

Surface Decorations

Unit

14

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Learning Outcomes

On successful completion of this Unit the learner will be able to:

- Discuss laying and cutting fabric, marking-up techniques, shaping, gathers and seams
- Identify the various seams and explain under what circumstances they would be used
- Examine the different types of fasteners and discuss how buttonholes, sleeves, waistbands and hems finish off a garment

Clothing manufacture consists of cutting, sewing, fusing, a few alternative methods of joining fabrics, and pressing. Cutting breaks down into marker making, spreading and cutting. Apart from marker making, the decisions of the designer do not directly influence the technology and methods of the cutting room. The principles of garment construction concern the assembly of fabric parts to make a garment, the addition of working parts to enable the wearer to put on and take off the garment, the decoration of the garment by stitching on the surface of the fabric, the lining and interlining of the garment, and the insertion of pockets whether decorative or functional. For the purposes of crude classification, it may be useful to consider garments as a system of irregular tubes. A trouser is two tubes joined together at fork, fly and seat, a jacket is three tubes joined together at the armholes, a dress is three tubes and a skirt is one tube. Some tubes, such as a jacket, are not completely closed; indeed a tabard is merely two pieces of fabric joined by ties at the side. A typical tube is joined longitudinally by seams, finished at the bottom or hem, and finished at the top usually in a much more elaborate and eye-catching way.

Surface Decoration

The two largest groups of surface decoration are sewn decorations and pressed decorations.

The simplest form of sewn decoration is a line or lines of two thread lock stitch; closely parallel to a seam or an edge. Gathering draws up fabric by one or more threads to produce frills on edges or hems. Tucks are folds of fabric, holding fullness and used for shaping, appearing as pin tucks of very narrow width or graduated tucks on bodices, yokes and so on. Piping can be used on a seam or edge; it is made by covering cord of varying softness with fabric on the bias, or sometimes the lining fabric of a lined garment techniques are used to cover relatively large areas of the garment surface. Smocking is a way of stabilising fullness in even folds, often on the bodice. Shirring involves sewing with elastic thread to draw in waists and cuffs evenly and attractively. Quilting uses, commonly, two thread lockstitches,

in square or diamond patterns, sewn through two plies of fabric with wadding between. Wadding or batting are the names given to fibre fillings which supply insulation without great weight.

Pressing produces unsewn pleats and or creases in many forms. The simplest is the crease in trouser legs. Pleating is a special type of pressing, which aims to produce an array of creases of some durability and according to a geometrical pattern. This may be an overall pattern of small pleats (crystal pleating or accordion pleating), formed by pleating a whole roll of cloth.

Joining

One of the most important of the designer's decisions is the choice of stitch type to join or decorate the components of the garment referred to in most of the principles above. British Standard 3870: Part 1: 1982; Classification and Terminology of Stitch Types, is the standard reference for stitch types now available for use in garment construction. The British Standard describes 70 or so stitch types of which perhaps up to 20 are in regular use.

Garment Assembly

As with many products assembled from components, much of the technique of garment construction is designed to ensure the continuous, finished appearance of the product. Since fabric edges are often rough and unfinished and fray easily, they must be turned inside the garment. In order to sew a simple seam, the edges of two components are positioned face to face, stitched together continuously, and opened so that the face of the fabric is on the outside of the garment and the two edges of the seam on the inside.

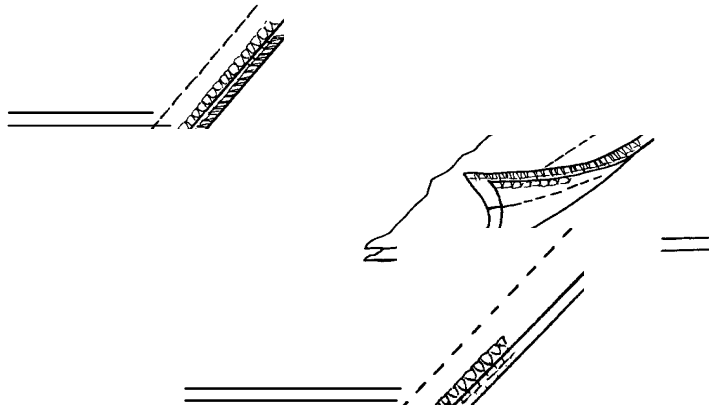


Fig 1. 'Plain seam' with edges separately overlocked.

Fig. 2 'Plain seam' with edges overlocked together.



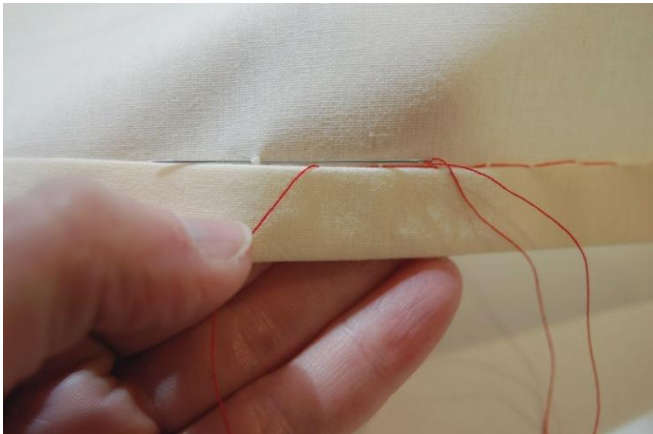
Welted or raised seam.

The type of raised, top stitched seam often used on skirt panel seams, trouser side seams and overcoat seams is also technically a lapped seam, but is often referred to as a welted seam or a raised seam (Good appearance usually means smooth joining with no uneven stitches, no wrinkles, no pucker and no fullness. Sometimes the designer will specify regular gathering or a controlled amount of ease or fullness to ensure a good fit. Performance of seams means strength, elasticity, durability, security and comfort, plus specialised objectives such as the water proofing of some rainwear seams and the flame proofing of

seams in children's nightdresses (a legal requirement). A seam in a close fitting garment must not present a noticeable ridge or roughness to the skin (the same applies to manufacturer's brand labels, a cause of concern for some time). This issue of economy arises because many seams can be constructed in a number of ways. Many of the more complex machines and stitch types allow short cuts to be taken, but both appearance and performance may vary. The end use of the garment and its price level both influence the decision on seaming methods.

Hemming

One method is to turn over the edge twice, thus enclosing the raw edge, and sew the inner turned edge to the outer fabric by two thread lockstitch, as in some shirts, or by blind stitch, as in some part-lined jackets. Alternatively the raw edge of the fabric may be finished by over locking, or covered by tape, turned up and secured by blind stitch. In a lined garment, the lining may be sewn to the edge of the turn-up, thus covering the raw edge. In addition the lining of a sleeve usually plays a part in holding the cuff turn-up in position, because the lining itself is fastened to the sleeve seam. In the bottom of a jacket the cloth turn-up is secured independently by blind stitch.



Trimmings

Trimmings are the materials needed to finish and decorate garments and accessories. The decorative materials include buttons, ribbons, laces, braids, and belts. The functional materials, often classified as findings, include thread, interfacing, zippers, tapes, and elastic. Thread, interfacing, and narrow fabrics are an extension of the textile industry.

Narrow Fabrics

Woven, knit, and braid trims are produced by narrow-fabric manufacturers. Narrow fabrics include narrow laces, ribbons, braids, other woven and knit decorative bands, pipings, and cordings. Narrow fabrics are either functional (such as tapes for inner construction) or decorative. The decorative- trims industry is a fashion-oriented business, although there are really no seasonal lines. The fashion for trims is cyclical, like any other fashion. When the Ethnic Look was popular, trims were in great demand. When a tailored look is popular, trims are less in demand. Trims are used most on children's wear and juniors and less on women's and men's wear.

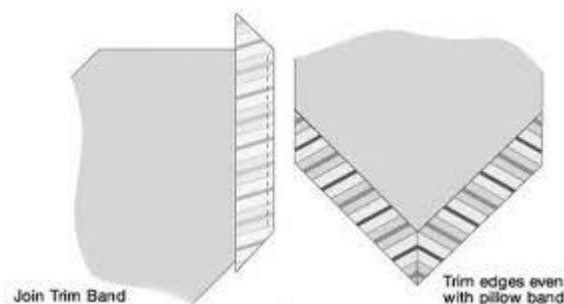
Trim Types

There is a great variety of trim types, specially made for different uses and methods of application:

Appliqué: is an individual motif that can be used singly or in multiples as a top trim. (It is also a technique whereby the edges of a motif are attached to fabric.)



Banding is narrow fabric having two straight or decorative edges that make it interchangeable for various top trims such as borders, edging, insertion, or accenting of a design line.



Beading is openwork trimming, usually lace or embroidery, through which a ribbon may be threaded. (Beading is not to be confused with beads used to create banding or edging for evening wear.)



Binding is a pre folded trim that encloses a raw edge, finishing and decorating it at the same time.



Edging is a trim having one decorative edge, generally used at a garment edge.



Galloon is lace, embroidery, or braid having two scalloped edges. It can be used as a banding, border, or design-line accent or can be applied just like insertion for a see-through effect. *Insertion* is a trim with two straight edges. (It is also a method of applying trim by inserting and sewing it between two cut edges of fabric.)



Medallions are a chain of trims with individual motifs that can be used continuously as banding, edging, or galloons, or clipped apart and used as appliqués.



Laces

The popularity of handmade laces led to the invention of lace-making machines. Although narrow-textile manufacturers primarily produce bands of lace, their methods can be applied as well to the production of lace fabric. Laces are used primarily for lingerie or bridal gowns, but like other decorative trims, they recurrently play an important role in fashion.



Ribbons

Ribbons are another category of narrow fabrics. Many ribbons are woven at one time on two-, four-, six-, eight-, sixteen-, twenty-four-, or forty-eight-space looms. The width of the ribbon and the volume of production determines the size of machine to be used. Satin and velvet ribbons are made much like their fabric counterparts. Grosgrain is woven on a belting or dobby loom. Ribbons can be yarn-dyed or solid colours can be dyed after weaving to match manufacturers' colour specifications. However, patterns such as stripes are woven with pre dyed yarns. Throwaway or craft ribbon is woven on a broadloom and cut into

bands. This type of ribbon is usually reserved for the gift-wrapping market. However, if the edges are embossed, it is used in less expensive garments and accessories.



Braids

This category includes not only braided trims but also woven and knitted flat decorative trims that are heavier than ribbons. Braided trims are made by interlacing three or more yarns to form a flat narrow fabric. They include soutache, middy braid, braided cord edging, and rickrack. Knitted braids, made by a few needles on a warp-knitting machine, include both flat and fold over braids. Woven braids, made on textile looms, include flat and fold-over braid and piping made with bias strips. Patterned braids, like ribbons, are produced on Jacquard looms.



Buttons and Button Holes

Buttons are an important aspect of a garment both for functional purposes and for fashion interest. When fashion emphasises detailing, the market becomes stronger for buttons. Most button lines follow fashion trends in both colour and styling.



Buttons are of many colours, shapes, sizes and materials, natural and man-made (there is a large body of antique button collectors). Traditionally, buttons were made from natural materials such as wood, metal, pearl, porcelain, and bone. Today, due to technological advances and the wide use of synthetics, less than 10 percent of all buttons sold in the United States are constructed of natural materials. Most buttons are now made of polyester or nylon because of the versatility of these materials and because they can be dyed to match fabric.

Polyester is produced in sheet form and the button shapes are cut out of the sheet. In the case of nylon, liquid nylon is poured into button moulds. Most metal buttons are made from brass; a stamped-out face is put together with a stamped-out back. Mother-of-pearl buttons are made from natural shells found in the waters around Japan, the Philippines, and Australia. Relatively expensive, they are often copied in plastic. Other materials used for buttons, such as leather, wood, and bone, are expensive and are also copied in plastic. There are basically two types of buttons: sew through (cheapest to apply to garments) and shank (with a loop on the back).



Buttonholes must be big enough to accommodate the button, may be eyed or straight, sewn with or without gimp, or piped, and may have separate bar tacks to close the end for a cleaner, more expensive finish on tailored garments. Buttonholes are usually vertical on shirts and blouses and eyed and horizontal on jackets. Buttons are used functionally at any

opening on the garment and decoratively anywhere, such as show buttons on double breasted jackets, and even comprehensively with pearly kings and queens.

Hooks and eyes perform the same function in miniature at the top of dress zips, for instance. Press studs, which suffered a decline in use after the introduction of the zip, are now used in a more sophisticated form as a convenience fastening in baby wear. Similarly they are widely used on denim jeans, skirts and jackets, together with tack buttons and rivets to strengthen the corners

Zippers

Zip fasteners are used to close the flies of trousers, the openings of skirts and dresses, the fronts and pockets of anoraks, and on baby wear and swimwear. The list could be extended almost indefinitely. Zips have two edges, which mesh together and resist pulling apart when stressed, embedded in a tape support which is sewn into the garment. The tapes are usually woven of cotton, polyester, polyamides or mixtures. The meshing component can be individual teeth of brass, or more cheaply aluminium, and also plastic. A common alternative is a continuous spiral of plastic, usually polyamide. An end stop secures the zip at the bottom. The slider opens and closes the zip and locks the zip by means of a stop resting between the teeth. Sliders may be decorative or serve a special function, such as a ball and chain or large ring on skiwear, which gloved hands can grasp.



The cloth is sewn to the zip tape very close to the teeth, with no stitching visible on the outside of the garment. This makes a zip opening which looks as much as possible like the extension of a sewn seam. A further type is the zip which can be opened at the lower end in cardigans and jackets, which have to be completely open rather than stepped into. This type of zip may have magnified plastic teeth, which emphasise the sporting image of the garment, and may offer a contrasting colour or some other form of decorative interest. Zippers are not only functional but can be decorative as well. Fashion sometimes calls for zippers to be shown on purpose.

Elastic

Elastic, while not strictly a fastening, both allows access and grips the body after the garment has been put on. The simplest forms of assembly are waistband elastic at the top of trousers, shorts and pyjamas, and at the bottom of casual jackets. The wholly elastic girdle requires stitching with the same elastic properties as the fabric, such as a simple zig-zag or three-stitch zig-zag. When elastic is used to grip the waist in a self-supporting trouser, it is completely enclosed in a tunnel formed by the fabric of the trouser band and band lining, with one end secured at the seat seam. The other end is covered with fabric and protrudes through a slot at the side waist. As the trouser is put on, the protruding end is drawn forward to be fastened by button and buttonholes, hook and bar or on a zip principle.

Lining

The inside of a garment must present a finished appearance. If a garment such as a blouse or dress has no lining, the customer expects the inside to be clean with seams that will not degrade during washing.

The purposes of a lining are to cover and protect the seams inside a garment, to provide an aesthetically appealing inside surface, and to present a sheer surface to other garments so that the lined garment is easy to put on and take off. When a lining is no more than an aesthetic cover for the inside of a garment, it must fit the outer fabric form in such a way that not only does it avoid disturbing the designed outward appearance but it must also itself appear clean and finished. In other words it must be slightly longer in all dimensions, without actually appearing to be so, and where the garment outer cloth stretches and relaxes to the movement of the wearer the lining must also move in the same way. For instance, the back of a jacket lining usually carries a vertical pleat to allow lateral movement of the fabric. Alternatively, lining can have a function as well as an aesthetic appeal in skirts and trousers. Where the outer fabric might be unstable in wear, the function of the lining is to assist, by its stability, in preserving the designed shape of the garment. Tweed trousers and skirts should be lined. A final objective of lining is to provide a backing for see-through cloths in lower garments. The finishing of the bottom of a lining follows the same principles as those of the outer cloth. In a free lining the bottom can be turned over twice and secured by two thread lockstitch. It may be fastened to the bottom of the cloth of, say, a topcoat by a few chains of thread 3-5 cm long.



Interfacings

Reinforcement is needed to give a garment support and to keep it in shape longer. The most essential kind of inner construction is the interfacing—a layer of fabric placed between the garment fabric and its facing. Interfacings have always been an important part of garment production, especially for structuring and support in tailored jackets and coats. They are also used to reinforce details such as collars, lapels, cuffs, pocket flaps, buttoning areas, and waistbands. Formerly, interfacings consisted primarily of linen, burlap, or horsehair. There have since been many developments, involving natural fibres, manmade fibres, and blends.



Types of interfacings

a) Stable interfacings are designed to add stability to heavier tailored garments. Stable interfacings can be either woven or nonwoven textiles. As with other textiles, woven interfacings are made by interweaving yarns at right angles. Nonwoven interfacings have no grain and therefore can be cut in any direction.

b) Stretch interfacings have been developed for knit fabrics, but because interfacings are inherently intended to stabilize, they really don't give, especially when fused (bonded by heat to fabric). Stable and stretch interfacings are available in both fusible and sew-in forms. Fusible interfacings have become important labour and time savers.

c) Weights of interfacings

Basically, interfacings are available in three weight categories: light, middle, and heavy. The choice depends on the weight of the garment fabric as well as the support and affect desired. The interfacing should never be heavier than the actual garment fabric.

Heavyweight fleece and thermo interlinings are also used in jackets and coats to give additional support and warmth.

Pockets

Pockets are not an integral part of the construction of a garment, but are additions which allow the wearer to carry coins, wallet, notebook, keys, comb, pens and so on. Traditionally women carry handbags and have fewer pockets, whereas men's garments demand pockets for every purpose, even up to the total of 14 commonly in a two piece suit. One property of a pocket is that it should not disturb the silhouette of a garment, while it adds decorative interest to the design. It must also be strong and of a size fit for its purpose.

Pockets may be divided into three broad classes according to the method of insertion: first the pocket which is simply sewn on to the surface of the garment, the patch principle; secondly the pocket which involves cutting through the surface of the fabric in order that the pocket bag may hang on the inside of the garment, the through principle; and thirdly the pocket which forms part of a seam, the inset principle. Pockets may also be analysed into the following parts essential to their function: the mouth, which allows the wearer's hand to enter the pocket; the bag; the facing, which is sewn on for aesthetic reasons to cover the joining of the pocket bag to the garment; and sometimes the flap to cover the pocket mouth.

Belts

There are two types of belt manufacturers. The *rack* trade sell to retailers, and the *cut-up* trade sell less expensive belts to apparel manufacturers to be used on dresses, jackets, skirts, or pants.

Garment belts are usually made of inexpensive materials such as bonded leather, vinyl, or ribbon. The belt material is either glued or sewn onto a stiff interfacing or backing. Stitched belts hold up longer than glued ones. Novelty belts can be made of anything in order to meet fashion requirements: webbing, plastic, braid, chain, rope, or even rubber. Belts can also be made "in house" by the garment manufacturer with buckles from the button supplier. Most of these belts are made from garment fabrics. Self-belts (made of the manufacturer's fabric) can also be made to order by a contractor.



Labels

Labels are the sources of identification for garments. They tell the consumer the name of the manufacturer and sometimes the designer. Some people are attracted to a particular manufacturer because of its advertising or the quality or fit of its garments. A label is thus very important to them. The label itself can help establish the company's image. A large woven label on satin ribbon denotes a higher-priced designer garment whereas a small printed label usually signifies a less expensive one. Woven labels are produced on a Jacquard loom-either a conventional (shuttle) loom that makes ribbon with finished edges, or a broadloom and the fabric is then cut into strips with hot knives that fuse the edges. The broadloom has the advantage of offering a wider assortment of colours; only two can be used on a shuttle loom. Labels are usually made on satin or twill and are sewn at the centre back of the neck, on the waistband, or on the inside jacket facing. There are four types of folds for hiding the ends of the ribbon. The choice depends on the shape of the label, its placement, and the sewing method. Pressure-sensitive labels have also been developed, but are not used extensively in the fashion industry.



A label showing fibre content, care instructions, and country of origin must also be included in the garment. This information can be part of the primary label but is usually separate, just underneath the manufacturer's or store label. There are pages of government regulations concerning fibre-content and country-of-origin labelling. The predominant fibre in the garment is listed first along with its content percentage, followed by the other fibres in decreasing order of their percentages. Care instructions are recommended and can be very specific. These instructions not only protect the consumer but also protect the

manufacturer against returns made by consumers who wash their sweaters with the laundry rather than sending them to the dry cleaners as instructed.

Care labels can be printed, or made in house on a Soabar machine. The Soabar machine allows changes to be made quickly as needed for smaller quantities. Hang tags, if used (they are not required), are the last item of identification added to a garment. They are used primarily as size identification or just to draw attention to the garment or to the fibre or fabric producer. Hang tags are printed and hung on threads from the side of the garment, so that the customer sees them first when looking at garments sideways on a hanger rack.

Finishing

Pressing makes a large contribution to the finished appearance of garments and thus their attractiveness at the point of sale. The objectives of pressing are:

- (1) To smooth away unwanted creases and crush marks.
- (2) To make creases where the design of the garment requires them. Creases are used not only on trouser legs and as an array in pleating, but front edges and sewn seams are in effect creases joined together. -
- (3) To mould the garment to the contour of the body, especially in tailored garments. The chief areas where this takes place are around the ends of darts, collars, shoulders, armholes and sleeve heads, and sometimes trouser legs. A general principle can be stated: where the body has a prominence extra length is created, and where the body has a hollow the fabric is shrunk.
- (4) To refinish the fabric after manufacturing the garment. The presser must remove glazing and lift up nap or pile flattened during under pressing-in short return the fabric to the richness intended by the designer.
- (5) During the manufacturing process under pressing prepares the garment for further sewing, makes it easier and makes better quality sewing possible.

Garments fall into five categories in relation to pressing:

- 1) Garments which require no pressing include foundation wear, stretch swimwear and dancewear, briefs and other items of underwear.
- (2) Garments which require minimal finishing are steamed and dried, using various equipment, simply to relax the crushes and light creases which may be present, these garments are of two types: single ply garments such as slips and nightgowns, often in knitted synthetics, and quilted or wadded garments such as anoraks.
- (3) Garments requiring ironing in under pressing and final pressing use simple but flexible equipment for an output with continuous style change, very often with small areas of

interlining and unlined. It would be uneconomic to install steam pressing with individually shaped bucks, because the quantity per style is too small.

(4) Extensive under pressing and final pressing requires the pressing open of seams and the setting of edges during manufacture. Large areas are moulded, there are large areas of interlining and the garments are usually lined. This group includes men's jackets, trousers and waistcoats, many skirts, women's tailored jackets and trousers, topcoats, trench coats and other lined rainwear. Radical style change in many of these garments is infrequent and a range of specialised, shaped presses has been developed, because the investment in them can be recovered over a relatively large quantity of garments.

One example is trouser pressing, conventionally carried out in two operations: legging on a flat press which sets and creases the legs, and topping in a series of lays around the top on a contoured press. If the trouser features a pleat, the leg crease has to be run into it accurately, probably in a separate lay. The problem is to provide firmly set creases at the same time as an even finish to the fabric overall, without impressions of pockets, fly and seams showing.

In addition the presser must set the crease in the correct position in order that it might hang centrally over the shoe of the wearer. Usually the pattern cutter designs the pattern in such a way that the presser achieves the desired effect by aligning the inside leg seam with the outside leg seam to the knee, and the inside leg seam then runs back a few centimetres at the crotch.

(5) The 'permanent press' process was developed some years ago as a way of providing good crease recovery after washing to cellulosic fabrics. It declined with the rise in popularity of polyester blends, where the polyester content assists crease recovery and improves fabric strength, while permanent press treatment reduces fabric strength. More recently, in an attempt to compete with man-made fibres the process has been marketed again with 100 per cent cotton fabrics of high enough initial strength to allow for some degradation. The process involves treating fabric during manufacture with a post-curing resin (in contrast to pre-cured, resinated, crease resistant fabric which would be cured at high temperature before delivery). The post-cure process is often used for trousers. Here the creases are formed and the garment pressed, and the trousers are then passed through an oven in order to cure the fabric at high temperature. When the garment is washed and dried it returns to the shape as cured, smooth across the panels and creased where required. It is the responsibility of the designer to select fabrics and trims which resist the high temperatures of the curing oven, particular problems being dye migration and shrinkage.

The Leather Industry

Leathers are preserved animal hides and skins. They are supplied mainly by the meat-packing industry. The world's largest producers of cattle hides are Russia, United States, and India; most goat-skins come from India and China and most sheep-skins from Russia, Australia, and New Zealand. Although the developing nations of Asia, Africa, and Latin America raise 60 percent of the world's cattle, 50 percent of its goats, and 33 percent of its sheep, they still have not realised the full potential of the sale of hides and skins. If their methods are modernised, the leather industry could shift from Western nations to these countries.

Types of leather

The many varieties of leather produced throughout the world are used in hundreds of different ways. Here is a list of the important leather types and their uses in fashion apparel and accessories.

a) Cattle

This group includes steer, cow, and bull hides, as well as calf skin and kip skin (the skin of large calves or small breeds of cattle). They are used for boot and shoe soles, heels, and uppers; handbags; belts; gloves; and garments.

b) Sheep

Sheepskins and lambskins are used for shoes, slippers, gloves, coats, hats, and handbags. Sheepskins are also the source of chamois, especially soft leather. *Goat* Goatskins and kidskins are used for shoe uppers, handbags, gloves, and garments.

c) Equine

Included in this group are horse, colt, ass, mule, and zebra hides. They are used for shoes, belts, gloves, and garments.

d) Buffalo

Domestic land and water buffalo hides provide leather for shoe soles and uppers and for handbags.

e) Reptile

This group includes alligator, crocodile, lizard, and snake, which are used for shoes, belts, and handbags.

Leather Processing

Hides and skins are differentiated by weight.

Skins come from smaller animals such as goats, deer, pigs, and calves, and weigh less than twenty-five pounds. Hides come from large animals such as steers, cows, buffaloes, and horses, and weigh over twenty-five pounds each.

The process by which hides and skins are made into leather can take up to six months and requires extensive equipment and skilled labour. There are three basic steps in leather-processing: pre-tanning, tanning, and finishing.

a) Pre tanning

Pre tanning is basically a cleaning process. The cured hides are soaked in water to rehydrate them and to remove dirt, salt, and some proteins. Hides and skins must also have hair and fat removed by additional treatments, which differ with each type of hide or skin. A cleaned hide is referred to as a Pelt

b) Tanning

Tanning involves the application of various agents that protect the hide or skin against decomposition. Treatment methods include soaking and dry-powder. The choice of agents depends largely on the end use of the leather. Tanning agents include vegetable products, oils, minerals, and chemicals. The roots, bark, wood, leaves, or fruits of various trees and shrubs provide the vegetable tannins, which produce a firm, heavy leather. Oil tannages, especially codfish oil, produce relatively soft and pliable leathers such as chamois. Mineral tannages, such as alum and especially chrome, are common, as are the newer chemical tans, such as sulfonic acid. Each tanning agent imparts special characteristics to leather. A combination of agents usually produces the best results.

c) Finishing

This step produces the desired thickness, moisture, and aesthetic appeal. After excess water and wrinkles are removed from the tanned leather, it is shaved or split into uniform

thickness and then dyed. Colour is applied to leather by brushing, or by tray, drum, spray, solvent, vacuum, or tank dyeing. Special effects may be created by dabbing on colour with a sponge, padding colour on through stencils, sprinkling, spraying, or tie dyeing. The dyed leather is treated with oils and fats, which provide lubrication, softness, strength, and waterproofing. The leather is then dried to fix the dyes and oils permanently. Dried leather is conditioned with damp sawdust to obtain uniform moisture content and then stretched for softness. Finally, the leather is coated with a seasoning or finish that improves its properties or character. For example, urethanes are used to add shine to patent leather. Leathers may be further treated with buffers, rollers, or presses to achieve glazed, matte, and embossed effects.

Leather Promotion and Marketing

Like the fibre and fabric producers, the leather industry promotes its products to apparel manufacturers, fashion editors, retailers, and the consumer. Promotion is done by the company or through trade associations such as the Tanners Council. Yet individual tanners, unlike fibre producers, are not known by the public. Retail advertising for leather products may mention the type of leather and the designer, but not the producer. Leather markets are concentrated in Western countries. The major exporters of finished leathers are France, the United Kingdom, Germany, the United States, and Italy. International trade in leather is approximately \$1 billion per year. Rising world population and incomes, along with new fashions for leather, have contributed to an ever-increasing demand for leather. However, the use of synthetics as leather substitutes is growing. In Western countries man-made products have supplanted 50 percent of the goods formerly made of leather. To protect and expand their markets, leather producers must constantly strive to develop new leather types and colours.

The Fur Industry

The fur industry is another important supplier of raw material for the fashion industry. *Fur* is the hairy coat of an animal. From prehistoric times, people have used animal fur for both its warmth and its attractive appearance. Because fur has long been associated with wealth and prestige, the demand for luxury has played a major role in the development of the fur industry.

This section discusses the characteristics of various animals furs, the processes involved in preparing fur pelts for their use in the manufacture of fur garments, and the marketing of furs to the manufacturers. The fur industry consists of three major groups: pelt producers or trappers, fur processors, and companies that produce fur garments for consumers.

Fur Sources

The industry must first obtain the pelts or skins of fur-bearing animals. Furs come from both wild animals and, more often, fur farms or ranches. The major animals raised or trapped for the fur business are (in descending order of importance):

- Mink, which is mostly bred
- Fox, trapped and bred
- Raccoon, trapped only
- Sable, imported from the Soviet Union and Canada, where it is trapped. Other furs, used in smaller quantities, include muskrat, skunk, opossum, lamb, and rabbit.

a) Wild Furs

Wild furs for commercial use come from over eighty countries on all six continents, but mainly from North America, which has the greatest variety (forty different types). In the late 1960s individuals, international organisations, and governments became concerned about the possible extinction of endangered species. As a result, some countries enacted legislation restricting or prohibiting the commercial use of particular animals, including certain monkeys, seals, and leopards. Wild fur-bearing animals are usually caught in baited traps. There is public concern about the agony animals suffer in this slow, painful death. In many areas seals are brutally clubbed to death, a practice that has caused great protests and efforts to prohibit the commercial use of wild-seal fur. In fact, any use of animal skins to beautify rather than warm our bodies raises moral issues.

b) Fur Farming

Fur farming has greatly increased the supply of fur for the fashion industry. General livestock methods are adapted to the keeping and breeding of animals for their pelts. Research in management, feeding, and breeding techniques has resulted in the production of quality furs in thousands of mutations.

c) Pelt Characteristics

Fur pelts are animal skins with the hairy body covering intact.



Pelts consist of a soft, dense undercoat called ground hair, under hair, or under wool, and a longer protective covering called guard hair or top hair. Persian lamb, although sold as a fur, has only under wool. Mink, however, is a true fur, containing both layers of hair. Furs have different wearing qualities. The most expensive will not necessarily wear the best. The following list categorizes furs by durability—an important concern to the consumer making such a major clothing investment.

Very durable:

- Otter
- Raccoon
- Mountain lamb
- Mink
- Beaver

Durable:

- Persian lamb
- Sable
- Dyed muskrat
- Alaska fur seal

Semidurable:

- Fox
- Opossum
- Nutria
- Marten

Semiperishable:

- Caracul
- Squirrel
- Rabbit
- Broadtail
- Ermine
- Mole
- Chinchilla

Marketing

Trappers normally sell their catches to collecting agents, who in turn sell them at auctions or to whole sale merchants. These merchants maintain stocks of furs, selling them to manufacturers as they are needed. Fur farmers and ranchers, however, sell their pelts at public auction directly to the wholesale pelt merchants or manufacturers, or to commission brokers (who buy for merchants or manufacturers). The fashion for a particular fur can drastically drive up its pelt price.

Processing

After manufacturers purchase pelts at auctions or from wholesale pelt merchants, they contract with fur dressing and dyeing firms to process them.

Dressing Fur skins are dressed to make them soft and pliable and to preserve their natural lustre.

Dressing processes vary with the nature and condition of the skin, but there are usually at least four distinct steps:

- preliminary cleaning and softening of the pelt;
- *fleshing* (cleaning) and stretching;
- *leathering*, a tanning process using oils or other solutions;
- and finishing.

Dyeing

Dressed pelts may be sent out to a dyer. The modern use of chemical compounds known as fur bases has enabled fur dyers to produce a wider variety of colours. Although not all furs are dyed, dyeing has led to the use of many skins that were unattractive in their natural colours. New colours are an important selling point among fur retailers. Dyers often keep their techniques secret from competitors to maintain a market edge. The chief international dyeing centres are in France, Belgium, London, Frankfurt, and New York City.

Suggested Further Readings:

- **Textile Surface Decoration: Silk and Velvet (By Margo Singer)**