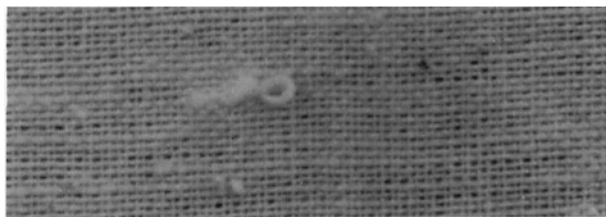
a

This type of defect is called an oily slub. There are many ways that oil and grease can get on the warp and filling yarns.



b

This is an oily smear. Many oil and grease stains are removed during the various finishing operations in the textile mill.

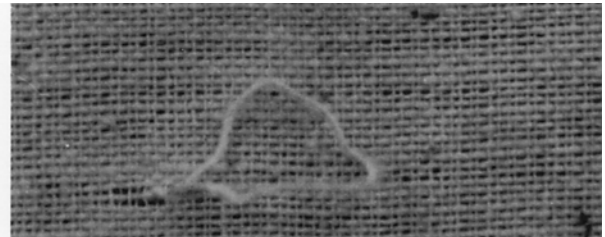


c

Kinky fillings are short thick places running in the crosswise direction of the fabric in which small loops in the filling yarn are spaced at irregular intervals.

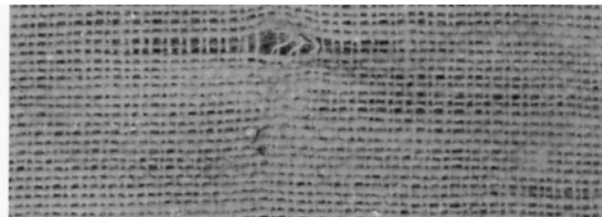
made from them without the defect being apparent. They may become apparent after the item has been worn, drycleaned, wetcleaned, or laundered.

Mr. Wilmer C. Westbrook, Consulting Editor, Textile World and now Assistant Editor of that publication, prepared a series of nine articles published in Textile World that show all major fabric defects. Some of these major defects are pictured below through the courtesy of Mr. Westbrook:



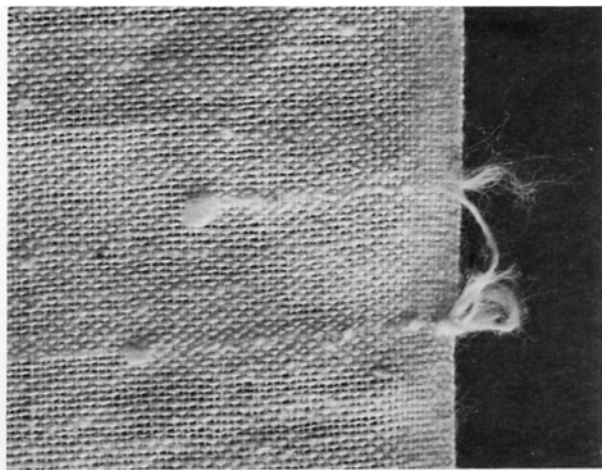
d

The filling yarns may be looped or twisted forming a complete loop on the face of the fabric.



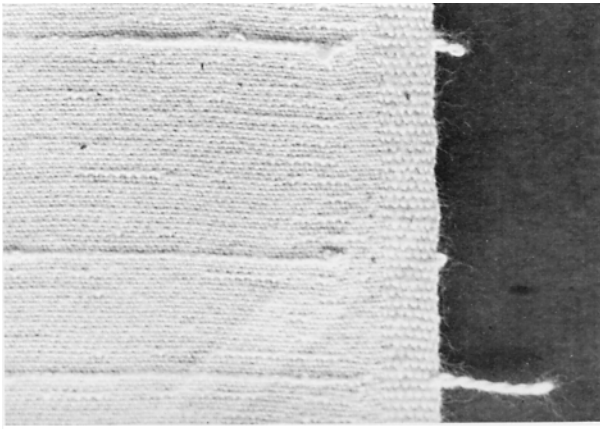
e

If the loops are pulled out, cracks and holes may occur in the fabric.



f

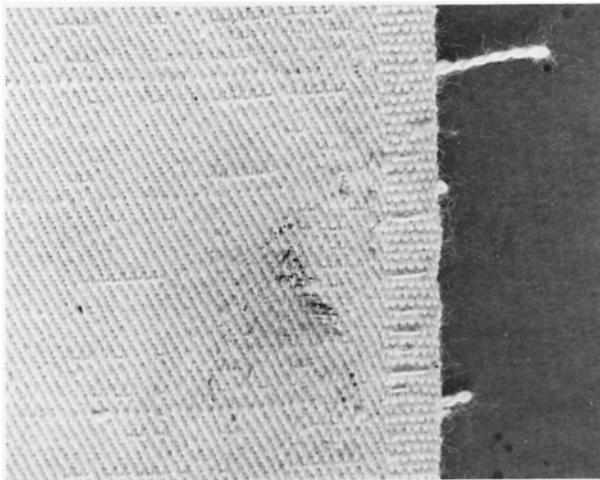
This is called a "Thread-Cutter Jerk-In." An extra strand of filling yarn is woven into the fabric. The dangling end is pulled in.



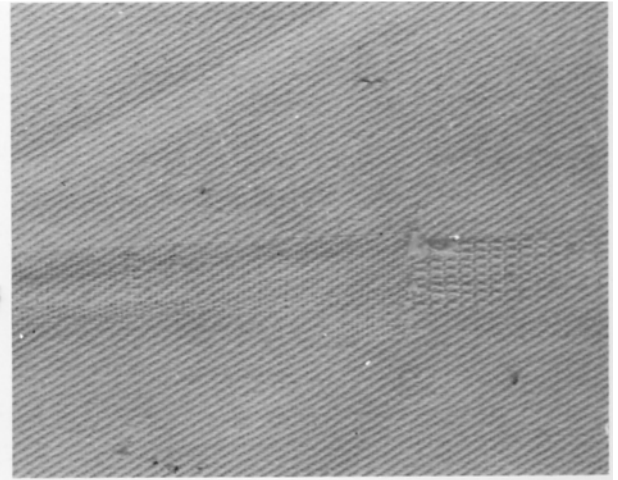
g
 Loop-Ins on this twill weave fabric were caused by the imperfect setting or timing of the harnesses of the loom during weaving. This defect is more visible on the back side of the fabric.



j
 This is a serious defect. It is called a Drawback. It is caused by an extra warp yarn.



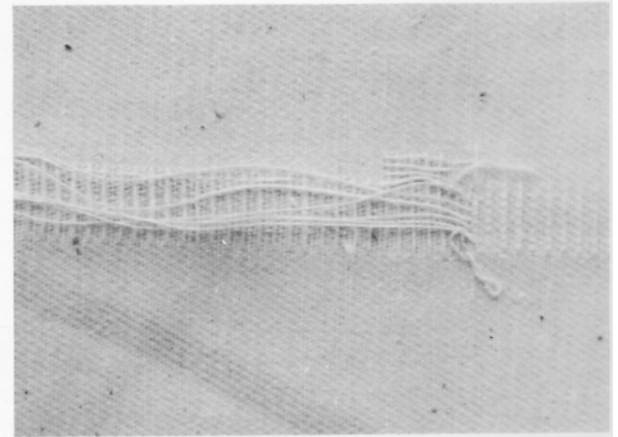
h
 This defect on the face of the fabric was caused by a harness skip during the weaving of the fabric.



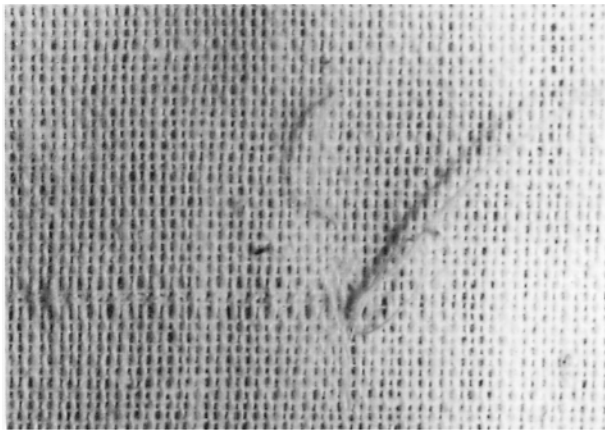
k
 Defects in the warp direction of a cotton fabric may be caused by small cotton balls matting between the drop wires of a loom. This causes a drawback in the finished fabric.



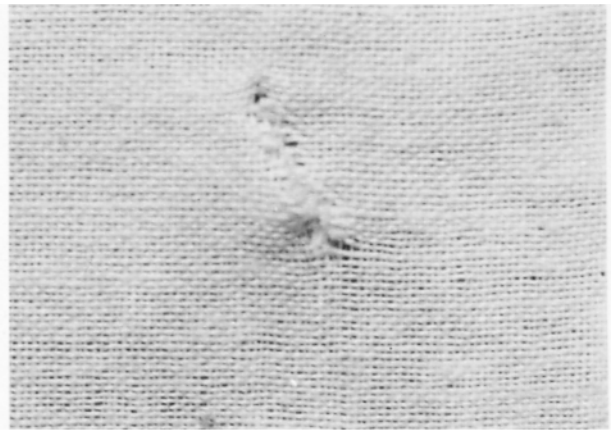
l
 An attempt to correct a Jerk-In during the weaving of a fabric often leaves a crack in it.



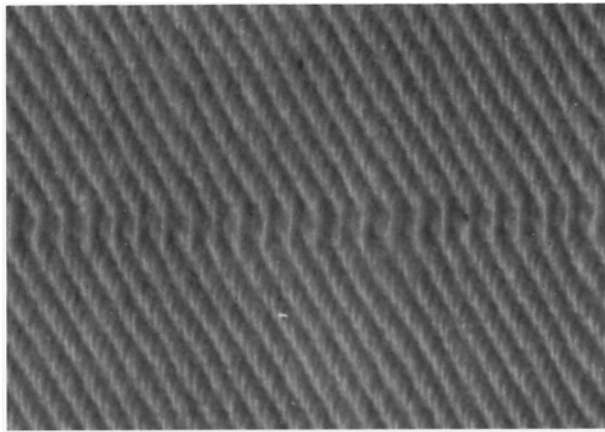
l
 This type of defect is called a "Harness Tangle." It may be caused in several different ways during the weaving operation.



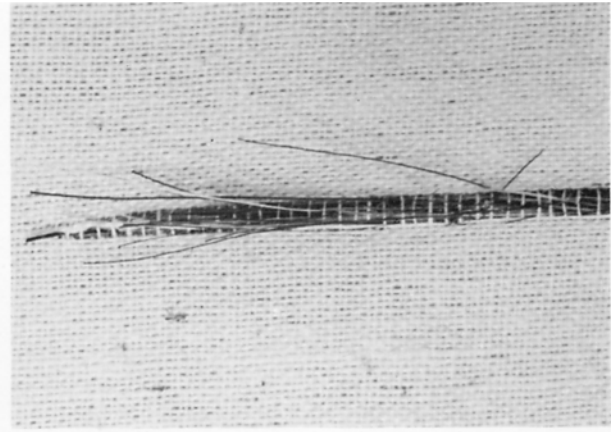
m
A missing warp on this twill weave fabric occurred because of a mechanical defect during the weaving operation.



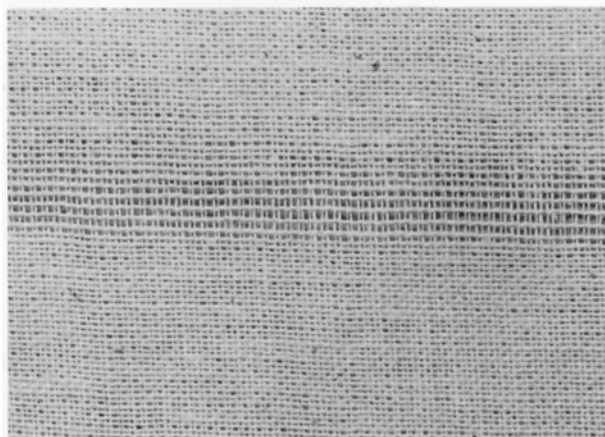
p
Cut places in a fabric that occur during the weaving operation are a serious defect. It can result in a great loss of yardage.



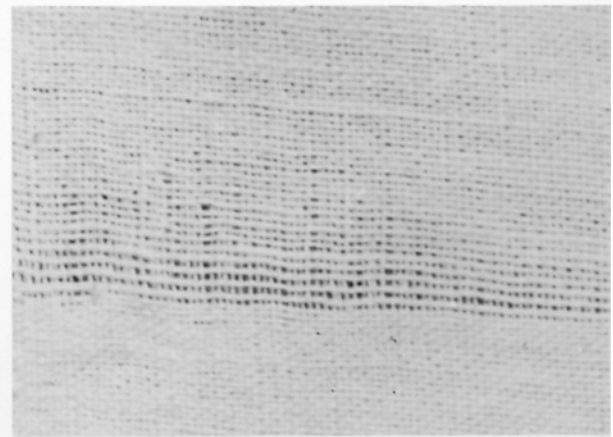
n
The filling yarn is not interlaced with the warp yarn properly. This is called a mispick. This defect may extend the full width of the fabric or only a few inches.



q
Foreign objects are often woven into a fabric. In the fabric illustrated, the foreign matter is shuttle bristles.



o
Thin places in a fabric may result from faulty operation of the loom or carelessness during the weaving operation.



r
This defect is called a Shuttle-Trap. A smash or a relatively large hole in the fabric was prevented in this instance because of a safety control on the loom.

WRINKLING—PERMANENT

Why does this occur? Occasionally curtain, drapery, and garment fabrics become permanently wrinkled. This is usually traceable to textile mill processing. In the heat-sensitive fabrics the wrinkling is usually traceable to the heat-setting operation. In others, it is traceable to such mill operations as roping, folding, or creasing during the washing, fulling, crabbing, or decatizing operation. If a fabric remains in a folded or creased condition for a long period of time, permanent wrinkles will set in the fabric.

When does this occur? In the tentering proc-

ess, the fabric is straightened, freed from wrinkles and placed on a bolt for shipping to the retail or garment trade. If there are any permanent wrinkles in the fabric, they are not apparent at this stage. After the garment is made from the fabric, worn and drycleaned, any permanent distortion gradually reappears in the form of permanent wrinkles.

How may this be controlled? Greater care in textile processing may help to eliminate this type of problem.

(Reference: NID Technical Bulletins T-179; T-209)

YARN SLIPPAGE

Why does this occur? There are several reasons why a fabric performs unsatisfactorily as regards yarn and seam slippage. They are: Too few yarns per inch in the lengthwise and crosswise direction of the fabric; little or no twist in the yarns used to weave the fabric; an unbalance of yarns between the lengthwise to the crosswise direction of the fabric; the break-up in certain fabrics of sizings which act to stabilize the yarns.

When does this occur? Yarn and seam slippage may occur in wear if a garment is fitted too tightly. Strain on the fabric or just a rubbing action in some cases may result in the yarns shifting. Moisture from perspiration may remove the sizing that holds the yarns

in place. Slippage of yarns may occur in areas thus affected. The solvent action and the flexing action of drycleaning may also break up the sizing and allow shifting of yarns.

How may this be controlled? This type of problem may be controlled by adding more twist to the yarns, increasing the thread count of the particular fabric, establishing the correct relationship of balance of warp and filling yarns, and the selection of a sizing that will not be disturbed by wear and drycleaning.

(Reference: NID Fabrics-Fashions Bulletins FF-4; FF-70.)

FIGURE 125

Yarn slippage may occur in a fabric because of the lack of twist in the yarns and the low number of yarns per inch.

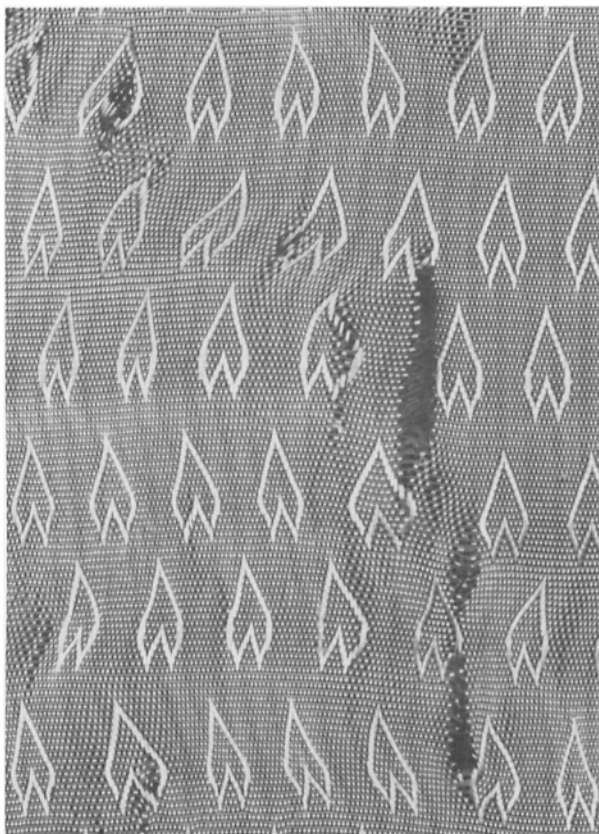
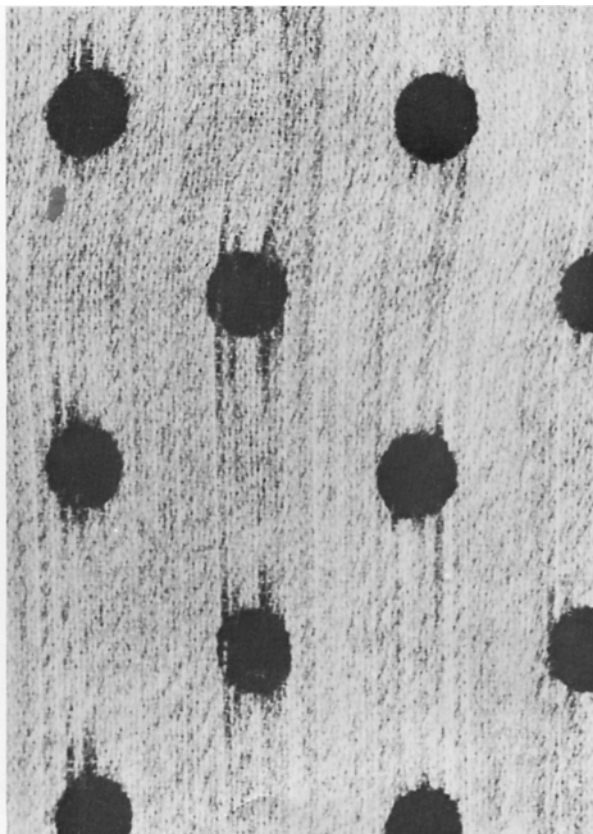


FIGURE 126

Yarn slippage from wear and cleaning, resulting in appearance of staining as though dye has bled.



DAMAGE TO FABRICS—SURFACE DESIGNS AND PRINTS

CORDED DESIGN (MECHANICAL DAMAGE)

Why does this occur? Cotton cording or glass cording may be used to produce a raised design in garments. Recently, designs made using the glass cording have caused two complaints: (1) disintegration of the cording on the underside of the garment, and flattening of the design on the right side of the garment; (2) skin irritation from the glass cording. Glass fibers irritate the skin of some individuals.

When does this occur? In wear and drycleaning, the glass yarns cut through the cotton fabric used to cover the cording. The exposed glass fibers serve as a source of irritation to the skin of the wearer.

How may this be controlled? This type of problem may be controlled by better design construction.

(Reference: NID Fabrics Fashion Bulletin FF-23)

FIGURE 127

The fibers of this glass cording, used to create a raised design, cut through its cotton covering, causing fabric damage.



COUCHED DESIGN (CHEMICAL DAMAGE)

Why does this occur? In making a corded design in a cotton dress, the design is first drawn on a special tissue paper that has been treated with sulfuric acid. The tissue is treated with acid so that it can be removed by disintegrating with heat after it has served its construction purpose. The sewing operator follows the outline of the design on the tissue paper when stitching the cotton cord between the lines of the design. This gives a raised cord effect. After the design is stitched, the tissue is removed from the fabric by applying heat.

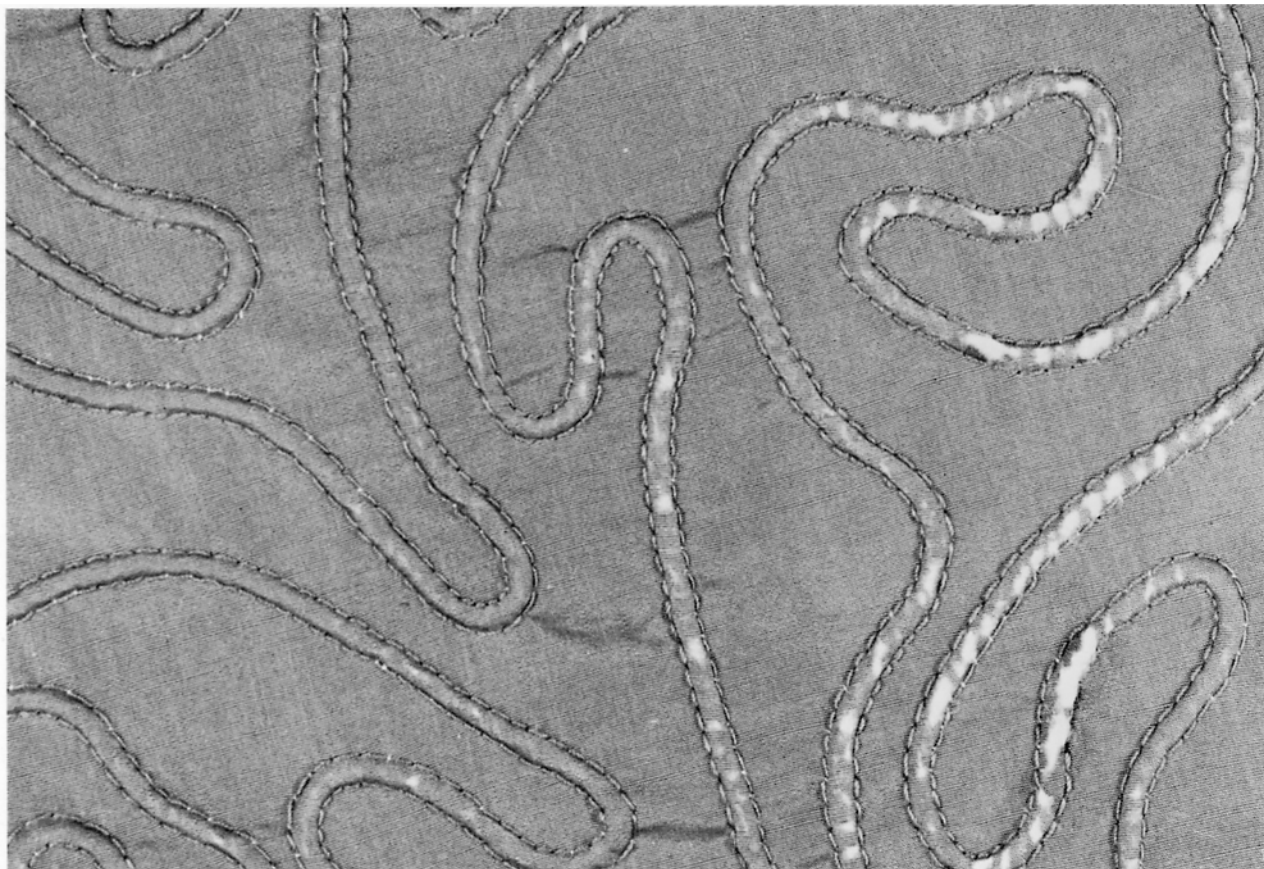
When does this occur? The presence of the sulfuric acid and the application of heat to the tissue on the cotton fabric weakens the fabric to the point where damage may occur when the garment is drycleaned. The fabric is apparently in good condition before drycleaning, wetcleaning or laundering, but flexing in drycleaning is sufficient to cause holes to form in the weakened areas.

How may this be controlled? Complete removal of the acid at the time the garment design is made can control this type of damage.

(Reference: NID Fabrics Fashions Bulletin FF-1)

FIGURE 128

The presence of sulphuric acid in the tissue used to outline the couched design and the application of heat to remove the tissue weakened the fabric to the point of disintegration.



COUCHED DESIGN (MECHANICAL DAMAGE)

Why does this occur? Mechanical as well as chemical damage may occur in the production of couched designs. If the pressure foot of the guide bar has rough edges, it may deflect the yarns of a sheer fabric as it is being stitched, resulting in fabric damage.

When does this occur? Often this damage is not evident before a garment is drycleaned. The damage is actually done when the de-

sign is made. Marks of definite and regular deflection of yarns from pressure foot or guide bar of the sewing machine as it moves across the face of the fabric become more apparent after drycleaning.

How may this be controlled? This type of damage may be controlled only by exercising care in stitching couched designs during manufacture.

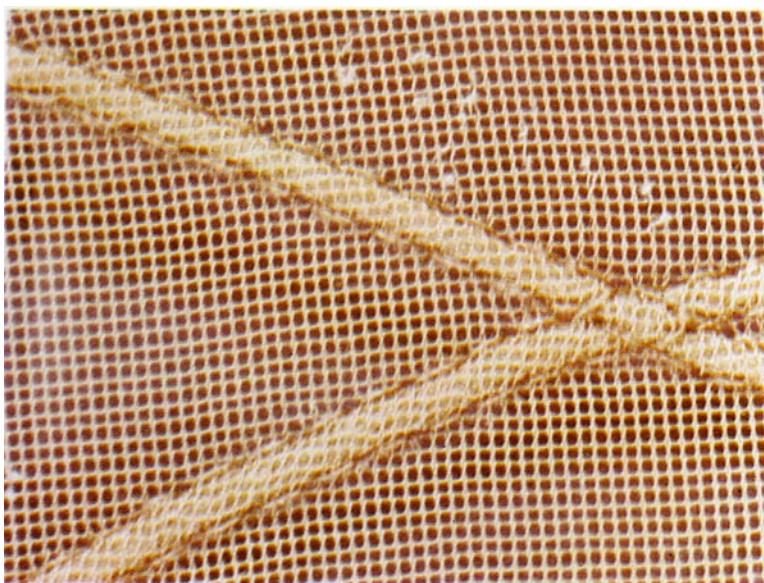


FIGURE 129

The rough edges of a pressure foot or guide bar deflected the yarns of the fabric as the design was being stitched. Sometimes this type of damage is not evident until after a fabric is drycleaned.

FIGURE 130

The fabric damage in this new linen fabric was caused by the cutting action of the embroidery needle.



DISCHARGE PRINTS

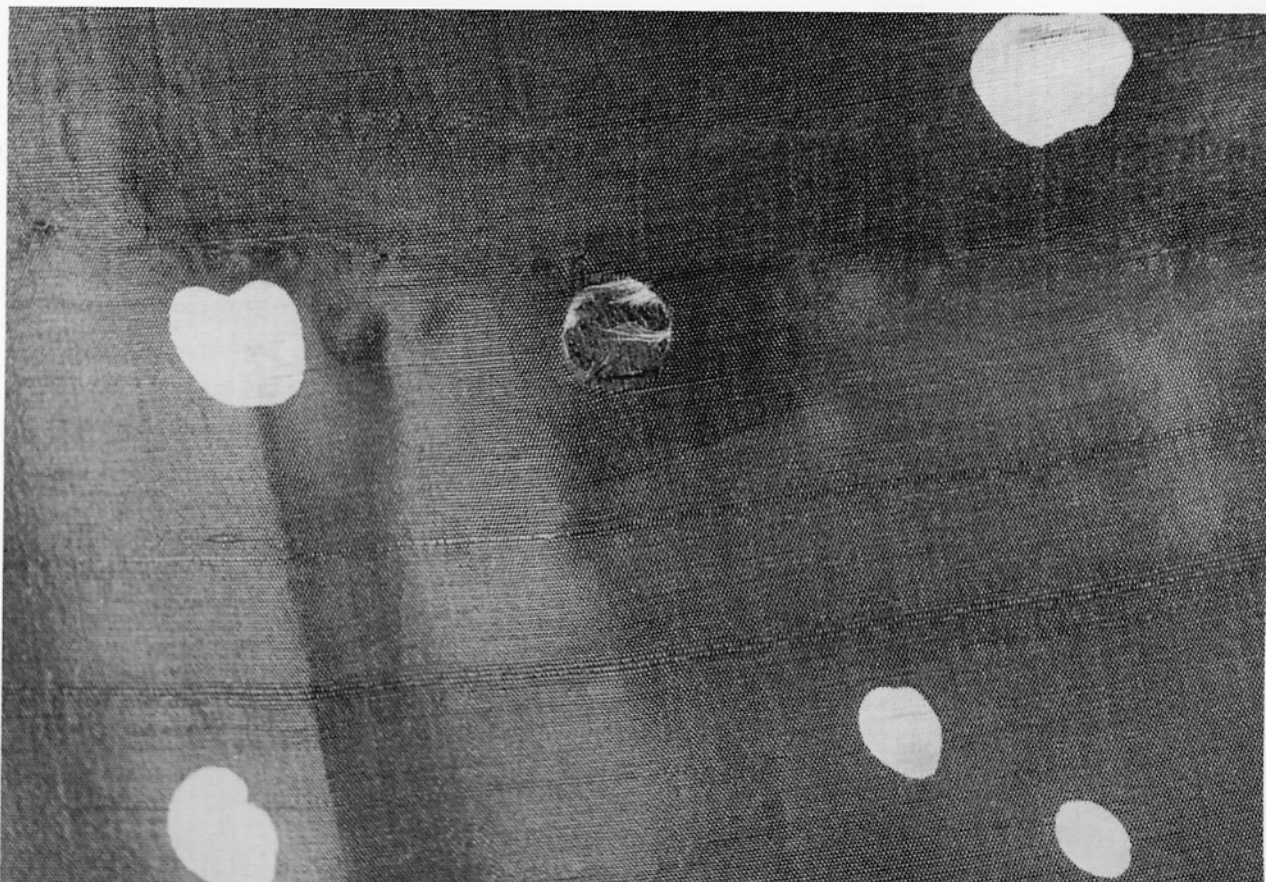
Why does this occur? A discharge print is made by dyeing a fabric and then printing on patterns of a reducing (discharge) agent. This discharge agent removes the color from the desired areas. In some cases the fabric is weakened and holes result. In other cases, oxidizing agents, or oxidizing effects, such as sunlight, will cause the white portion of the fabric to revert to the original color.

When does this occur? When the textile printer uses too strong a discharge compound or fails to properly rinse the agent from the fabric, the white areas of the fabric become weakened. These areas may develop into holes during wear or drycleaning.

How may this be prevented? This damage may be prevented by complete rinsing or neutralization of the fabric after printing.

FIGURE 131

The white area of a discharge print may be weakened by the chemicals which remove the dye to create the design of the fabric. Holes may develop.



EMBOSSED DESIGNS

Why does this occur? The degree to which the design is removed depends on the fiber content of the fabric and the method used in producing the design. There are two methods of making embossed designs on fabrics: (1) Mechanically—the design is pressed into the fabric under conditions of heat, moisture, and steam; (2) Chemically—the design is pressed into the fabric that has been pretreated with a resin. This helps to make the design more permanent. The mechanically produced designs are sensitive to heat, moisture, steam, and pressure.

When does this occur? Heat and moisture of perspiration under the arms, across the back, and around the waistline are sufficient to remove some embossed designs. The mechani-

cally produced designs may be partially removed in drycleaning, spotting, or finishing. In some instances, damaged areas may appear in the design. This occurs when the embossing roll has been pressed too tightly against the fabric so that it cuts some of the surface fibers. Then the cut yarns are pressed into the fabric during the embossing process so that they do not show up until after a period of wear and drycleaning.

How may this be controlled? Production of designs by chemical rather than mechanical methods will result in more durable designs. Controlled processing will eliminate cutting of the fabric during manufacture.

(Reference: NID Technical Bulletins T-227; T-249; Fabrics-Fashions Bulletin FF-9; FF-65; FF-81.)

FIGURE 132

Some embossed designs are not permanent to wear and drycleaning. Top: Original fabric. Bottom: The same fabric after drycleaning.

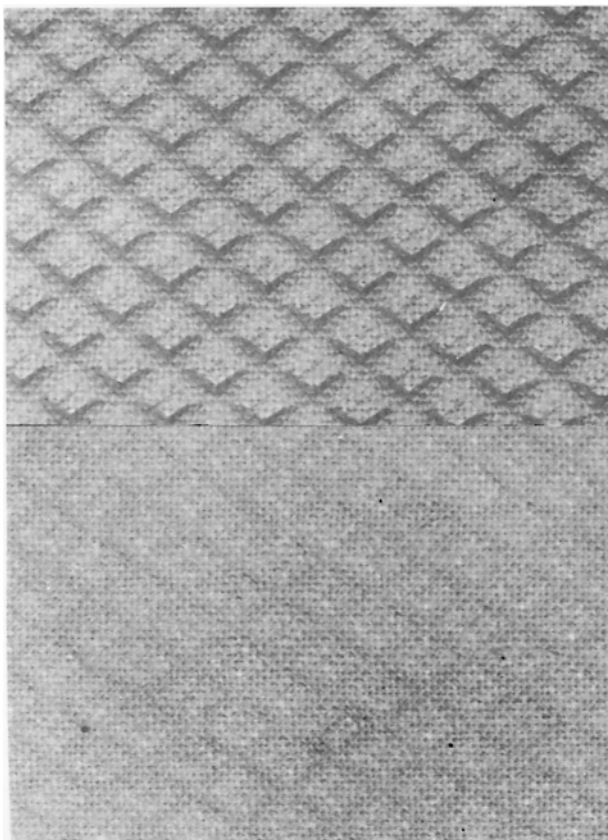
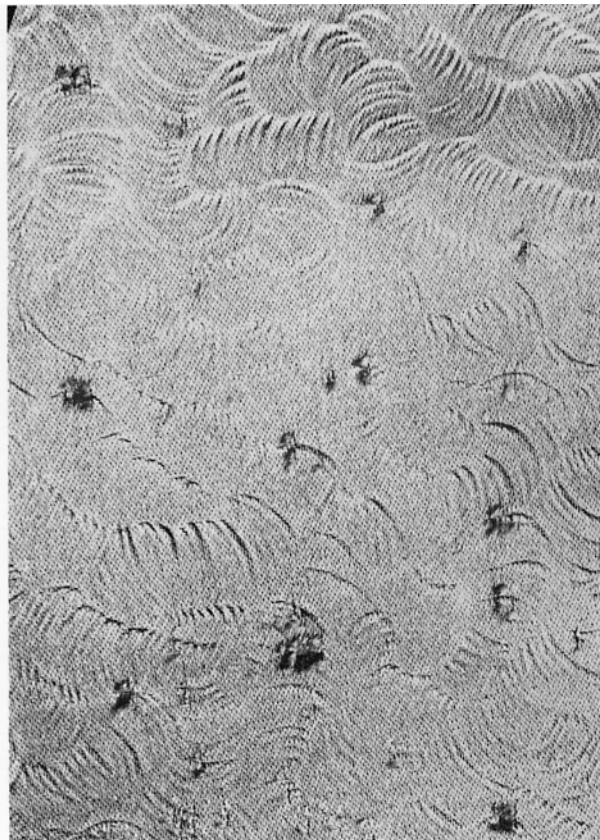


FIGURE 133

A fabric may be damaged because too much pressure was placed on the embossing roller in making the design.



EYELET EMBROIDERY DESIGNS

Why does this occur? When this type of design is produced, the textile manufacturer may use a clear lacquer in the area of the embroidery to prevent the fabric from ravelling when it is cut away to make the open design. During drycleaning and finishing, the eyelet may become discolored and the area may stiffen, since drycleaning softens the lacquer.

When does this occur? The softened lacquer picks up and holds loose soil or coloring matter during drycleaning. Some lacquers used for this purpose have a scorching tempera-

ture lower than that used to press rayon. The heat in pressing may turn the lacquered area brown in color.

How may this be remedied? The method used to remove the discoloration also removes the lacquer. The removal of the lacquer may result in the fabric fraying. This type of damage may be controlled through use of a stiffening product or lacquer which does not have these shortcomings.

(Reference: NID Technical Bulletin T-112)

FIGURE 134

The lacquer applied to a fabric in making an eyelet embroidered design may discolor in drycleaning.



FIGURE 135

Clear lacquer applied to the edge of lace and embroidery may discolor in drycleaning.



FLOCKED DESIGNS

Why does this occur? To understand why some flocked designs are removed in wear and drycleaning, it is necessary to understand how they are made.

- (1) A design is printed with an adhesive binder onto the surface of the fabric. Then tiny bits of cotton, rayon, or nylon flock or glitter, are blown onto the adhesive surface of the fabric. The particles or flock stick to the adhesive, forming a raised design.
- (2) The second type is made by an electrostatic process. The flock is actually pulled through the fabric and stands perpendicular to the surface.

Flocked designs may be applied to many different types of fabrics, ranging from sheer curtain and dress fabrics to heavy fabrics such as velvet and felt. Some of the adhesive binders used in making this type of design are affected by drycleaning solvents. Mechanical action also causes loss of flock in some designs.

When does this occur? The design may be removed by abrasion during wear, drycleaning, or spotting.

How may this be remedied? Serviceability is dependent on various steps in the original production of the fabric. A firmly woven base fabric provides a good foundation for a flocked design; a loosely woven fabric does not always produce a good base. Some of the adhesives are soluble in drycleaning solvent; others will withstand both water and solvent action. The heat-setting operation must be properly controlled in manufacture to produce good serviceability. Care must also be exercised in the drycleaning and in the removal of spots and stains from flocked fabrics. Repeated or prolonged drycleaning may remove some flocked designs. Some spotting reagents affect the adhesive used to hold the flock to the fabric surface.

(Reference: NID Technical Bulletins T-162; T-225; Fabrics-Fashions Bulletins FF-56; FF-58.)

FIGURE 136

The metallic particles applied to this fabric surface were partially removed in drycleaning. Some flock-designed fabrics dryclean satisfactorily.

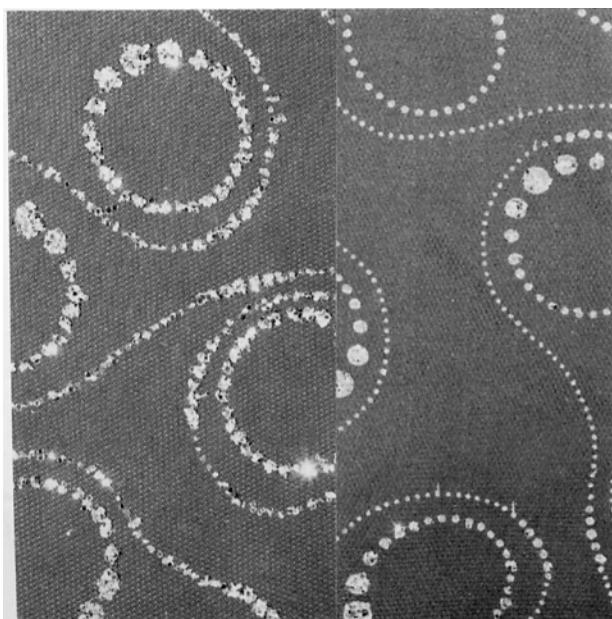


FIGURE 137

A typical flocked design. Note the fibers stand perpendicular to the surface of the fabric.

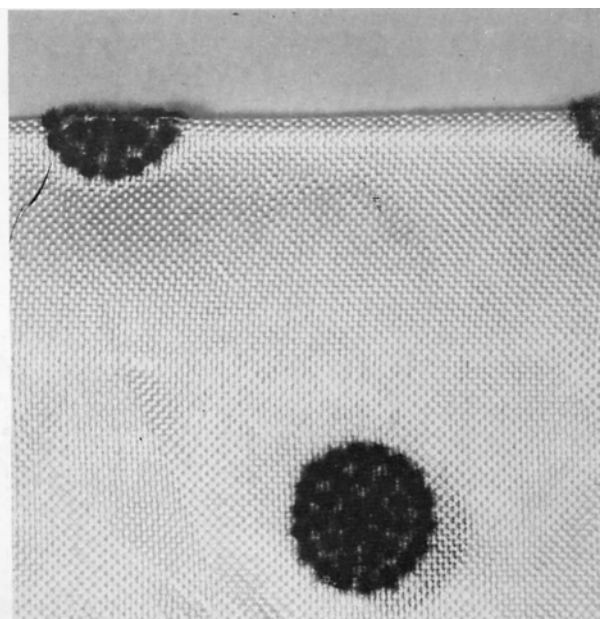


FIGURE 138

Flocked strips that resemble velvet ribbon are cemented to the fabric surface. The strips are removed with drycleaning because the adhesive used to cement them to the fabric was solvent-soluble. Left: Original. Right: After drycleaning.

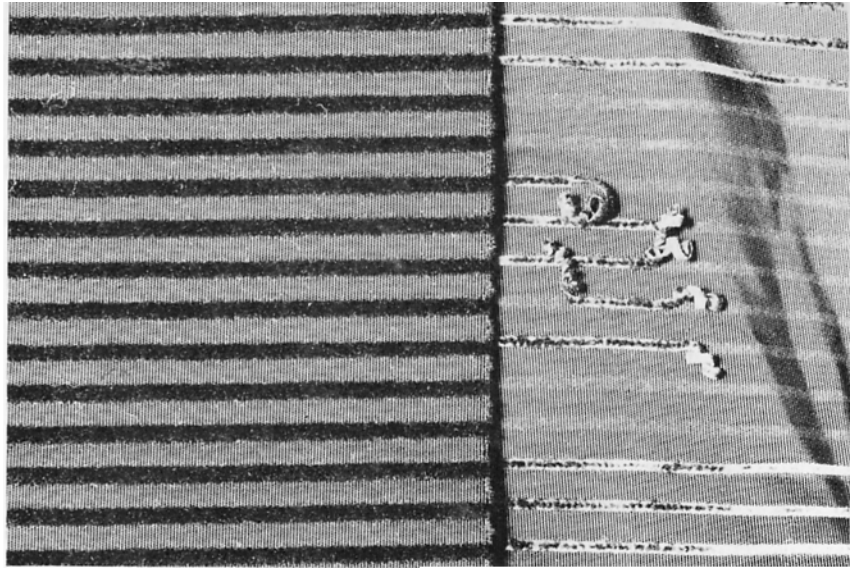


FIGURE 139

Black flocking is cemented directly to the surface of the fabric to create this design. Some of the flocking used was removed with drycleaning.



FIGURE 140

The flocking used to make this design has been removed in drycleaning. The resin binder remains, showing the outline of the original design. Left: original, Right: After drycleaning.



LACQUER STENCIL PRINTS

Why does this occur? Lacquer consists of a pigment, a nitrocellulose carrier, a solvent, and certain plasticizing oils. The textile lacquer is applied to the surface of the fabric through copper stencils cut for the particular design. In drying, the volatile materials evaporate, leaving the plasticizing oils to keep the lacquer supple on the face of the fabric. Some of the lacquers are affected by drycleaning solvents.

When does this appear? Drycleaning may remove the plasticizing oils. The result is that the fabric shrivels when it dries, and the lacquer design becomes brittle. When an at-

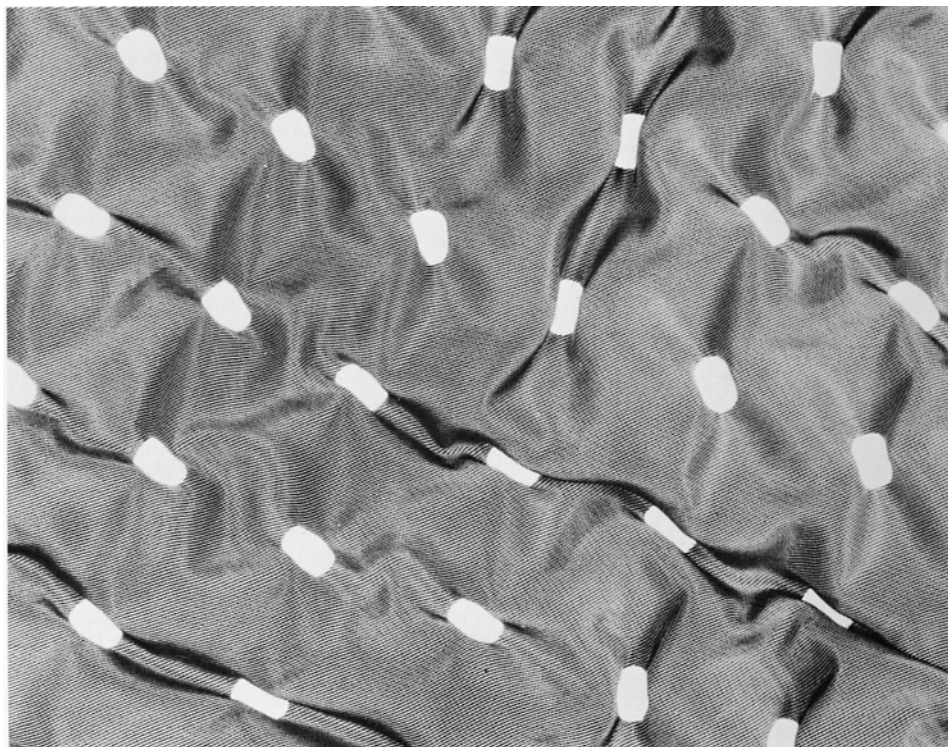
tempt is made to smooth out the shriveled fabric, the design cracks and peels from the base fabric.

How may this be controlled? There is no way to restore the flexibility of the hardened lacquer, once this occurs. Considerable progress has been made by the textile printers in recent years to improve the resistance of the lacquers to loss of the plasticizers in drycleaning. This problem may be overcome by the use of plasticizers that are not affected by drycleaning solvents.

(Reference: NID Technical Bulletins T-237; T-308)

FIGURE 141

Some lacquer stencil prints dryclean satisfactorily. Other are affected by drycleaning solvents. The plasticizing oils are removed, leaving the fabric in a shriveled condition, as illustrated.



MOIRE DESIGNS

Why does this occur? Performance of a moiréd fabric depends on the base fabric (fiber content and weave construction) and the finish of the fabric, the method of production and the conditions of production. Acetate and nylon fabrics can be given a permanent moiré because the design can be heat-set.

Rayon, cotton, and silk, or fabric combinations containing these fibers, need to be especially treated to give a permanent moiréd design. If these fabrics are not resin-treated, the design is not permanent to wear factors or drycleaning.

When does this occur? On the non-permanent type moiréd fabrics, loss of design may occur

in wear and use. The design may be removed by perspiration or by spilling a beverage on the fabric. Water spotting serves to remove some of these designs. Drycleaning, spotting, or steam finishing may also serve to dim or partially remove a non-permanent type moiré.

How may this be controlled? Permanency of moirés can be controlled by making moiréd design on fabrics that can be heat-set or resin-treated. Both methods produce designs that are durable to wear and drycleaning.

(Reference: NID Technical Bulletins T-187; T-216)

FIGURE 142

A moiréd design made on cotton, rayon, silk, or a combination of these fibers, is removed by water or steam unless the fabric is treated with a resin to make the design permanent. Top: Original. Bottom: After drycleaning.

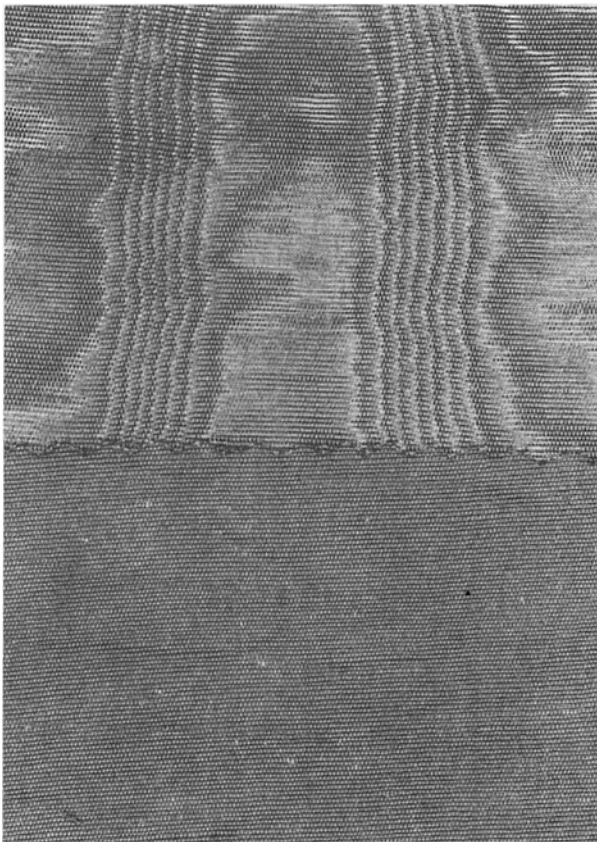


FIGURE 143

The engraving roller used to create this moiréd design has cut the yarns of the fabric. Sometimes this damage does not become evident until after the fabric is drycleaned.

